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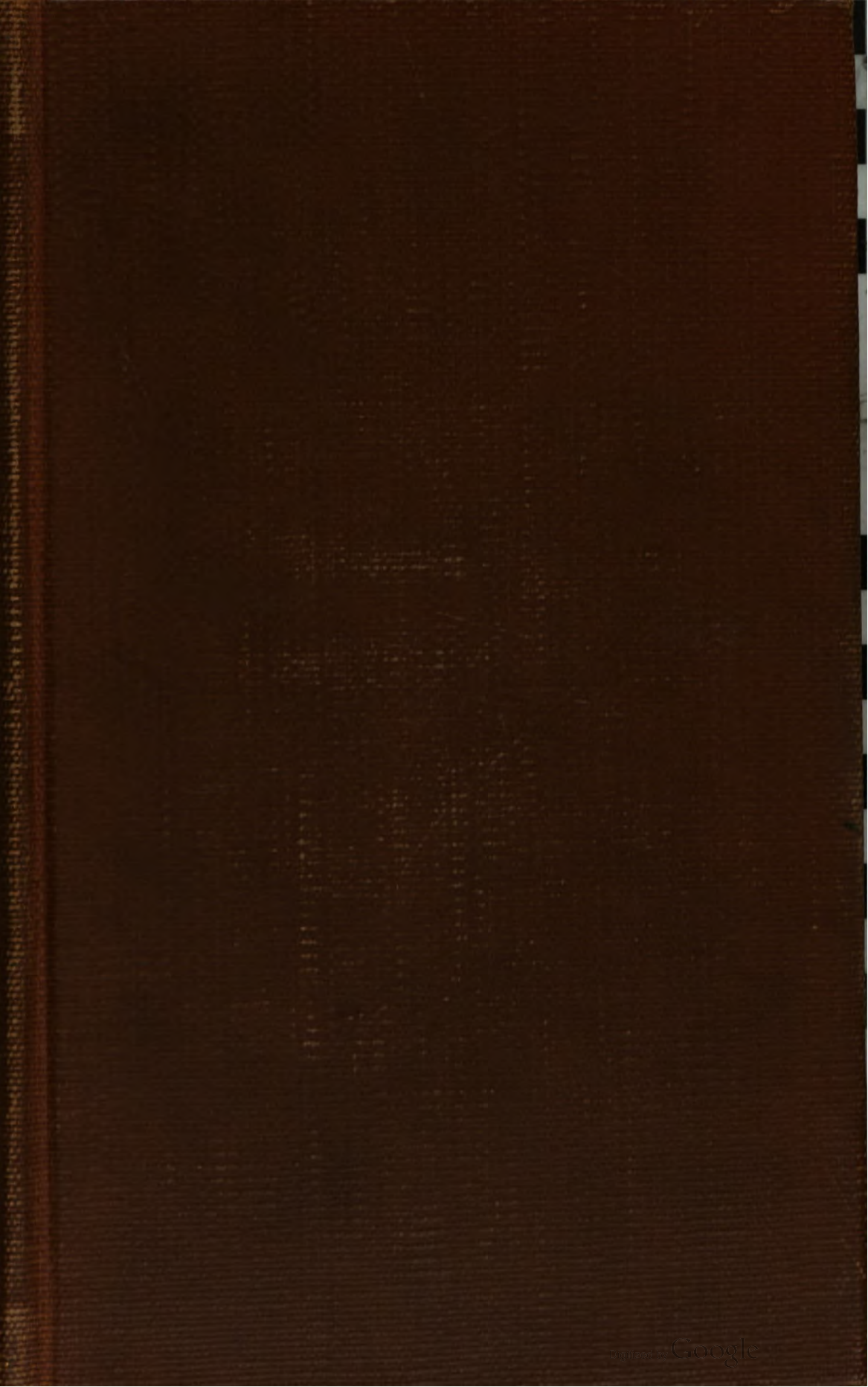
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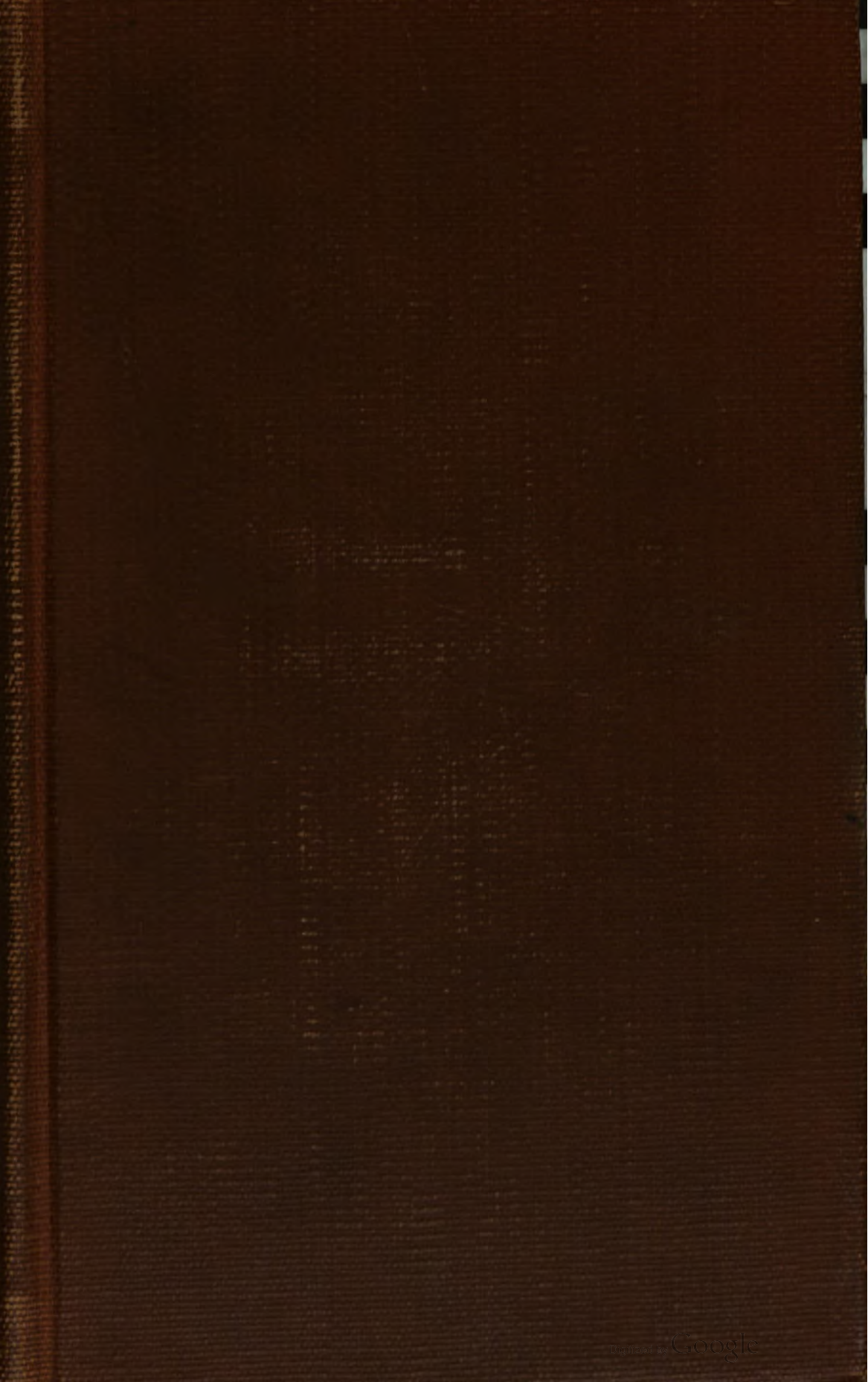
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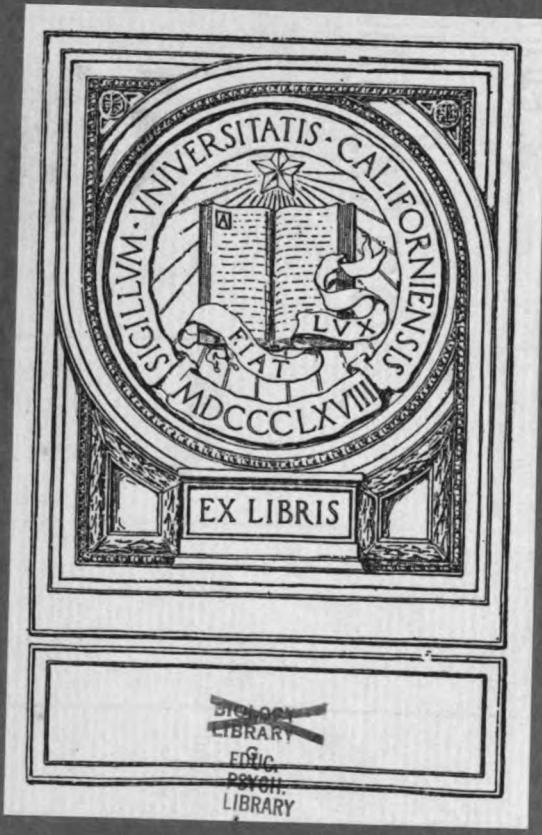
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"In adopting our title of the *Journal of Mental Science*, published by authority of the *Medico-Psychological Association*, we profess that we cultivate in our pages mental science of a particular kind, namely, such mental science as appertains to medical men who are engaged in the treatment of the insane. But it has been objected that the term mental science is inapplicable, and that the term mental physiology or mental pathology, or psychology, or psychiatry (a term much affected by our German brethren), would have been more correct and appropriate; and that, moreover, we do not deal in mental science, which is properly the sphere of the aspiring metaphysical intellect. If mental science is strictly synonymous with metaphysics, these objections are certainly valid; for although we do not eschew metaphysical discussion, the aim of this JOURNAL is certainly bent upon more attainable objects than the pursuit of those recondite inquiries which have occupied the most ambitious intellects from the time of Plato to the present, with so much labour and so little result. But while we admit that metaphysics may be called one department of mental science, we maintain that mental physiology and mental pathology are also mental science under a different aspect. While metaphysics may be called speculative mental science, mental physiology and pathology, with their vast range of inquiry into insanity, education, crime, and all things which tend to preserve mental health, or to produce mental disease, are not less questions of mental science in its practical, that is in its sociological point of view. If it were not unjust to high mathematics to compare it in any way with abstruse metaphysics, it would illustrate our meaning to say that our practical mental science would fairly bear the same relation to the mental science of the metaphysicians as applied mathematics bears to the pure science. In both instances the aim of the pure science is the attainment of abstract truth; its utility, however, frequently going no further than to serve as a gymnasium for the intellect. In both instances the mixed science aims at, and, to a certain extent, attains immediate practical results of the greatest utility to the welfare of mankind; we therefore maintain that our JOURNAL is not inaptly called the *Journal of Mental Science*, although the science may only attempt to deal with sociological and medical inquiries, relating either to the preservation of the health of the mind or to the amelioration or cure of its diseases; and although not soaring to the height of abstruse metaphysics, we only aim at such metaphysical knowledge as may be available to our purposes, as the mechanician uses the formularies of mathematics. This is our view of the kind of mental science which physicians engaged in the grave responsibility of caring for the mental health of their fellow-men may, in all modesty, pretend to cultivate; and while we cannot doubt that all additions to our certain knowledge in the speculative department of the science will be great gain, the necessities of duty and of danger must ever compel us to pursue that knowledge which is to be obtained in the practical departments of science with the earnestness of real workmen. The captain of a ship would be none the worse for being well acquainted with the higher branches of astronomical science, but it is the practical part of that science as it is applicable to navigation which he is compelled to study."—*Sir F. C. Bucknill, M.D., F.R.S. (Journ. Ment. Sci., vol. vii, 1861, p. 137).*



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1924	Mary Barkas.	—
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1926	G de M. Rudolf.	P. K. McCowan.
1927	Elizabeth Casson.	—
1928	F. R. Martin.	—

* Prize only.

MEDALS AND PRIZES.

The Gaskell Gold Medal and Prize.

(Value not less than £30.)



This Medal and Prize was established, at the Annual Meeting held on August 9, 1886, in honour of Samuel Gaskell, Esq., F.R.C.S., at one time Medical Superintendent of the County Asylum, Lancaster, and afterwards for 17 years a Commissioner in Lunacy. Upon his death on March 16, 1886, his sister, Mrs. Holland, gave £1000 to the Association, and other members of the family contributed further sums amounting to £340. The interest of this sum is given annually as a prize to the candidate who most distinguishes himself in an Examination in the subjects hereunder mentioned.

The examination must be held in England according to the terms of the Trust.

(1) Candidates must produce evidence: (a) Of having attained the age of 23. (b) Of having been qualified Medical Officers in one or more mental hospitals or clinics in psychiatry in the United Kingdom or elsewhere in the British Empire for at least two years. (c) Of possessing the Certificate in Psychological Medicine of this Association or a degree or diploma in Psychological Medicine of one of the Universities or Examining Boards having the power to grant medical qualifications registrable in the British Isles or elsewhere in the British Empire.

(2) Candidates will be examined in: (a) Psychology. (b) Anatomy, Histology and Physiology of the Nervous System, reproductive and endocrine glands, Pathology of the above, especially in relation to mental disorders. (c) The diagnosis, prognosis, treatment and legal relations of mental disorders. (d) Clinical cases.

The Bronze Medal and Prize.

(Value Ten Guineas.)



The Bronze Medal and Prize was established at the Annual Meeting held on August 2, 1882, and is awarded to any assistant medical officer of any mental hospital (public or private) for the best dissertation on any clinical or pathological subject relating to mental disorders.

The following is an abstract of the conditions :

- (1) The dissertation to be written in English.
- (2) Each dissertation to be distinguished by a motto or device, and accompanied by a sealed envelope containing the name and residence of the author, and having on the outside a motto or device corresponding with that on the dissertation.
- (3) The dissertation shall not exceed 10,000 words in length.
- (4) The dissertation and every accompanying drawing and preparation will become the property of the Association, to be published in the Journal at the discretion of the Editors.
- (5) The dissertations not approved, with their accompanying drawings and preparations, will, upon application within one year, be returned, together with the sealed envelopes unopened.
- (6) The dissertations not approved, with the accompanying drawings and preparations if not claimed within one year will become the property of the Association.
- (7) The dissertations for the year must be delivered to the Registrar before April 30.
- (8) No prize will be awarded if none of the dissertations is of sufficient merit.

Divisional Prizes for Assistant Medical Officers.

(Two Prizes of £10 and £5 respectively.)

The proposal to award Divisional Prizes under the conditions set out below emanated from the Irish Division and was adopted at the Annual Meeting held on July 13, 1911.

(1) Two prizes of £10 and £5 respectively will be awarded annually by the Association (provided sufficient merit be shown) for the best paper read during the preceding calendar year at a Divisional Meeting by an Assistant Medical Officer or Assistant Physician in a Psychiatric or Neurological Institution or Service. (*See also Regulation, No. 7.*)

(2) Competitors must be members of the Association.

(3) Only one paper by a competitor can be entered during any competitive year. The same applies to a paper entered by more than one author.*

(4) Only papers certified by the Secretary of the Division (in the absence of the Secretary, the Chairman of the Meeting) to have been read at a meeting of the Division and to be eligible for this competition can be entered. Divisional Secretaries are to withhold their certificates in cases where there has occurred material alterations or additions.

(5) Papers certified as eligible for the competition shall be forwarded to the Registrar not later than April 30 of the following year. They shall be submitted to the Examiners for the Certificate in Psychological Medicine for report and then adjudicated on by the President. Publication shall not invalidate a paper for adjudication.†

(6) The results shall be announced, and the prizes awarded, if any, by the President at the Annual Meeting in the year following the competitive year.

(7) Papers by more than one author can be entered and any prize awarded be divided between the authors.

(8) If in any competitive year one or two papers only are submitted for competition the Council may withhold either or both prizes; or it may, after considering the report of the Adjudicator, and if in its opinion the paper or papers are of outstanding merit, award a first or second or both prizes, at its discretion.

THE CERTIFICATE IN PSYCHOLOGICAL MEDICINE.

This Certificate was founded at the Annual Meeting held on August 4, 1885, and the first examinations were held in 1886.

Candidates must be at least twenty-one years of age, and must produce a certificate of having at least three months' clinical experience of mental disorders, or of having attended a course of lectures on insanity and the practice of a mental hospital (where there is clinical teaching) for a like period, or they shall give such proof of experience in mental disorders as shall, in the opinion of the President, be sufficient.

The examination is held yearly, and is in three parts: (1) Written. (2) Oral. (3) Practical.

Candidates must be registered under the Medical Act (1858) before the certificate is bestowed.

The fee for the examination is £3 3s., and intending candidates should communicate with the Registrar who will supply date and place of examination.

Candidates failing in the examination may present themselves at the next or subsequent examinations on payment of a fee of £1 1s.

* This means that the joint-authors (though separately eligible) cannot enter another paper in the competitive year.

† The original MS., certified in accordance with Regulation No. 4, is to be submitted. Only under exceptional circumstances can a certified reprint of a published paper be accepted, but a reprint, where possible, should accompany the certified original MS.

THE INSIGNIA OF THE NURSING CERTIFICATE.

The Certificate of Proficiency in Mental Nursing was founded at the Annual Meeting held on July 24, 1890.

The Nursing Medal.



The Nursing Badge.

The Nursing Badge was founded at the Annual Meeting held on July 11, 1928.



HONORARY CERTIFICATE IN MENTAL NURSING.

1928. H.R.H. PRINCESS MARY, VISCOUNTESS LASCELLES, D.B.E.

LIST OF CHAIRMEN

1841. Dr. Blake, Nottingham General Asylum.
 1842. Dr. de Vitré, Lancaster Asylum.
 1843. Dr. Conolly, Hanwell Asylum.
 1844. Dr. Thurnam, The Retreat.
 1847. Dr. Wintle, Warneford House.
 1848. William Ley, M.R.C.S., Littlemore Asylum.
 1851. Dr. Conolly, Hanwell Asylum.
 1852. Dr. Wintle, Warneford House.

LIST OF PRESIDENTS.

1854. A. J. Sutherland, M.D., St. Luke's Hospital, London.
 1855. J. Thurnam, M.D., Wilts County Asylum.
 1856. J. Hitchman, M.D., Derby County Asylum.
 1857. Forbes Winslow, M.D., Sussex House, Hammersmith.
 1858. John Conolly, M.D., Hanwell Asylum.
 1859. Sir Charles Hastings, D.C.L., Worcester.
 1860. J. C. Bucknill, M.D., Devon County Asylum.
 1861. Joseph Lalor, M.D., Richmond Asylum, Dublin.
 1862. John Kirkman, M.D., Suffolk County Asylum.
 1863. David Skae, M.D., Royal Asylum, Edinburgh.
 1864. Henry Munro, M.D., Brook House.
 1865. Wm. Wood, M.D., Kensington House.
 1866. W. A. F. Browne, M.D., Commissioner in Lunacy for Scotland.
 1867. C. A. Lockhart Robertson, M.D., Haywards Heath Asylum.
 1868. W. H. O. Sankey, M.D., Sandywell Park, Cheltenham.
 1869. T. Laycock, M.D., Edinburgh.
 1870. Robert Boyd, M.D., Wells Asylum.
 1871. Henry Maudsley, M.D., The Lawn, Hanwell.
 1872. Sir James Coxe, M.D., Commissioner in Lunacy for Scotland.
 1873. Harrington Tuke, M.D., Chiswick House.
 1874. T. L. Rogers, M.D., Rainhill Asylum.
 1875. J. F. Duncan, M.D., Dublin.
 1876. W. H. Parsey, M.D., Warwick County Asylum.
 1877. G. Fielding Blandford, M.D., London.
 1878. Sir J. Crichton-Browne, M.D., Lord Chancellor's Visitor in Lunacy.
 1879. J. A. Lush, M.D., Fisherton House.
 1880. G. W. Mould, M.R.C.S., Royal Asylum, Cheadle.
 1881. D. Hack Tuke, M.D., London.
 1882. Sir W. T. Gairdner, M.D., Glasgow.
 1883. W. Orange, M.D., State Criminal Lunatic Asylum, Broadmoor.
 1884. Henry Rayner, M.D., Hanwell Asylum.
 1885. J. A. Eames, M.D., District Asylum, Cork.
 1886. Sir Geo. H. Savage, M.D., Bethlem Royal Hospital.
 1887. Sir Fred. Needham, M.D., Barnwood House.
 1888. Sir T. S. Clouston, M.D., Royal Asylum, Edinburgh.
 1889. H. Hayes Newington, F.R.C.P., Ticehurst House.
 1890. David Yellowlees, M.D., Royal Asylum, Glasgow.
 1891. E. B. Whitcombe, M.R.C.S., City Asylum, Birmingham.
 1892. Robert Baker, M.D., The Retreat.
 1893. J. Murray Lindsay, M.D., Derby County Asylum.
 1894. Conolly Norman, F.R.C.P.I., Richmond Asylum, Dublin.
 1895. David Nicolson, C.B., M.D., State Criminal Lunatic Asylum, Broadmoor.
 1896. William Julius Mickle, M.D., Grove Hall.
 1897. Thomas W. McDowall, M.D., Northumberland Asylum.
 1898. A. R. Urquhart, M.D., James Murray's Royal Asylum, Perth.

1899. J. B. Spence, *O.B.E.*, M.D., Burntwood Asylum, Lichfield.
 1900. Fletcher Beach, M.B., London.
 1901. Oscar T. Woods, M.D., District Asylum, Cork.
 1902. J. Wigglesworth, M.D., Rainhill Asylum.
 1903. Ernest W. White, *C.B.E.*, M.B., City of London Asylum, Stone.
 1904. R. Percy Smith, M.D., London.
 1905. T. Outterson Wood, M.D., London.
 1906. Sir Robert Armstrong-Jones, *C.B.E.*, M.D., Claybury Asylum.
 1907. P. W. MacDonald, M.D., Dorchester County Asylum.
 1908. Chas. A. Mercier, M.D., Flower House.
 1909. W. Bevan-Lewis, M.Sc., West Riding Asylum, Wakefield.
 1910. Sir John Macpherson, M.D., Commissioner in Lunacy for Scotland.
 1911. Wm. R. Dawson, *O.B.E.*, M.D., Inspector of Lunatic Asylums, Dublin.
 1912. J. Greig Soutar, M.B., Barnwood House.
 1913. James Chambers, M.D., The Priory.
 1914-18. David G. Thomson, *C.B.E.*, M.D., Norfolk County Asylum.
 1918. John Keay, *C.B.E.*, M.D., Bangour Village.
 1919. Bedford Pierce, M.D., The Retreat.
 1920. William F. Menzies, M.D., Cheddleton Mental Hospital.
 1921. C. Hubert Bond, *C.B.E.*, M.D., Commissioner, Board of Control.
 1922. G. M. Robertson, M.D., Royal Mental Hospital, Morningside, Edinburgh.
 1923. Edwin Goodall, *C.B.E.*, M.D., Cardiff City Mental Hospital.
 1924. Michael J. Nolan, L.R.C.P. & S.Irel., Downpatrick Asylum.
 1925. Sir Frederick W. Mott, *K.B.E.*, M.D., London.
 1926. John R. Lord, *C.B.E.*, M.D., Horton Mental Hospital, Epsom.
 1927. Hamilton Marr, M.D., Commissioner, General Board of Control for Scotland.
 1928. J. Shaw Bolton, D.Sc., M.D., West Riding Mental Hospital, Wakefield.

LIST OF MAUDSLEY LECTURERS.

1920. Sir J. Crichton-Browne, LL.D., D.Sc., M.D., F.R.S.
 1921. Sir F. W. Mott, *K.B.E.*, LL.D., M.D., F.R.C.P., F.R.S.
 1922. Sir M. Craig, *C.B.E.*, M.A., M.D., F.R.C.P.
 1923. Charles Kirk Clarke, LL.D., M.D.
 1924. J. Carswell, F.R.F.P.S.
 1925. Joseph Shaw Bolton, D.Sc., M.D., F.R.C.P.
 1926. George M. Robertson, M.D., F.R.C.P.E., F.R.C.S.E.
 1927. Edwin Goodall, *C.B.E.*, M.D., F.R.C.P.
 1928. Sir John Macpherson, *C.B.*, M.D., F.R.C.P.E.
 1929. Charles E. Spearman, Ph.D., F.R.S.

HONORARY MEMBERS.

1918. Bevan-Lewis, William, M.Sc. Leeds, M.R.C.S., L.R.C.P. Lond., 22, Cromwell Road, Hove. (PRESIDENT, 1909-10.) (*Ord. Mem.*, 1879).
1900. Blumer, G. Alder, M.D., L.R.C.P. Edin., Superintendent, Emeritus Butler Hospital; 196, Blackstone Boulevard, Providence, R.I., U.S.A. (*Ord. Mem.*, 1890.)
1928. Bond, Sir Hubert, *K.B.E.*, D.Sc., M.D., C.M. Edin., F.R.C.P. Lond., M.P.C., Commissioner, Board of Control, Caxton House West, Westminster, S.W. 1. (*General Secretary*, 1906-12.) (PRESIDENT, 1921-22.) (Emeritus Lect. on Psychiat., Middlx. Hosp.) (*Ord. Mem.* 1892).
1900. Bresler, Johannes, Sanitätsrat Dr., Director of the Provincial Mental Hospital, Kreuzburg, Oberschlesien, Germany. (Editor of the *Psychiatrisch-neurologische Wochenschrift.*) (*Corr. Mem.*, 1896)
1928. Bleuler, Eugen, Prof. Fr., Zollikerstrasse 98, Zollikon bei Zurich, Switzerland.
1902. Brush, Edward N., M.D., Superintendent-Emeritus, Sheppard and Enoch Pratt Hospital, Towson, Maryland; Hamilton Road, Mount Washington, Baltimore, Md., U.S.A.
1925. Chamberlain, Rt. Hon. Arthur Neville, *M.P.*, 37, Eaton Square, London, S.W. 1.
1920. Colin, Dr. H., Secrétaire Général de la Société Médico-Psychologique de Paris, 132, Avenue du Roule, Neuilly s Seine (Seine), France.
1909. Collins, Sir Wm. Job, *K.C.V.O.*, B.Sc., M.D., M.S., F.R.C.S., 1, Albert Terrace, Regent's Park, London, N.W. 1.
1912. Considine, Thomas Ivory, L.R.C.P., F.R.C.S. Irel., Medical Superintendent, Central Criminal Asylum, Dundrum, co. Dublin.
1918. Cooke, Sir (Edward) Marriott, *K.B.E.*, M.B., Honorary Commissioner, Board of Control; 9, Colherne Court, South Kensington, S.W. 5. (*Ord. Mem.*, 1878.)
1902. Coupland, Sidney, M.D., F.R.C.P., Wootton Ridge, Boar's Hill, Oxford.
1876. Crichton-Browne, Sir J., LL.D., D.Sc., M.D. Edin., F.R.S., 45, Hans Place, London, S.W. 1. (PRESIDENT, 1878.) (*Ord. Mem.*, 1863.)
1924. Dawson, Lt.-Col. W. R., *O.B.E.*, B.A., M.D., B.Ch. Dubl., F.R.C.P. Irel., D.P.H., M.P.C., Chief Medical Officer, Ministry of Home Affairs, North Ireland, 26, Windsor Park, Belfast. (*Ord. Mem.*, 1894.)
1925. Drummond, Sir David, *C.B.E.*, M.A., D.C.L., M.D., *J.P.*, 6, Saville Place, Newcastle-on-Tyne.
1923. Ellis, Henry Havelock, L.S.A., 14, Dover Mansions, Canterbury Road, Brixton, London, S.W. 9.
1922. l'Hermitte, Dr. Jacques Jean, Médecin de l'Hospice Paul Brousse, Paris; 9, rue Marbeuf, Paris (VIII^e), France.
1924. McDougall, William, LL.D., M.B., F.R.S., Professor of Psychology in Duke University, U.S.A.
1928. Macmillan, Rt. Hon. Hugh, LL.D., K.C., 20, Abingdon Street, Westminster, S.W. 1.
1910. Macpherson, Sir John, *C.B.*, M.D., C.M., F.R.C.P. Edin., "Hillside," Clevee, nr. Bristol. (*Ord. Mem.*, 1886.) (PRESIDENT, 1910-11.)
1921. Maudsley, Sir Henry Carr, *K.C.M.G.*, *C.B.E.*, M.D., B.S., F.R.C.P., Consulting Physician, Melbourne Hospital, Victoria; 8, Collins Street, Melbourne.
1926. Meyer, Adolf, M.D., Psychiatrist in Chief, The Johns Hopkins Hospital, Baltimore, Md., U.S.A.
1922. Pactet, Dr. François Florentine, Médecin en chef de l'Asile de Villejuif; 94, Avenue de la République, Villejuif, Seine, France.

1927. Robertson, George Matthew, M.D., C.M., F.R.C.P. Edin., Hon. F.R.C.S. Edin., M.P.C., Professor of Psychiatry, University of Edinburgh; Tipperlinn House, Morningside Place, Edinburgh. (*Ord. Mem.*, 1887.) (*Vice-Chairman, Research and Clinical Committee since 1927.*) (PRESIDENT, 1922-23.)
1927. Rolleston, Sir Humphry Davy, *Bt.*, K.C.B., D.C.L., LL.D., D.Sc., M.D., F.R.C.P., Physician in Ordinary to H.M. the King; Regius Professor of Physic, University of Cambridge; Southfield, Trumpington Road, Cambridge.
1923. Rose, Lt.-Col. Sir Arthur, D.S.O., Chairman, General Board of Control for Scotland, 25, Palmerston Place, Edinburgh.
1924. Sandhurst, Rt. Hon. Lord, Barrister-at-Law; Lord Chancellor's Visitor in Lunacy, Royal Courts of Justice, Strand, London, W.C. 2.
1911. Semelaigne, Dr. René, Secrétaire des Séances de la Société Médico-Psychologique de Paris, 59, Boulevard de Montmorency, Paris (XVI^e), France. (*Corr. Mem.*, 1893.)
1927. Smith, Robert Percy, M.D., B.S.Lond., F.R.C.P.; 36, Queen Anne Street, London, W. 1. (*Ord. Mem.*, 1885.) (*General Secretary, 1896-97.*) (*Chairman Educational Committee, 1899-1903.*) (PRESIDENT, 1904-05.)
1922. Smith, William Charles Clifford, Esq., O.B.E., F.R.I.B.A., M.I.C.E., J.P., Dudley Lodge, Wallington, Surrey.
1901. Toulouse, Dr. Edouard, Médecin des Asiles de la Seine; 1, Rue Cabanis, Paris (XIV^e), France.
1923. Willis, Sir Frederick James, K.B.E., C.B., Church House, Bramley, Guildford.
1926. Winkler, C., M.D., 35, Heerenstraat, Utrecht, Holland. (*Corr. Mem.*, 1924.)

CORRESPONDING MEMBERS.

1928. Bliss, Malcolm Andrews, M.D., Consultant in Neuro-Psychiatry, St. Luke's Hospital; 301, Hinboldt Buildings, St. Louis, Minn., U.S.A.
1911. Boedeker, Geheimer Sanitätsthat, Prof. Justus Karl Edmund, Director, Zehlenhof Asylum; Margareten Strasse, 8, Berlin.
1923. Briggs, L. Vernon, M.D., 64, Beacon Street, Boston, Mass., U.S.A.
1897. Buschan, Sanitätsthat Dr. med et phil G., Friedrich Carlstrasse 7, Stettin, Germany.
1927. Charpentier, René, M.D., Secrétaire Permanent, Congrès des Médecins Aliénistes et Neurologistes de France et des Pays de langue française; 119, rue Perrouet, Neuilly s/Seine (Seine), France.
1904. Coroleu, Wilfrid, Medico forense del distrito de la Barceloneta, Aribau, 31, Barcelona, Spain.
1924. Cotton, Henry A., A.M., M.D., Medical Director, State Hospital, Trenton, New Jersey, U.S.A.
1896. Cowan, F. M., M.D., 109, Perponcher Straat, The Hague, Holland.
1911. Falkenberg, Dr. Wilhelm, Sanitätsthat, Direktor der Berliner Torenanstalt, Herzberge, Berlin-Lichtenberg.
1907. Ferrari, Giulio Cesare, M.D., Director, Manicomio Provinciale, Imola, Bologna, Italy.
1911. Friedländer, Prof. Dr. Adolf Albrecht, Haus Sonnblick, Littenweiler, bei Freiburg i/Baden, Germany.
1901. Gommès, Dr. Marcel, 5, Rue Parrot, Paris (XII^e)
1928. Kappers, C. O. Ariëns, M.D., Director, Dutch Central Institution for Brain Research, Amsterdam.

1928. Kirby, George H., M.D., Director, Psychiatric Institute, New York City, U.S.A.
1922. Kure, Prof. Schuzo, Tokyo University, Japan.
1909. Moreira, Prof. Dr. Juliano, Directeur General de l'Assistance aux Aliénés ; Praia da Saudade 288, Rio de Janeiro, Brazil.
1922. Morowoka, Dr. T., Owada, 102, Shibuya, Tokyo, Japan.
1928. Pighini Giacomo, M.D., Professor of Psychiatry and Director, Laboratori Scientifici Istituto Psichiatrico di S. Lazzaro, S. Maurizio (Reggio Emilia), Italy.
1909. Pilcz, Dr. Alexander, VIII/2 Alserstrasse 43, Vienna, Austria.
1922. Sano, Dr., Directeur de la Colonie de Gheel, Belgium.
1927. Targowla, René, M.D., *Chev. Leg. Hon.*, Ancien chef de clinique à la Faculté de Médecine de Paris; Médecin en chef des Asiles publics.
1928. Wimmer August, M.D., Professor of Psychiatry, University of Copenhagen, Denmark.

ORDINARY MEMBERS OF THE ASSOCIATION.

Alphabetical List of Ordinary Members of the Association on January 1, 1929, with the year in which they joined.

1928. Abd-el-Hakeem, Mohammed, Dipl. Med. and Surg., Cairo Med. Coll., D.P.M., Assistant Medical Officer, Mental Hospital, Khanka, Egypt.
1910. Adam, George Henry, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Malling Place, West Malling, Kent.
1919. Adey, J. K., M.B., C.M.Melb., Sunbury, Victoria, Australia.
1886. Agar, S. Hollingsworth, jun., B.A.Camb., L.S.A., M.R.C.S.Eng., Hurst House, Henley-in-Arden.
1923. Ahern, John Maurice, M.B., B.Ch.R.U.I., L.R.C.P.&S.Irel., 17, Walton Road, Liverpool.
1923. Ainsworth, Cyrus Gerald, M.A., LL.B., M.B., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Graylingwell Mental Hospital, Chichester.
1926. Albiston, Norman Arthur, M.B., B.S.Syd., D.P.M., 32, Darling Road, East Malvern, Victoria, Australia.
1924. Alexander, Douglas Reid, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, London County Mental Hospital, Bexley, Kent.
1899. Alexander, Hugh de Maine, M.D., C.M.Edin., Medical Superintendent, Kingseat Mental Hospital, Newmachar, Aberdeen.
1928. Alexander, James William MacGregor, M.B., Ch.B.Glasg., Assistant Medical Officer, City Mental Hospital, Mapperley Hill, Nottingham.
1899. Allman, Dorah Elizabeth, M.B., B.Ch.R.U.I., Assistant Medical Officer, District Asylum, Armagh.
1926. Anderson, John Ford, M.D., C.M.Aberd., M.R.C.P.Lond., L.R.C.S. Edin., 54, Finchley Road, London N.W. 8.
1898. Anderson, John Sewell, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, City Mental Hospital, Willerby, Hull.
1918. Anderson, William Kirkpatrick, M.D., Ch.B., F.R.F.P.S.Glasg., 2, Woodside Crescent, Glasgow. (Lect. on Ment. Dis., Andr. Coll., Glasg.)
1912. Annandale, James Scott, M.B., Ch.B.Aberd., D.P.M., Senior Assistant Physician, Royal Mental Hospital, Aberdeen.
1904. Archdale, Mervyn Alex., M.B., B.S.Durh., D.P.M., Medical Superintendent, Sunderland Mental Hospital, Ryhope.
1905. Archdall, Mervyn Thomas, L.S.A., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., St. Denys, New Milton, Hants.
1882. Armstrong-Jones, Sir Robert, C.B.E., D.Sc.Wales, M.D., B.S., F.R.C.P. Lond., F.R.C.S.Eng., F.S.A., D.L., J.P., Lord Chancellor's Visitor-in-Lunacy, 9, Bramham Gardens, London, S.W. 5 (and Plas Dinas, Carnarvon, North Wales). (*Gen. Secretary*, 1897-1906.) (PRESIDENT, 1906-7.) (Gresham Prof. Physic.)
1927. Atkin, Isaac, M.D., M.R.C.S., L.R.C.P.Lond., D.P.M., Junior Resident Medical Officer, Hants County Mental Hospital, Knowle, Fareham.
1910. Auden, George Augustus, M.A., Ph.D.Birm., M.D., B.Ch.Camb., F.R.C.P.Lond., D.P.H., F.S.A., School Medical Officer, Education Office, Council House, Margaret Street, Birmingham.
1891. Aveline, Henry Talbot Sydney, M.D.Durh., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Somerset and Bath County Mental Hospital, Cotford, nr. Taunton. (*Secretary*, S.W. Division, 1905-11.)
1922. Back, Frederick, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Sunderland Mental Hospital, Ryhope.

1926. Bailey, Reginald, M.B., Ch.B.Glasg., Assistant Medical Officer, Bangour Village, Uphall, West Lothian.
1909. Bain, John, M.A., M.B., Ch.B.Glasg., Medical Superintendent, Derby Borough Mental Hospital, Rowditch.
1913. Bainbridge, Charles Frederick, M.B., Ch.B.Edin., Assistant Medical Officer, Devon County Mental Hospital, Exminster.
1906. Baird, Harvey, M.D., Ch.B.Edin., Medical Superintendent, Periteau House, Winchelsea, Sussex.
1922. Banbury, Percy, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, West Park Mental Hospital, Epsom.
1922. Barclay, Rachel Mary, L.L.B., M.D.Edin., Dipl. Psych., 2, W. Crosscauseway, Edinburgh
1904. Barham, Guy Foster, M.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Claybury Mental Hospital, Woodford Bridge, Essex.
1919. Barkas, Mary Rushton, M.Sc.N.Z., M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, The Lawn, Lincoln.
1927. Barkas, Thomas Cook, O.B.E., M.B., B.S.Durh., Resident Medical Officer, Middleton Hall, Middleton St. George, co. Durham.
1923. Barnes, Francis Gregory Lawson, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Ewell Colony, Epsom.
1910. Bartlett, George Norton, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Derby County Mental Hospital, Mickleover. (*Secretary, S.W. Division, 1916-22.*)
1901. Baskin, J. Loughed, M.D.Brux., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Bagliffe, Bagley Wood, Kennington, Berks.
1902. Baugh, Leonard Dieckmann Hamilton, M.B., Ch.B.Edin., The Pleasaunce, York.
1874. Beach, Fletcher, M.B., F.R.C.P.Lond., 5, De Crespigny Park, Denmark Hill, London, S.E. 5. (*Secretary, Parliamentary Committee, 1896-1906.*) (*General Secretary, 1889-1896.*) (*PRESIDENT, 1900-01.*)
1892. Beadles, Cecil F., M.R.C.S., L.R.C.P.Lond., Gresham House, Egham Hill, Egham, Surrey.
1921. Beaton, Thomas, O.B.E., M.D., B.S., M.R.C.S., F.R.C.P.Lond., Medical Superintendent, City Mental Hospital, Milton, Portsmouth. (*Assistant Editor, 1926-27, and Co-Editor of Journal since 1927.*) (*Lect. on Ment. Dis., Bethlem Royal Hosp.*)
1913. Bedford, Percy William Page, M.D., Ch.B.Edin., Dipl. Psych., Medical Superintendent, Dorset County Mental Hospital, Herrison, near Dorchester.
1909. Beeley, Arthur, M.Sc.Leeds, M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.H., Assistant Medical Officer of Health, East Sussex; Windybank, King Henry's Road, Lewes, Sussex.
1922. Bell, Andrew Allan, M.B., Ch.B., F.R.F.P.S.Glasg., D.P.M., Pathologist and Assistant Medical Officer, Govan District Asylum, Hawkhead, Cardonald, N.B.
1914. Bennett, James Wodderspoon, M.R.C.S., L.R.C.P.Lond., The Old Manor, Salisbury.
1914. Benson, John Robinson, L.R.C.P.Lond., F.R.C.S.Eng., Resident Physician, Fiddington House, Market Lavington, Wilts, and Laverstock House, Salisbury.
1899. Beresford, Edwyn H., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Tooting Bec Mental Hospital, Tooting, London, S.W. 17.
1922. Berkeley-Hill, Owen Alfred Rowland, M.A., M.D., B.Ch.Oxon., M.R.C.S., L.R.C.P.Lond., Lt.-Col. *I.M.S.*, Medical Superintendent, Ranchi Mental Hospital for Europeans, Kanké, Bihar and Orissa, India.
1912. Berncastle, Herbert Melbourne, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Croydon Mental Hospital, Upper Warlingham, Surrey.

1927. Berry, R. J. A., M.D.Edin. & Melb., F.R.C.S., F.R.S.Edin., Professor of Anatomy, University of Melbourne, Victoria, Australia.
1920. Birch, William Somerset, M.C., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, The Mental Hospital, Bridgetown, Barbados, British West Indies.
1894. Blachford, James Vincent, C.B.E., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., M.P.C., Milverton House, Long Ashton, Somerset.
1998. Blair, David, M.A., M.D., C.M.Glasg., Medical Superintendent, Lancashire County Mental Hospital, Prestwich, Manchester. (Lect. on Ment. Dis., Univ. of Manchester.)
1919. Blake, Stanley, L.R.C.P.&S.Irel., Assistant Medical Officer, Grange-gorman Mental Hospital, Dublin.
1918. Blandford, Walter Folliott, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Devonshire Club, London, S.W. 1.
1900. Bolton, Joseph Shaw, D.Sc., M.D., B.S., F.R.C.P.Lond., Medical Director, West Riding Mental Hospital, Wakefield. (Prof. of Ment. Dis., Univ. of Leeds.) (PRESIDENT, 1928-29.)
1922. Bostock, John, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Lauriston, Wickham Terrace, Brisbane, Queensland, Australia.
1918. Bower, Cedric William, L.M.S.S.A., Joint Medical Officer, Springfield House, near Bedford.
1877. Bower, David, M.D., C.M.Aberd., L.R.F.P.S.Glasg., Springfield House, near Bedford. (*Chairman, Parliamentary Committee, 1907-1910.*)
1917. Bowie, Edgar Ormond, L.A.H.Dubl., D.P.H., Assistant Medical Officer of Health; 14, Highfield Road, Doncaster.
1896. Boycott, Arthur N., M.D., M.R.C.S., L.R.C.P.Lond., Gombards House, St. Albans, Herts. (*Secretary, S.E. Division, 1900-05.*)
1926. Boyd, William, M.B., Ch.B.Edin., D.P.H., D.P.M., Medical Superintendent, Fife and Kinross District Asylum, Cupar, Fife.
1898. Boyle, A. Helen A., M.D.Bru.x., L.R.C.P.&S.Edin., 9, The Drive, Hove, Brighton.
1928. Boyle, Eric Patrick, M.B., Ch.B.Edin., Assistant Medical Officer, Durham County Mental Hospital, Winterton, Ferryhill.
1926. Braithwaite, Joseph, M.B., Ch.B.Edin., D.P.M., Crannock, Linlithgow.
1922. Bramwell, Edwin, M.D., F.R.C.P.Edin. & Lond., F.R.S.Edin., 23, Drumsheugh Gardens, Edinburgh. (Physician, Royal Infirmary, and Prof. of Clin. Med., Univ. of Edin.)
1911. Brander, John, M.D., Ch.B.Edin., M.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, London County Mental Hospital, Bexley, Kent.
1919. Branthwaite, Robert Welsh, C.B., M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., D.P.H., Stoke Park, Stapleton, Bristol.
1925. Brennan, Richard Dominick, M.B., B.Ch.N.U.I., Assistant Medical Officer, District Mental Hospital, Waterford.
1922. Brock, Arthur John, M.D., Ch.B.Edin., Medical Superintendent, Garth Hill House, North Queensferry, Fife.
1924. Brown, Basil William, M.B., B.S.Lond., L.M.S.S.A., D.P.M., The Priory, Roehampton, London, S.W. 15.
1924. Brown, George, M.B., B.Ch.Glasg., D.P.M., Assistant Medical Officer, Fountain Mental Hospital, Tooting Grove, S.W. 17.
1905. Brown, Harry Egerton, O.B.E., M.D., Ch.B.Glasg., M.P.C., Physician-Superintendent, Mental Hospital, Pietermaritzburg, Natal.
1908. Brown, Robert Dods, M.D., Ch.B., F.R.C.P.Edin., D.P.H., Dipl. Psych., Medical Superintendent, Royal Mental Hospital, Aberdeen.
1912. Brown, William, M.D., C.M.Glasg., M.P.C., Medical Officer, Stoke Park Colony; 1, Manor Road, Fishponds, Bristol.
1916. Brown, William, D.Sc.Lond., M.A., M.D., B.Ch.Oxon., 88, Harley Street, London, W. 1. (Wilde Reader in Mental Philosophy, Univ. Oxford.) (Lect. on Psycho-therapy, King's Coll. Hosp.)
1917. Bruce, Alexander Ninian, D.Sc., M.D., F.R.C.P.Edin., 8, Ainslie Place, Edinburgh. (Lect. on Neurol., Univ. of Edin.)

1928. Bruce, David Kennedy, M.B., Ch.B.Glasg., Medical Officer, Storthes Hall Mental Hospital, Kirkburton, near Huddersfield.
1893. Bruce, Lewis C., M.C., M.D., F.R.C.P.Edin., M.P.C., Medical Superintendent, District Asylum, Druid Park, Murthly. (*Secretary Scottish Division, 1901-1907.*) (*Co-Editor of Journal, 1911-1916.*)
1927. Brunlees, Oswald, L.R.C.P. & S.Edin., Assistant Medical Officer, Isle of Wight Mental Hospital, Whitcroft, Newport.
1913. Brunton, George Llewellyn, M.D., Ch.B.Edin., Medical Superintendent, City Mental Hospital, Mapperley Hill, Nottingham.
1920. Bryce, William Henderson, M.B., C.M.Edin., c/o Kenlaw House, Colinsburgh, Fife.
1912. Buchanan, William Murdoch, M.B., Ch.B.Glasg., Medical Superintendent, Kirklands Mental Hospital, Bothwell, Lanarkshire. (*Secretary, Scottish Division since 1920.*)
1912. Burke, Joseph Dominick Gabriel, M.B., B.Ch.R.U.I., Deputy Medical Superintendent, St. Audrey's Hospital, Melton, Suffolk.
1928. Burke, Noel Hawley Michael, M.R.C.S.Eng., L.R.C.P.Lond., D.P.M., D.M.R.E.Camb., 183, Elm Park Mansions, S.W. 10.
1924. Bushe, Charles Kendal, O.B.E., B.A., M.D., B.Ch.Dubl., Surg.-Capt., R.N., c/o Admiralty Medical Department, London, S.W. 1.
1921. Buzzard, Sir Edward Farquhar, K.C.V.O., M.A., M.D., B.Ch.Oxon., F.R.C.P.Lond., Physician to H.M. The King; Regius Professor of Medicine, Oxford University; 85, Banbury Road, Oxford.
1928. Calder, Flora Hannah Macdonald, M.A., M.B., Ch.B.Edin., Assistant Medical Officer, Lancashire County Mental Hospital, Winwick, Warrington.
1921. Caldicott, Charles Holt, M.B.E., M.B., M.R.C.S., L.R.C.P.Lond., Grantbourne, Chobham, Surrey.
1928. Caldwell, William Alexander, M.R.C.S., L.R.C.P.Lond., D.P.M., The Pathological Laboratory, Maudsley Hospital, Denmark Hill, London, S.E. 5.
1925. Cameron, Donald Ewan, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer, Glasgow Royal Mental Hospital, Gartnavel.
1927. Cameron, Donald Hugh, M.A., M.D., Ch.B.Edin., D.P.M., Assistant Medical Officer, Gateshead Mental Hospital, Stannington, Northumberland.
1928. Cameron, Viola Cameron, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Springfield Mental Hospital Annexe, Kingston Road, New Malden, Surrey.
1894. Campbell, Alfred Walter, M.D., C.M.Edin., M.P.C., Macquarie Chambers, 183, Macquarie Street, Sydney, New South Wales.
1897. Campbell, Robert Brown, M.D., C.M., F.R.C.P.Edin., Medical Superintendent, Stirling District Mental Hospital, Larbert. (*Secretary, Scottish Division, 1910-20.*)
1927. Carey, Catherine, M.B., B.Ch.N.U.I., Assistant Medical Officer, Farnham House, Finglas, co. Dublin.
1905. Carre, Henry, L.R.C.P.&S.Irel., Medical Superintendent, Glasgow District Mental Hospital, Woodilee, Lenzie, N.B.
1891. Carswell, John, F.R.F.P.S.Glasg., L.R.C.P.Edin., J.P., 19, Manor Road, Bournemouth.
1928. Cassin, Patrick Joseph, M.D., B.Ch.N.U.I., D.M.D., Assistant Medical Officer, Mental Hospital, Kilkenny, Ireland.
1922. Casson, Elizabeth, M.D., Ch.B.Brist., D.P.M., Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.
1928. Cates, Henry Joseph, M.D.Lond., Medical Superintendent, Northwoods House, Winterbourne, Bristol.

1888. Chambers, James, M.A., M.D.R.U.I., M.P.C., The Priory, Roehampton, London, S.W. 15. (*Assistant Editor, 1900-05, and Co-Editor of Journal, 1905-1914.*) (*Treasurer since 1917.*) (PRESIDENT, 1913-14.)
1911. Chambers, Walter Duncanon, M.A., M.D., Ch.B., F.R.C.P.Edin. M.P.C., Physician Superintendent, James Murray's Royal Asylum; Murray House, Perth.
1928. Chapman, Theonic Renée, M.B., B.S.Durh., Assistant Medical Officer, Northumberland Mental Hospital, Morpeth.
1928. Chennell, Eileen Anne M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Cheddleton Mental Hospital, near Leek, Staffs.
1923. Chevens, Leslie Charles Frederick, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Cheshire County Mental Hospital, Parkside, Macclesfield.
1917. Chisholm, Percy, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Queen Mary Hospital, Hammersmith, New Zealand.
1907. Chislett, Charles Game Angus, M.B., Ch.B., F.R.F.P.S.Glasg., Superintendent, Stoneycetts, Chryston, Lanark.
1921. Cholmeley, Mountague Adye, M.R.C.S., L.R.C.P.Lond., D.P.M. Medical Superintendent, Stretton House, Church Stretton, Salop.
1920. Clark, R. M., M.B., C.M.Edin., Medical Superintendent, Lancashire County Mental Hospital, Whittingham, Preston.
1907. Clarke, Geoffrey, M.D.Lond., Medical Superintendent, London County Mental Hospital, Bexley, Kent.
1907. Clarkson, Robert Durward, B.Sc., M.D., C.M., F.R.C.P.Edin., Medical Officer, Scottish National Institute for the Education of Imbecile Children; The Park, Larbert, Stirlingshire.
1925. Cobb, Geoffrey F., M.R.C.S., L.R.C.P.Lond., D.P.M., M.P.C., 6, Westbury Road, Barking.
1900. Cole, Sydney John, M.A., M.D., B.Ch.Oxon., Medical Superintendent, Wilts County Mental Hospital, Devizes.
1906. Collier, Walter Edgar, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Kent County Mental Hospital, Barming Heath, Maidstone.
1903. Collins, Michael Abdy, O.B.E., M.D., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Kent County Mental Hospital, Chartham Downs. (*Hon. General Secretary, 1912-18.*) (*Vice-Chairman, Educational Committee, 1919-27.*)
1910. Conlon, Thomas Peter, L.R.C.P.&S.Irel., Resident Medical Superintendent, District Mental Hospital, Monaghan.
1921. Connell, Ernest Henry, M.B., Ch.B.Edin., D.P.M., 7, Greenhill Gardens, Edinburgh.
1920. Connell, Oliver George, M.C., L.R.C.P.&S.Irel., Medical Superintendent, St. Andrew's Hospital, Thorpe, Norwich.
1914. Connolly, Victor Lindley, M.C., M.B., B.Ch.Belf., D.P.M., Medical Superintendent, Hants County Mental Hospital, Park Prewett, Basingstoke.
1927. Cook, L. C., M.R.C.S., L.R.C.P., D.P.M., Assistant Medical Officer, London County Mental Hospital, Bexley, Kent.
1910. Coombes, Percival Charles, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Surrey County Mental Hospital, Netherne, nr. Coulsdon.
1927. Cooper, James Woodman Astley, L.S.A., L.R.C.S., L.R.C.P., Middleton Hall Private Mental Hospital, Almora Hall, Middleton St. George, Durham.
1928. Copeland, Cecil Leonard, M.B., Ch.B.Liverp., Assistant Medical Officer, West Riding Mental Hospital, Wakefield.
1903. Cormac, Harry Dove, M.B., M.S.Madras, D.P.M., Medical Superintendent, Cheshire County Mental Hospital, Parkside, Macclesfield; Parkside House, Macclesfield. (Lect. on Ment. Dis., Univ. of Manch.)
1891. Corner, Harry, M.D., M.R.C.S., L.R.C.P.Lond., M.P.C., Brook House, Southgate, London, N. 14.
1917. Costello, Christopher, M.B., B.Ch.N.U.I., Assistant Medical Officer, Portrane Mental Hospital, Donabate, Dublin.

1910. Coupland, William Henry, L.R.C.S.&P.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Royal Albert Institution; Albert House, Haverbreaks, Lancaster.
1911. Cox, Donald Maxwell, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Hereford County Mental Hospital, Burghill.
1926. Coyne, William Joseph, M.D., B.Ch.N.U.I., D.P.M., Assistant Physician, Chiswick House, Chiswick, London, W. 4.
1924. Craig, Alexander, M.B., Ch.B.Aberd., D.P.M., Assistant Physician, Royal Mental Hospital, Aberdeen.
1893. Craig, Sir Maurice, C.B.E., M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., M.P.C., 4, Cambridge Gate, Regent's Park, London, N.W. 1. (*Secretary, Educational Committee, 1905-8; Chairman, Educational Committee, 1912-19.*)
1924. Craig, Roy Neville, M.D.Durh., M.R.C.S., L.R.C.P.Lond., D.P.M., Heath Court, Barton Road, Torquay.
1925. Creak, Eleanor Mildred, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, The Maudsley Hospital, Denmark Hill, London, S.E. 5.
1911. Crichlow, Charles Adolphus, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Bangour Village, Uphall, Linlithgowshire.
1915. Crosthwaite, Frederick Douglas, M.B., Ch.B.Edin., D.P.H., Physician Superintendent, Mental Hospital, Queenstown, Cape Province, South Africa.
1923. Crow, Norah Annie, M.A.Edin., M.D., B.S.Lond., "Kingsclere," Harrington Road, Brighton.
1919. Cuthbert, James Harvey, M.B., Ch.B.Edin., D.P.M., Medical Superintendent, West Ham Mental Hospital, Goodmayes, Essex.
1907. Daniel, Alfred Wilson, B.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Hanwell Mental Hospital, Southall Middlesex. (*Secretary, Educational Committee, 1920-27.*)
1926. Darlington, Arthur, B.A., M.B., Ch.B.Dubl., D.P.H., D.P.M., Deputy Medical Superintendent, Bath Mental Hospital, Wells.
1896. Davidson, Andrew, M.D., C.M.Aberd., M.P.C., 221, Macquarie Street, Sydney, New South Wales.
1925. Davidson, Thomas Wishart, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer and Pathologist, City Mental Hospital, Humberstone, Leicester.
1922. Davie, Thomas Macnaughton, M.C., M.D., Ch.B.Edin., D.P.M., Barrister-at-Law, Medical Superintendent, East Riding Mental Hospital, Beverley, Yorks.
1928. Davies, Stuart Wyndham, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Kent County Mental Hospital, Maidstone.
1921. Davies-Jones, Charles William Saunderson, M.B., Ch.B.Edin., First Assistant Medical Officer, County and City Mental Hospital, Littlemore, Oxford.
1920. Dawson, William Siegfried, M.A., M.D., B.Ch.Oxon., M.R.C.P.Lond., M.R.C.S.Eng., D.P.M., Prof. of Psychiat., University of Sydney, New South Wales, Australia.
1926. Deane, Frederick John, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Down County Mental Hospital, Downpatrick.
1925. Delany, J. J., L.R.C.P.&S.Irel., 68, Wellington Road, Dublin.
1901. De Steiger, Adele Isabella, M.D.Lond., "Dormansland," Lingfield, Surrey.
1905. Devine, Henry, O.B.E., M.D., B.S., F.R.C.P.Lond., M.R.C.S.Eng., M.P.C., Medical Superintendent, Holloway Sanatorium, Virginia Water, Surrey; The Ridge, Virginia Water, Surrey. (*Assistant Editor, 1916-1920, and Co-Editor of Journal, 1920-27.*) [Lect. on Psychol., Maudsley Hosp.]
1904. Devon, James, L.R.C.P.&S.Edin., F.R.F.P.S.Glasg., Prison Commissioner for Scotland; 11, Rutland Square, Edinburgh.
1924. Devon, Martha Davidson, L.R.C.P. & S.Edin., L.R.F.P.S.Glasg., Assistant Medical Officer, Stirling District Mental Hospital, Larbert.

1925. Dhunjibhoy, Jal Edulji, M.B., B.S.Bomb., Capt., *I.M.S.*, Medical Superintendent, The Indian Mental Hospital, Kankè, Ranchi, Bihar and Orissa, India; c/o Lloyds Bank, Cox's Branch, Bombay.
1921. Dick, Alexander, *M.C.*, M.B., Ch.B.Glasg., Assistant Medical Officer, Glasgow District Mental Hospital, Woodilee, Lenzie, N.B.
1922. Dickson, James, *M.C.*, M.B., Ch.B.Edin., Browne House, Hemstell Road, Southchurch, Southend-on-Sea.
1915. Dillon, Frederick, M.D., Ch.B.Edin., Medical Superintendent, Northumberland House, Finsbury Park, London, N. 4.
1909. Dillon, Kathleen, L.R.C.P.&S.Irel., Assistant Medical Officer, District Asylum, Mullingar.
1905. Dixon, J. Francis, M.A., M.D., B.Ch.Dubl., M.P.C., Medical Superintendent, City Mental Hospital, Humberstone, Leicester.
1928. Dodds, George Edward, M.B., B.Ch.Dubl., Assistant Medical Officer, St. Edmondsbury, Lucan, co. Dublin.
1879. Dodds, William John, D.Sc., M.D., C.M.Edin., 19, Marina Road, Prestwick, Ayrshire.
1892. Donelan, John O'Connor, L.R.C.P.&S.Irel., M.P.C., Medical Superintendent, Grangegorman Mental Hospital; St. Dymphna's, North Circular Road, Dublin. (Lect. on Ment. Dis., Univ. of Dubl.)
1928. Douglas-Morris, Ernest Mannering, L.M.S.S.A., Neurologist, Ministry of Pensions Clinic, Nottingham; Belvoir Nursing Home, Ashton-on-Trent, Derby.
1919. Drake-Brockman, Henry George, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, St. Luke's Hospital, Middlesbrough.
1916. Drummond, William Blackley, M.D., C.M., F.R.C.P.Edin., Medical Superintendent, Baldovan Institution, Dundee.
1921. Drury, Kenneth Kirkpatrick, *M.C.*, B.A., M.D., B.Ch.Dubl., D.P.M., Senior Assistant Medical Officer, Stafford County Mental Hospital; "Swift Brook," Corporation Street, Stafford.
1907. Dryden, Arthur Mitchell, M.B., Ch.B.Edin., Medical Superintendent, Glasgow District Mental Hospital, Gartloch, Gartcosh.
1902. Dudgeon, Herbert Wm., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Director of the Lunacy Department of Public Health, and Director of Abbassia Mental Hospital, Egypt.
1899. Dudley, Francis, L.R.C.P.&S.Irel., Medical Superintendent, Cornwall County Mental Hospital, Bodmin.
1926. Duncan, Archibald Glen, M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Essex County Mental Hospital, Severalls, Colchester.
1922. Duncan, William Arthur, M.B., Ch.B.Edin., Assistant Medical Officer, East Sussex County Mental Hospital, Hellingly, Sussex.
1923. Dunne, John, M.B., B.Ch.R.U.I., D.M.D., Grangegorman Mental Hospital, Dublin.
1922. Dunscombe, Nicholas Dunscombe, M.A., M.B., B.Ch.Camb., L.M.S.S.A., D.P.H., Barrister-at-Law, Assistant Medical Officer of Health; 10, Denzil Avenue, Southampton.
1903. Dunston, John Thomas, M.D., B.S.Lond., Commissioner for Mental Hygiene, Union of South Africa, and Medical Superintendent, West Koppies Mental Hospital, Pretoria, South Africa.
1923. Dwyer, Patrick Joseph, M.B., B.Ch.R.U.I., Deputy Medical Superintendent, Grangegorman Mental Hospital, Dublin.
1906. Eager, Richard, *O.B.E.*, M.D., Ch.B.Aberd., M.P.C., Medical Superintendent, Devon County Mental Hospital, Exminster.
1891. Earls, James Henry, M.D., M.Ch.R.U.I., L.S.A., D.P.H., M.P.C., Barrister-at-Law: Fenstanton, Christchurch Road, Streatham Hill, London, S.W. 2.
1921. East, Guy Roland, M.D., B.S., B.Hy.Durh., D.P.H., Medical Superintendent, Northumberland County Mental Hospital, Cottingham, Morpeth.

1907. East, Wm. Norwood, M.B., M.R.C.S., M.R.C.P.Lond., M.P.C., Medical Inspector, H.M. Prisons (England and Wales); Prison Commission, Home Office, Whitehall, Westminster, S.W. 1.
1895. Easterbrook, Charles C., M.A., M.D., F.R.C.P.Edin., M.P.C., *J.P.*, Physician-Superintendent, Crichton Royal Institution, Dumfries.
1924. Eddison, Herbert Wilfred, M.A., M.B., B.Ch.Camb., M.R.C.S., J.R.C.P.Lond., D.P.M., Medical Superintendent, Wonford House, Exeter.
1928. Edelston, Harry, M.B., B.Ch.Leeds, D.P.M., Senior Assistant Medical Officer, West Riding Mental Hospital, Wakefield.
1895. Edgerley, Samuel, M.A., M.D., C.M.Edin., M.P.C., Medical Superintendent, West Riding Mental Hospital, Menston, Leeds.
1897. Edwards, Francis Henry, M.D.Bru.x., M.R.C.S., M.R.C.P.Lond., "Chercheffe," Reigate, Surrey.
1924. Edwards, Thomas Lloyd, L.R.C.P.&S Edin., L.R.F.P.S.Glasg., D.P.M., Assistant Medical Officer, Glamorgan County Mental Hospital, Bridgend.
1919. Eggleston, Henry, M.B., B.S.Durh., M.P.C., Filey Lodge, Billericay, Essex.
1901. Elgee, Samuel Charles, *O.B.E.*, L.R.C.P.&S.Irel., Medical Superintendent, Cane Hill Mental Hospital, Coulsdon, Surrey.
1889. Elkins, Frank Ashby, M.D., C.M.Edin., M.P.C., Hornead, Parkside Drive, Watford, Herts.
1908. Ellison, Arthur, M.R.C.S., L.R.C.P.Lond., 120, Domestic Street, Holbeck, Leeds.
1901. Erskine, Wm. J. Adams, M.D., C.M.Edin., Medical Superintendent, Isle of Wight Mental Hospital, Whitecroft, Newport.
1926. Esson, Walter Louis, M.A., M.B., Ch.B.Aberd., c/o Union Bank, Fishmarket, Aberdeen.
1895. Eurich, Frederick Wilhelm, M.D., C.M.Edin., Lanshawe Cottage, Ilkley, Yorks. (Prof. of For. Med., Univ. of Leeds.)
1909. Eustace, William Neilson, L.R.C.S.&P.Irel., Resident Medical Officer, Glasnevin, Dublin.
1918. Evans, Albert Edward, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., D.P.H., Inspector, Board of Control, Caxton House West, Westminster, S.W. 1; 3, Rotherwick Court, Golders Green, London, N.W. 11.
1927. Ewan, Grey Lamont, *J.P.*, B.Sc., M.B., Ch.M.Sydney, D.P.M., Medical Superintendent, The Mental Hospital, Stockton, nr. Newcastle, New South Wales.
1891. Ewan, John Alfred, M.A.St.And., M.D., C.M.Edin., M.P.C., Greylees, Godalming, Surrey.
1914. Ewing, Cecil Wilmot, L.R.C.P.&S.Irel., D.P.M., Medical Superintendent, Storthes Hall Mental Hospital, Kirkburton, nr. Huddersfield.
1925. Fairweather, Anne, M.B., B.S.Durh., D.P.M., Senior Assistant Medical Officer, Winson Green Mental Hospital, Birmingham.
1908. Fenton, Henry Felix, M.B., Ch.B.Edin., Medical Superintendent, Worcester County and City Mental Hospital, Powick.
1928. Finiefs, Leonidas Aristodimos, M.R.C.S., L.R.C.P.Lond., M.D.Paris, Assistant Medical Officer, Three Counties Mental Hospital, Arlesey, Beds.
1889. Finlay, David, M.D., C.M.Glasg., Medical Superintendent, Glamorgan Mental Hospital, Bridgend.
1906. Firth, Arthur Marcus, M.A., M.D., B.Ch.Edin., Deputy Medical Superintendent, Worcester County Mental Hospital, Barnesley Hall, Bromsgrove.
1903. Fitzgerald, Alexis, L.R.C.P.&S.Irel., Medical Superintendent, District Mental Hospital, Waterford.
1908. Fitzgerald, James Francis, L.R.C.P.&S.Irel., Assistant Medical Officer, District Mental Hospital, Clonmel.
1928. Fitzgerald, John, M.B., B.Ch.N.U.I., M.D., D.M.D., Assistant Medical Officer, Grangegorman Mental Hospital, Dublin.

1921. Fleming, Gerald William Thomas Hunter, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Dorset County Mental Hospital, Herrison, near Dorchester.
1904. Fleming, Wilfrid Louis Remi, M.R.C.S., L.R.C.P.Lond., J.P., Suffolk House, Pirbright, Surrey.
1925. Flind, James, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Peckham House, London, S.E. 15.
1927. Footerman, Mark, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.
1925. Forbes, Hugh Scott, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Arden Lodge, North Finchley, London, N. 3.
1927. Ford-Robertson, William Marsden, M.B., Ch.B.Edin., Assistant Medical Officer, Pathologist and Bacteriologist, St. Andrew's Hospital; 66, Billing Road, Northampton.
1911. Forrester, Archibald Thomas William, M.D., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Warwick County Mental Hospital, Hatton.
1926. Forrester, Robert Cairns, M.B., Ch.B.Edin., Assistant Medical Officer, Stirling District Mental Hospital, Larbert.
1916. Forsyth, Charles Wesley, M.D., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Winson Green Mental Hospital, Birmingham. (Clin. Lect. on Ment. Dis., Univ. of Birm.)
1924. Forsythe, Thomas Ronald, M.B., Ch.B.Sheff., D.P.M., Assistant Medical Officer, Kent County Mental Hospital, Maidstone.
1913. Forward, Ernest Lionel, M.R.C.S., L.R.C.P.Lond., D.C.M.S. Ministry of Pensions, 1, Sanctuary Buildings, London, S.W. 1.
1925. Fox, Francis Elliot, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Medical Officer, Brislington House, Bristol.
1920. Fox, J. Tylor, M.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Lingfield Epileptic Colony; The Homestead, Lingfield, Surrey.
1923. Franklin, Marjorie Ellen, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant, London Clinic for Psycho-Analysis; 86, Harley Street, London, W. 1.
1919. Fraser, Kate, B.Sc., M.D., Ch.B.Glasg., D.P.H., Deputy Commissioner, General Board of Control, Scotland; 25, Palmerston Place, Edinburgh.
1928. Fraser, William, B.Sc., M.B., Ch.B.Glasg., D.P.H., Deputy Medical Superintendent, North Riding Mental Hospital, York.
1921. Fuller, Hugh Hercus Cavendish, M.B., Ch.B.Edin., "Oakdale," Priory Road, Great Malvern.
1902. Fuller, Lawrence Otway, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Three Counties Mental Hospital, Arlesey, Beds.
1928. Gall, Herbert, M.R.C.S., L.R.C.P.Lond., Major, R.A.M.C., Officer-in-Charge, "D" Block, Royal Victoria Hospital, Netley.
1928. Gallagher, Charles Eddie, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Leavesden Mental Hospital, Abbot's Langley, Watford, Herts.
1927. Gamble, Florence Margaret, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Warwick County Mental Hospital, Hatton.
1906. Gane, Edward Palmer Steward, M.D.Durh., M.R.C.S., L.R.C.P.Lond., Assistant Medical Superintendent, The Coppice Nottingham.
1928. Gardner, Dorothy Margaret, M.B., B.Ch.Belf., D.P.H., Assistant Medical Officer, Belfast Mental Hospital, Purdysburn, Belfast.
1912. Garry, John William, M.B., B.Ch.N.U.I., Assistant Medical Superintendent, District Mental Hospital, Ennis, co. Clare.
1912. Gavin, Lawrence, M.B., Ch.B., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, District Asylum, Mullingar.

1896. Geddes, John William, M.B., C.M.Edin., 15, Gaessens Court, Welwyn Garden City, Herts.
1923. Gibson, George Herbert Rae, D.S.O., M.D., F.R.C.P.Edin., L.C.P.S. Brit. Columbia, Dipl. Psych.; Deputy Commissioner, General Board of Control, Scotland; 23, Cluny Terrace, Edinburgh.
1919. Gifford, John, B.A.Cape, M.B., Ch.B.Edin., D.P.M., Deputy Medical Superintendent, Lancashire County Mental Hospital, Winwick, Warrington.
1921. Gilfillan, John Aitken, M.D., Ch.B., F.R.F.P.S.Glasg., Hillside, Drymen, Stirlingshire.
1899. Gilfilian, Samuel James, O.B.E., M.A., M.B., C.M.Edin., Medical Superintendent, Colney Hatch Mental Hospital, New Southgate, London, N. 11.
1923. Gillespie, Isabella Annie, M.B., B.Ch.Edin., D.P.M., Senior Assistant Medical Officer, Cheshire County Mental Hospital, Upton, Chester.
1921. Gillespie, Robert Dick, M.D., Ch.B.Glasg., M.R.C.P.Lond., D.P.M., 25, Upper Wimpole Street, London, W. 1 (Lect. on Psych. Med., Guy's Hosp.)
1920. Gillis, Kurt, M.B., Ch.B.Edin., Assistant Physician-Superintendent, Mental Hospital, Bloemfontein, South Africa.
1897. Gilmour, John Rutherford, M.B., C.M., F.R.C.P.Edin., M.P.C., Medical Superintendent, West Riding Mental Hospital, Scaleor Park, Burley-in-Wharfedale, Yorks. (*Secretary, N. and M. Division, 1920-27.*)
1906. Gilmour, Richard Withers, M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Physician-in-Charge, St. Luke's Hospital; 39, Harley Street, London, W. 1. (Lect. on Psychiat., Middlx. Hosp.)
1927. Goitein, Percy L., M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Northumberland House; 23, Blomfield Road, Maida Hill, London, W. 9.
1923. Golla, Frederick Lucien, M.A., M.B., B.Ch.Oxon., F.R.C.P.Lond., Director of the Laboratory and Pathologist, London County Mental Hospitals, The Maudsley Hospital, Denmark Hill, London, S.E. 5; The Dene, Sunninghill, Berks. (Lect. on Physiol. and Pathol. of the Nervous System.)
1897. Good, Thomas Saxty, O.B.E., M.A.Oxon., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, County and City Mental Hospital, Littlemore, Oxford.
1889. Goodall, Edwin, C.B.E., M.D., B.S., F.R.C.P.Lond., M.P.C., Medical Superintendent, City Mental Hospital, Whitechurch, Cardiff. (PRESIDENT, 1923-24.) (Lect. on Ment. Dis., Welsh Nat. School of Medicine, Cardiff.)
1920. Gordon, George, M.B., Ch.B.Glasg., Deputy Medical Superintendent, Queen Alexandra Hospital [M. of P.], Cosham, Hampshire.
1899. Gordon, James Leslie, M.D., C.M.Aberd., Medical Superintendent, Caterham Mental Hospital; Karaissi, Caterham, Surrey.
1928. Gordon, Ronald Grey, D.Sc., M.D., F.R.C.P.Edin., 9, The Circus, Bath.
1901. Gostwyck, Cecil Hubert Gostwyck, M.B., Ch.B., F.R.C.P.Edin., Dipl. Psych., M.P.C., Deputy Medical Superintendent, Rampton State Institution, Retford, Notts.
1923. Gough, Isabel Falconer, M.B., Ch.B., L.R.C.P.&S.Edin., L.R.F.P.S. Glasg., D.P.M., Three Corner Park, Calstock, Cornwall.
1928. Grace, Pierce, L.R.C.P.&S.I., Resident Medical Superintendent, District Mental Hospital ("Portlaoighise"), Maryborough.
1914. Graham, Norman Bell, M.C., B.A.R.U.I., M.B., B.Ch.Belf., D.P.M., Senior Assistant Medical Officer, Purdysburn Villa Colony, Belfast.
1894. Graham, Samuel, L.R.C.P.Lond., Resident Medical Superintendent, District Asylum, Antrim.
1918. Graham, Samuel John, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Resident Medical Superintendent, Purdysburn Villa Colony, Belfast.
1908. Graham, William Shepherd, M.B., B.Ch.R.U.I., Senior Assistant Medical Officer, Somerset and Bath Asylum, Cotford, near Taunton.

1921. Grant, Alastair Robertson, M.B., Ch.B.Aberd., Deputy Medical Superintendent, Lancashire County Mental Hospital, Whittingham, Preston.
1925. Grant, John King, M.B., Ch.B.Aberd., Assistant Physician, Royal Mental Hospital, Aberdeen.
1915. Graves, Thomas Chivers, B.Sc., M.D., B.S.Lond., F.R.C.S.Eng., L.R.C.P.Lond., M.R.C.V.S., Medical Superintendent, Rubery Hill and Hollymoor Mental Hospitals, Northfield, Birmingham.
1916. Gray, Cyril, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Senior Assistant Medical Officer, City Mental Hospital, Gosforth, Newcastle-upon-Tyne.
1928. Gray, James, M.B., Ch.B.Edin., Assistant Medical Officer, District Asylum, Inverness.
1921. Gray, Joseph Anthony Wenceslaus Pereira, M.D.Brux., M.R.C.S., L.R.C.P.Lond., Visitor of Licensed Houses; 3, Northernhay Place, Exeter.
1909. Greene, Thomas Adrian, L.R.C.S.&P.Irel., J.P., Medical Superintendent, District Mental Hospital, Carlow.
1922. Gregorson, Albert William, M.D., Ch.B., F.R.F.P.S.Glasg., Assistant Physician and Deputy Superintendent, North Middlesex Hospital, Edmonton, London, N. 18; 9, Aubrey Crescent, Largs, Ayrshire.
1927. Grierson, Hugh Arrowsmith, M.C., M.B., B.S.Lond., Medical Officer, H.M. Prison, Leeds.
1926. Griffiths, Gwenvron Mary, M.D., M.R.C.P.Lond., "Pendre," Newport, Pembrokeshire.
1901. Grills, Galbraith Hamilton, M.D., B.Ch.R.U.I., D.M.D., M.P.C., Medical Superintendent, Cheshire County Mental Hospital, Upton, Chester.
1916. Grimby, Alan Francis, M.A., M.D., B.Ch.Dubl., D.P.M., 43, Killieser Avenue, Streatham Hill, London, S.W. 2.
1923. Grossman, Simon, M.R.C.S., L.R.C.P.Lond., 21, Shaa Road, East Acton, W. 3.
1922. Guppy, Francis Henry, M.C., M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Brighton Mental Hospital, Haywards Heath, Sussex.
1894. Halsted, Harold Cecil, M.D.Durh., L.S.A., M.R.C.S., L.R.C.P.Lond., Manor Road, Selsey, Sussex.
1928. Hamilton, John Gerard, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, The Coppice, Nottingham.
1920. Hancock, Allen Coulter, M.C., M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.H., D.P.M., Medical Superintendent, Kent County Mental Hospital, Barming Heath, Maidstone.
1923. Hardcastle, Douglas Noël, M.R.C.S., L.R.C.P.Lond., D.P.M., Physician, Moorcroft House and Hayes Park; Coneycote, Hillingdon, Uxbridge, Middlesex.
1920. Harding, Edward Palmer, L.R.C.P.&S.Irel., Deputy Medical Superintendent, East Riding Mental Hospital, Beverley.
1920. Harper, Raymond Sydney, M.R.C.S., L.R.C.P.Lond., 36, First Avenue, Hove, Sussex.
1904. Harper-Smith, George Hastie, M.A., M.D.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Brighton Mental Hospital; Galagate, Haywards Heath, Sussex.
1924. Harris, John Stuart, M.D., Ch.B.Edin., D.P.M., Senior Assistant Medical Officer, The Maudsley Hospital, Denmark Hill, London, S.E. 5.
1928. Harris, Noel Gordon, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Springfield Mental Hospital, near Tooting, S.W. 17.
1898. Harris-Liston, Llewellyn, M.D.Brux., L.S.A., M.R.C.S., L.R.C.P.Lond., The Grove, Middleton St. George, co. Durham.
1928. Harrower, William McConachie, M.B., Ch.B.Glasg., Research Student, Glasgow Royal Mental Hospital, Gartnavel.

1905. **Hart, Bernard, M.D., F.R.C.P.Lond., M.R.C.S.Eng., 94, Harley Street, London, W. 1.** (Lect. on Ment. Dis., Univ. Coll. Hosp.)
1886. **Harvey, Bagelal Crosbie, L.A.H.Dubl., L.R.C.P.&S.Edin., Resident Medical Superintendent, District Mental Hospital, Clonmel.**
1892. **Haslett, William John Handfield, M.R.C.S., L.R.C.P.Lond., M.P.C., J.P., Resident Medical Superintendent, Halliford House, Sunbury-on-Thames.**
1923. **Hayes, Edmund Duncan Tranchell, B.A., M.D., B.Ch.Dubl., D.P.M., Senior Assistant Medical Officer, County Mental Hospital, Berry Wood, Northampton.**
1924. **Hayes, Henry Douglas, M.D., Ch.B.Edin., D.P.M., The Mental Hospital, Porirua, Wellington, New Zealand.**
1920. **Haynes, Horace Guy Lankester, M.R.C.S., L.R.C.P.Lond., Littleton Hall, Brentwood, Essex.**
1927. **Healey, Frederick Henry, B.Sc., M.B., Ch.B.Birm., D.P.M., Assistant Medical Officer, Cheshire County Mental Hospital, Upton, Chester.**
1920. **Henderson, Cyril John, M.B.Durh., Assistant Medical Officer, The Royal Albert Institution, Lancaster.**
1916. **Henderson, David Kennedy, M.D., Ch.B.Edin., F.R.F.P.S.Glasg., Physician Superintendent, Glasgow Royal Mental Hospital, Gartnavel; 2, Whittingham Gardens, Glasgow. (Lect. on Ins., Univ. of Glasg.)**
1905. **Henderson, George, M.A., M.B., Ch.B.Edin., 25, Commercial Road, Peckham, London, S.E. 15.**
1923. **Henderson, Norman Keane, B.A., LL.B.Camb., M.B., Ch.B.Edin., D.P.H., D.P.M., Senior Assistant Medical Officer, Lincoln County Mental Hospital, Bracebridge Heath.**
1924. **Hensman, Henry Saumarez, L.M.&S.Madras, M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Government Mental Hospital, Kilpauk, Madras.**
1924. **Herbert, J. E., M.B., B.Ch.R.U.I., Senior Assistant Medical Officer, District Asylum, Omagh.**
1925. **Heron, John, M.B., Ch.B.Edin., D.P.M., 78, Bonaly Road, Edinburgh.**
1912. **Higson, William Davies, M.B., Ch.B.Liverp., D.P.H., Medical Officer, H.M. Prison; "Eversley," Boxley Road, Maidstone, Kent.**
1927. **Hinchco, Harold, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, West Park Mental Hospital, Epsom.**
1900. **Hollander, Bernard, M.D.Freib., M.R.C.S., L.R.C.P.Lond., 57, Wimpole Street, London, W. 1.**
1925. **Home, Bruce Fordyce, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., c/o D.M.S., Lagos, Nigeria.**
1925. **Honan, Bernard Francis, L.R.C.P.&S.Irel., D.P.M., Assistant Medical Officer, Down County Mental Hospital, Downpatrick.**
1920. **Hooper, Reginald Arthur, M.B., B.S.Durh., Medical Superintendent, City Mental Hospital, Fulford, Yorks.**
1926. **Hopwood, Joseph Stanley, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Officer, State Criminal Lunatic Asylum, Broadmoor.**
1926. **Horton, Phyllis Mary, M.R.C.S., L.R.C.P.Lond., D.P.M., House Physician, Lady Chichester Hospital, Hove, Sussex.**
1918. **Horton, Wilfred Winnall, M.D., C.M.Edin., Medical Superintendent, Wye House, Buxton.**
1926. **Hosie, William, M.B., Ch.B.Glasg., Assistant Medical Officer, Derby County Mental Hospital, Mickleover.**
1894. **Hotchkis, Robert Dunmore, M.A.Glasg., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Renfrew District Mental Hospital, Dykebar, Paisley.**
1928. **Howie, James Erskine, M.B., Ch.B.Liverp., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Lancashire County Mental Hospital, Prestwich, Manchester.**
1912. **Hughes, Frank Percival, M.B., B.S., M.R.C.S., L.R.C.P.Lond., The Grove, Pinner, Middlesex.**

1900. Hughes, Percy T., M.B., C.M.Edin., D.P.H., Medical Superintendent, Worcester County Mental Hospital, Barnesley Hall, Bromsgrove. (Lect. on Ment. Dis., Univ. of Birm.)
1904. Hughes, William Stanley, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Salop County Mental Hospital, Bicton Heath, Shrewsbury.
1897. Hunter, David, M.A., M.B., B.Ch.Camb., L.S.A., Medical Superintendent, The Coppice, Nottingham. (*Secretary, S.E. Division, 1910-1913.*)
1912. Hunter, George Yeates Cobb, M.R.C.S., L.R.C.P.Lond., M.P.C., I.M.S., c/o Messrs. Grindlay & Co., 54, Parliament Street, London, S.W. 1.
1928. Hunter, James Dewar Hunter, M.B., Ch.B.N.Z., Dipl. Psych., Assistant Medical Officer, Kingseat Mental Hospital, Newmachar, Aberdeenshire.
1904. Hunter, Percy Douglas, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Three Counties Mental Hospital, Arlesey.
1911. Hutton, Isabel Emslie, M.D., Ch.B.Edin., Hon. Physician, British Hospital for Mental and Nervous Disorders; 6, Montagu Place, London, W. 1.
1888. Hyslop, Theo. Bulkeley, M.D., C.M., M.R.C.P., L.R.C.S., F.R.S.Edin., M.P.C., 5, Portland Place, London, W. 1. (*Chairman, Library Committee, 1926-27.*)
1928. Hytch, Dorothy Preston, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Horton Mental Hospital, Epsom.
1926. Illingworth, Reginald Ernest, L.R.C.P.&S., L.D.S.Edin., Dipl. Psych., Deputy Medical Superintendent, Northumberland County Mental Hospital, Cottingwood, Morpeth.
1915. Ingall, Frank Ernest, L.R.C.P.Lond., F.R.C.S.Eng., D.P.H., Public Health Officer, Clarence Street, Southend-on-Sea.
1908. Inglis, James Pringle Park, M.D., Ch.B.Edin., Senior Assistant Medical Officer, Leavesden Mental Hospital, Abbots Langley, Herts.
1926. Ironside, Archibald Jennings, M.B., Ch.B.Aberd., Assistant Physician, Mental Hospital, Pietermaritzburg, Natal, South Africa.
1906. Irwin, Peter Joseph, L.R.C.P.&S.Irel., Medical Superintendent, District Mental Hospital, Limerick.
1923. Jack, Victor William, M.B., Ch.B.Edin., Pullskie, Conon Bridge, Ross-shire.
1920. Jackson, John Luke, M.B., B.Ch.Belf., Medical Superintendent, Hants County Mental Hospital, Knowle, Fareham.
1927. Jacob, Frank Harwood, M.D., F.R.C.P.Lond., Hon. Physician, General Hospital; 32, Regent Street, Nottingham.
1927. Jacobson, Jack Nathan, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Tooting Bec Mental Hospital, London, S.W. 17.
1914. James, George William Blomfield, M.C., M.D., B.S.Lond., L.S.A., D.P.M., Physician, Moorcroft House, Hillingdon, Uxbridge. (*Secretary, Parliamentary Committee since 1926.*) (Lect. on Ment. Dis., St. Mary's Hosp.)
1922. Jarrett, R. F., F.R.F.P.S.Glasg., L.M.S.S.A., Medical Officer, H.M. Prison, Cardiff.
1908. Jeffrey, Geo. Rutherford, M.D., Ch.B.Glasg., F.R.C.P., F.R.S.Edin., M.P.C., Medical Superintendent, Bootham Park, York.
1925. Jenkins, John Alexander, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Mental Hospital, Larbert.
1924. Jenkins, Reginald Edward, L.M.S.S.A., Egmont House, Brighton Road, Sutton.
1893. Johnston, Gerald Herbert, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Brooke House, Upper Clapton, London, E. 5.

1928. Johnston, James McLaughlan, M.B., Ch.B.Edin., Assistant Medical Officer, Mental Hospital, Westgreen, Dundee; 33, Albany Street, Leith.
1905. Johnston, Thomas Leonard, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Heckington Hall, Sleaford.
1903. Johnstone, Thomas, M.D., C.M.Edin., M.R.C.P.Lond., 6, Victoria Avenue, Harrogate.
1928. Kameneff, Vladimir, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Hants County Mental Hospital, Knowles, Fareham, Hants.
1879. Kay, Walter Smith, M.D., C.M.Edin., M.R.C.S.Eng., Granby Hotel, Harrogate.
1927. Kearney, Joseph, M.B., B.Ch.R.U.I., Assistant Medical Officer, Tirconall District Mental Hospital, Letterkenny, Ireland.
1886. Keay, John, C.B.E., M.D., C.M.Glasg., F.R.C.P.Edin., Medical Superintendent, Bangour Village, Uphall, Linlithgowshire. (PRESIDENT 1918.) (*Chairman, Educational Committee, 1920-27.*) (Lect. on Ment. Dis., Roy. Colls., Edin.)
1909. Keith, William Brooks, M.C., M.D., Ch.B.Aberd., M.P.C., Medical Superintendent, St. Audry's Hospital, Melton; Redwald House, Melton, Suffolk. (*Secretary, Parliamentary Committee, 1921-26.*)
1924. Kelly, Daniel Lane, L.R.C.P.&S.Irel., Inspector of Mental Hospitals, Local Government Department; 52, Grosvenor Road, Rathgar, Dublin.
1907. Keene, George Henry, M.D., B.Ch.Dubl., Medical Superintendent, Stewart Institution, Palmerston; 14, Palmerston Park, Dublin.
1899. Kennedy, Hugh T. J., L.R.C.P.&S.Irel., Medical Superintendent, District Mental Hospital, Enniscorthy.
1897. Kerr, Hugh, M.A., M.D., C.M.Glasg., Medical Superintendent, Bucks County Mental Hospital, Stone, Aylesbury.
1902. Kerr, Neil Thomson, M.B., C.M.Edin., J.P., Medical Superintendent, Lanark District Mental Hospital, Hartwood, N.B.
1920. Key, Gordon James, M.B., Ch.B.Aberd., Assistant Medical Superintendent, Valkenburg Mental Hospital, Observatory Road, Cape Town, South Africa.
1923. el Kholy, Mohamed Kamel, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Abbassia Mental Hospital, Egypt.
1923. Kiddle, Frederick, C.M.G., B.A., M.B., B.Ch.Dubl., St. Clare Road, Colchester.
1920. Kimber, William Joseph Teil, M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Herts County Mental Hospital, Hill End, St. Albans. (*Secretary, Educational Committee since 1927.*)
1903. King, Frank Raymond, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Peckham House, Peckham, London, S.E. 15.
1902. King-Turner, Arthur Charles, M.B., C.M.Edin., Medical Superintendent, The Retreat, Fairford, Gloucestershire.
1915. Kirwan, Richard R., M.B., B.Ch.R.U.I., Assistant Medical Officer, West Riding Mental Hospital, Menston, Leeds.
1919. Knight, Mary Reid, M.A., M.B., Ch.B.Glasg., Assistant Medical Officer, Paisley Mental Hospital, Riccarton, N.B.
1914. Ladell, Robert George Macdonald, M.B., Ch.B.Vict., Medical Officer, Ministry of Pensions, 395, Coventry Road, Small Heath, Birmingham.
1923. Laing, John Kidd Collier, M.B., B.S.Melb., D.P.M., Deputy Medical Superintendent, Colney Hatch Mental Hospital, New Southgate, London, N. 11.
1925. Landers, John Joseph, M.B., B.Ch.N.U.I., D.P.H., Medical Officer, H.M. Boys' Prison, Wandsworth, London, S.W. 18.
1896. Langdon-Down, Reginald L., M.A., M.B., B.Ch.Camb., M.R.C.P.Lond., Normansfield, Hampton Wick, Middlesex.
1919. Langton, Peregrine Stephen Brackenbury, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Royal Earlswood Institution, Redhill, Surrey.

1925. Lascelles, William James, M.B., B.Ch.Belf., D.P.M., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.
1919. Latham, Oliver, M.B., C.M.Syd., Pathologist, Mental Hospitals Laboratory, Medical School, Newtown University, Sydney, N.S.W.
1898. Lavers, Norman, M.D.BruX., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Bailbrook House, Bath.
1892. Lawless, George Robert, L.R.C.P., F.R.C.S.Irel., Medical Superintendent, District Asylum, Armagh.
1915. Leech, Henry Brougham, B.A., M.D., B.Ch.Dubl., Deputy Medical Superintendent, Warwick County Mental Hospital, Hatton. (*Acting Registrar 1923-24.*)
1909. Leech, John Frederick Wolesey, B.A., M.D., B.Ch.Dubl., D.P.M., Assistant Medical Officer, Wilts County Mental Hospital, Devizes.
1899. Leeper, Richard R., L.R.C.P., F.R.C.S.Irel., M.P.C., Medical Superintendent, St. Patrick's Hospital, Dublin. (*Secretary. Irish Division since 1911.*)
1906. Leggett, William, B.A., M.D., B.Ch.Dubl., Medical Officer, Smithston Mental Hospital, Greenock.
1927. Levinson, Reuben, M.B., Ch.B.Edin., D.P.H., D.P.M., Assistant Medical Officer, West Ham Mental Hospital, Goodmayes, Essex.
1916. Lewis, Edward, F.R.F.P.S.Glasg., L.R.C.P.&S.Edin., Medical Superintendent, Drymma Hall, Skewen, near Neath.
1924. Lewis, John Biddulph Strafford, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Colney Hatch Mental Hospital, New Southgate, London, N. 11.
1920. Lilly, George Austen, M.C., M.A., M.D.Camb., M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Banstead Mental Hospital, Sutton, Surrey.
1927. Lindsay, Thomas, M.D., F.R.C.S.Edin., D.P.M., Senior Assistant Medical Officer, Tooting Bec Mental Hospital, London, S.W. 17.
1908. Littlejohn, Edward Salterne, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Manor Certified Institution, Epsom.
1925. Littlejohn, Mary Victoria, M.B., Ch.B.Aberd., D.P.M., 7, Church Hill, Edinburgh.
1921. Livesay, Arthur William Bligh, M.B., C.M., F.R.C.S.Edin., Assistant Medical Officer, St. Andrew's Hospital, Thorpe, Norwich.
1922. Logan, Frederick Colquhoun, M.B., Ch.B., F.R.F.P.S.Glasg., Deputy Medical Superintendent, Lancashire County Mental Hospital, Prestwich, Manchester.
1898. Lord, John Robert, C.B.F., M.D., C.M., F.R.C.P.Edin., Medical Superintendent, Horton Mental Hospital, Epsom; Horton House, Epsom. (*Assistant Editor, 1900-11, and Co-Editor of Journal since 1911.*) (*Secretary, Post-Graduate Study Committee, 1920-26.*) (*Chairman, Research and Clinical Committee since 1927.*) (PRESIDENT, 1926-27.) (Lect. on Clin. Psychiat. Lond. Sch. Med., Women.)
1924. Lornie, Peter, M.D., Ch.B.Edin., Senior Assistant Medical Officer, Monmouth County Mental Hospital, Abergavenny.
1924. Lothian, Douglas, B.M., M.B., Ch.B.Edin., D.P.M., Assistant Physician, Royal Mental Hospital, Morningside, Edinburgh.
1923. Lovell, Clement, M.D., B.S.Lond., Pathologist, Bethlem Royal Hospital, London, S.E. 1.
1928. Lowson, William, M.B., Ch.B.St. Andr., Medical Officer, Moat House, Tamworth; 9, Colehill, Tamworth, Staffordshire.
1906. Lowry, James Arthur, M.D., B.Ch.R.U.I., Medical Superintendent, Surrey County Mental Hospital, Brookwood.
1926. Lucas, Edmund Stanley Sayer, M.R.C.S., L.R.C.P.Lond., I.M.S., c/o Grindley & Co., Bombay, India.
1926. Lucas, Rosalie Evelyn, M.B., Ch.B.Brist., M.R.C.S., L.R.C.P.Lond., Maudsley Hospital, Denmark Hill, S.E. 5.

1923. Lynch, William Joseph, M.B., B.Ch.R.U.I., 430, First National Bank Building, Denver, Colorado, U.S.A.
1923. Lyon, Thomas Malcolm Murray, M.D., C.M.Edin., *J.P.*, 46, Palmerston Place, Edinburgh.
1920. McAlister, William Malcolm, M.A., M.B., Ch.B., M.R.C.P.Edin., Dipl. Psych., Deputy Physician - Superintendent, Royal Mental Hospital, Morningside, Edinburgh. (Lect. on Psychiat., Univ. of Edin.)
1926. MacCallum, Alexander Grigor, M.B., Ch.B.Glasg., 15, Woodbourne Avenue, Streatham, S.W. 16.
1906. Macarthur, John, M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Lincoln County Mental Hospital, Bracebridge Heath.
1923. Macaulay, Douglas Ian Otto, M.D., Ch.B.Edin., D.P.M., Medical Superintendent, Chiswick House, Chiswick, London, W. 4.
1880. MacBryan, Henry Crawford, L.R.C.P.&S.Edin., Kingsdown House, Box, Wilts.
1923. McCarthy, Owen Felix, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Resident Medical Superintendent, District Mental Hospital, Cork. (Lect. on Ment. Dis., Univ. Coll., Cork.)
1900. McClintock, John, L.R.C.P.&S.Edin., Resident Medical Superintendent, Grove House, Church Stretton, Salop.
1922. McCord, Robert Neil Ballagh, M.B., B.Ch.Belf., Senior Assistant Medical Officer, Surrey County Mental Hospital, Brookwood.
1927. McCoull, George, M.B., B.S.Durh., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Officer, Prudhoe Hall Colony for Mental Defectives, Tyne View, Prudhoe-on-Tyne.
1920. McCowan, Peter Knight, M.D., Ch.B.Edin., M.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, West Park Mental Hospital, Epsom.
1921. McCutcheon, Archibald Munn, M.B., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, Monyhull Colony, King's Heath, Birmingham.
1901. MacDonald, James Hogg, M.B., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, Govan District Asylum, Hawkhead, Cardonald, Glasgow. (Lect. on Psychol. Med., Univ. of Glasgow.)
1884. MacDonald, P. W., M.D., C.M.Aberd., *J.P.*, Grasmere, Radipole, Weymouth. (*First Secretary, S.W. Division, 1894-1905.*) (PRESIDENT 1907-8.)
1911. MacDonald, Ranald, *O.B.E.*, M.D., Ch.B.Edin., D.P.M., Medical Superintendent, Coton Hill Mental Hospital, Stafford.
1928. Macdonald, Robert William, M.B., Ch.B.Glasg., Medical Officer, Ministry of Pensions, Kirkburton, Huddersheld.
1905. MacDonald, William Fraser, M.B., Ch.B.Edin., M.P.C., Olive Lodge, Polworth Terrace, Edinburgh.
1905. McDougall, Alan, M.D., Ch.B.Vict., M.R.C.S., L.R.C.P.Lond., Medical Director, The David Lewis Colony, Warford, Alderley Edge, Cheshire.
1928. McDougall, John, M.B., Ch.B.Glasg., Senior Assistant Physician, Crichton Royal, Dumfries.
1906. McDowall, Colin Francis Frederick, M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Ticehurst House, Ticehurst, Sussex. (*Secretary, Library Committee since 1922.*)
1870. McDowall, Thomas W., M.D., L.R.C.S.Edin., "Burwood," Wadhurst, Sussex. (PRESIDENT, 1897-8.)
1895. Macfarlane, Neil M., M.D., C.M.Aberd., Principal Medical Officer, Maseru, Basutoland, South Africa.

1924. Macfarlane, Robert Melvin, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer, West Ham Mental Hospital, Goodmayes, Essex.
1923. McGarvey, John, M.B., B.Ch.Belf., D.P.M., Medical Superintendent, Bath Mental Hospital, Wells.
1922. McGeorge, Margaret Turner, M.B., Ch.B.Glasg., Assistant Medical Officer, Camberwell House, Peckham Road, London, S.E. 5.
1925. McGlashan, William Reid, M.A., M.B., Ch.B.Aberd., D.P.M., Deputy Medical Superintendent, Derby County Mental Hospital, Mickleover.
1925. MacGowan, Agnes Mildred, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer and Pathologist, Bangour Village, Uphall, Linlithgowshire.
1928. MacGill, Finlay Duncan, M.B., Ch.B.St. Andr., Assistant Medical Officer, Durham County Mental Hospital, Winterton, Ferryhill, co. Durham.
1921. McGrath, Mathew Joseph, M.B., B.Ch.R.U.I., D.P.M., Deputy Medical Superintendent, West Riding Mental Hospital; Gortmore, Bar Lane, Stanley, nr. Wakefield.
1902. McGregor, John, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Glamorgan County Mental Hospital, Bridgend.
1924. McInnes, John, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer, City Mental Hospital, Willerby, Hull.
1921. McKail, Robert Buchanan Forbes, M.B., Ch.B.Glasg., Deputy Medical Superintendent, Calderstones Certified Institution, Whalley, near Blackburn.
1924. Mackay, George William John, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer, St. Andrew's Hospital, Northampton.
1914. Mackay, Magnus Ross, M.C., M.B., Ch.B.Edin., Medical Superintendent, Newport Borough Mental Hospital, Caerleon, Mon.
1891. Mackenzie, Henry James, M.B., C.M.Edin., M.P.C., 254, Bishopsthorpe Road, York.
1927. Mackenzie, Ivy, B.Sc., M.A., M.D., F.R.F.P.S.Glasg., Consulting Physician, Glasgow District Board of Control; 10, Woodside Terrace, Glasgow, C. 3.
1911. Mackenzie, John Cosserat, M.B., Ch.B.Edin., Assistant Medical Officer, Stafford Mental Hospital, Burntwood, Lichfield.
1926. Mackenzie, John Muir, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer, Rubery Hill Mental Hospital, Northfield, Birmingham.
1927. Mackenzie, Murdo, M.R.C.S., L.R.C.P.Lond., Senior Assistant Physician, Bethlem Royal Hospital, London, S.E. 1.
1903. Mackenzie, Theodore Charles, M.D., Ch.B., F.R.C.P.Edin., M.P.C., Medical Superintendent, District Asylum, Inverness.
1921. Mackie, George, D.S.O., M.D., Ch.B.Edin., Thornyhill, Abbey Road, Great Malvern.
1924. McLagan, Francis M., M.B., Ch.B.St.Andr., D.P.M., Assistant Medical Officer, Cane Hill Mental Hospital, Coulsdon, Surrey.
1926. McLaren, Mary Evelyn, M.B., Ch.B.Edin., Dipl. Psych., Clinical Assistant, Royal Mental Hospital, Morningside, Edinburgh.
1927. Macleod, John, M.B., Ch.B.Edin., Assistant Medical Officer, Glasgow District Mental Hospital, Woodilee, Lenzie, N.B.
1921. Macleod, Neil, M.B., Ch.B.Edin., D.P.M., Assistant Physician, The Retreat, York.
1925. McManus, Hugh Charles, M.B., Ch.B.Vict., D.P.M., The Hall, Wedmore, Somerset.
1904. Macnamara, Eric Danvers, M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., 87, Harley Street, London, W. 1. (Lect. on Psychol. Med., Char. Cross Hosp.)
1925. MacNiven, Angus, M.B., Ch.B.Glasg., M.R.C.P.Edin., D.P.M., Assistant Physician, Royal Mental Hospital, Morningside, Edinburgh.

1910. MacPhail, Hector Duncan, *O.B.E.*, M.A., M.D., Ch.B.Edin., Medical Superintendent, City Mental Hospital, Gosforth, Newcastle-upon-Tyne. (Lect. on Psychol. Med., Univ. of Durh.)
1922. Macphail, Iain Ross, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Kesteven Mental Hospital; Greylees, Sleaford, Lincs.
1882. Macphail, Samuel Rutherford, M.D., C.M.Edin., 11, Dryden Place, Edinburgh.
1901. McRae, Douglas, M.D., C.M., F.R.C.P.Edin., *J.P.*, Medical Superintendent, Glengall Hospital; Glengall House, Ayr, N.B. (*Assistant Editor 1916-20; Co-Editor of the Journal since 1920.*)
1922. McWilliam, William, M.D., Ch.B., F.R.F.P.S.Glasg., D.P.M., Senior Assistant Medical Officer, District Asylum, Inverness.
1925. Madgwick, John Reginald Alexander, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Long Grove Mental Hospital, Epsom, Surrey.
1923. Madill, Joseph Thomas Herbert, B.A.N.U.I., M.B., B.Ch.Edin., F.R.F.P.S.Glasg., D.P.M., M.P.C., Medical Superintendent, Cumberland and Westmorland Mental Hospital, Carlisle.
1928. Main, Dorothy Marv. M.B., Ch.B.Glasg., Assistant Medical Officer, City Mental Hospital, Willerby, Hull.
1908. Mapother, Edward, M.D., B.S.Lond., F.R.C.P.Lond., F.R.C.S.Eng., Medical Superintendent, The Maudsley Hospital, Denmark Hill, London, S.E. 5. (Lect. in Psych. Med., King's Coll. Hosp.)
1903. Marnan, John, B.A., M.B., B.Ch.Dubl., Medical Superintendent, County Mental Hospitals, Barnwood, Gloucester.
1896. Marr, Hamilton, M.D., C.M., F.R.F.P.S.Glasg., M.P.C., Commissioner, General Board of Control for Scotland; 10, Succoth Avenue, Edinburgh. (*Secretary, Scottish Division, 1907-10.*) (PRESIDENT, 1927-28.)
1924. Marshall, Robert, M.D., B.Ch., F.R.C.P.Irel., D.P.H., 9, College Gardens, Belfast.
1926. Martin, Alexander Reid, M.B., B.Ch.Belf., D.P.M., Assistant Physician, Sheppard and Pratt Hospital, Townson, Baltimore, Md., U.S.A.
1922. Martin, Frederick Robertson, M.D., Ch.B.Glasg., D.P.M., c/o Mental Hospitals Department, Wellington, New Zealand.
1896. Martin, James Charles, L.R.C.S.&P.Irel., *J.P.*, Medical Superintendent, District Mental Hospital, Letterkenny, Donegal.
1907. Martin, Mary Edith, L.S.A., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., M.P.C., 11, The Drive, Hove, Sussex.
1914. Martin, Samuel Edgar, M.B., B.Ch.Edin., Barrister-at-Law, Medical Superintendent, The Old Manor, Salisbury.
1911. Martin, William Lewis, *O.B.E.*, M.A., B.Sc., M.B., C.M.Edin., D.P.H., Dipl. Psych., M.P.C., Certifying Physician in Lunacy, Edinburgh Parish Council; 56, Bruntsfield Place, Edinburgh.
1921. Masefield, William Gordon, M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Essex County Mental Hospital, Brentwood.
1911. Mathieson, James Moir, M.B., Ch.B.Aberd., Assistant Medical Officer, South Yorks Mental Hospital, Wadsley, Sheffield.
1926. May, George Francis, M.D., C.M.McGill, L.M.S.S.A., Medical Superintendent, Durham County Mental Hospital, Winterton, Ferry-Hill.
1926. Menzies, Duncan, M.A., M.B., Ch.B.Aberd., D.P.M., Assistant Medical Officer, Bath Mental Hospital, Wells.
1890. Menzies, William F., B.Sc., M.D., C.M.Edin., F.R.C.P.Lond., Medical Superintendent, Stafford County Mental Hospital, Cheddleton, Leek. (PRESIDENT, 1920-21.)
1877. Merson, John, M.A., M.D., C.M.Aberd., Willerby, Brayton Road, Selby.

1910. Middlemiss, James Ernest, F.R.F.P.S.Glasg., M.R.C.S., L.R.C.P. Lond., M.P.C., Neurologist and Specialist in Psychotherapy, Ministry of Pensions; 131, North Street, Leeds.
1928. Mill, Laura Margaret Dorothea, M.B., Ch.B.Glasg., Assistant Medical Officer, James Murray's Royal Asylum, Perth.
1925. Miller, Josephine Alcorn Carson, L.R.C.P.&S.Irel., 93, Furness Road, Willesden, London, N.W. 10.
1924. Miller, Robert Stewart, M.D., Ch.B.Glasg., Director, Khanka Mental Hospital, Cairo, Egypt.
1893. Mills, John, M.B., B.Ch.R.U.I., D.M.D., Medical Superintendent, District Mental Asylum, Ballinasloe, Ireland.
1923. Minski, Louis, M.D., B.S.Durh., D.P.M., Assistant Medical Officer, Bootham Park, York.
1922. Molony, Charles Bernard, M.B., Ch.B.N.U.I., Assistant Medical Officer, District Mental Hospital, Limerick.
1910. Monnington, Richard Caldicott, M.D., Ch.B.Edin., D.P.H., D.P.M., Neurologist, Ministry of Pensions; 33, New Street, Salisbury.
1915. Monrad-Krohn, G. H., B.A., M.D., B.S.Oslo, F.R.C.P.Lond., M.R.C.S. Eng., M.P.C., Rikshospitalet, Oslo, Norway. (Prof. of Med., Royal Frederick University, Oslo.)
1925. Moran, Patrick, M.B., B.Ch.Belf., D.P.M., Assistant Medical Officer, District Mental Hospital, Mullingar.
1917. Morris, Bedlington Howel, M.B., B.S.Durh., Inspector-General of Hospitals, South Australia; "Tros-y-Parc," Pembroke Street, St. Peter's, Adelaide, South Australia.
1925. Morris, John Vincent, M.B., B.Ch.Dubl., Assistant Medical Officer, St. Andrew's Hospital, Thorpe, Norwich.
1896. Mould, Gilbert Edward, M.R.C.S., L.R.C.P.Lond., The Grange, Rotherham, Yorks.
1927. Moulson, Norman, M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Severalls Mental Hospital, Colchester.
1914. Moyes, John Murray, M.B., Ch.B.Edin., D.P.M., Tue Brook Villa, Liverpool, E.
1919. Mules, Annie Shortridge, M.R.C.S., L.R.C.P.Lond., Court Hall, Kenton, South Devon.
1907. Mules, Bertha Mary, M.D., B.S.Durh., Court Hall, Kenton, South Devon.
1911. Muncaster, Anna Lilian, M.B., Ch.B.Edin., Mental Hospital, Pietermaritzburg, Natal, South Africa.
1925. Murdoch, James Wilson, M.B., Ch.B.Aberd., Assistant Medical Officer, Central Mental Hospital, Tanjong Rambutan, Perak, Federated Malay States.
1903. Navarra, Norman, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, City of London Mental Hospital, Stone, Dartford.
1910. Neill, Alex. William, M.D., Ch.B.Edin., Physician-Superintendent, Warneford House, Oxford.
1903. Nelis, William F., M.D.Durh., L.R.C.P.Edin., L.R.F.P.S.Glasg., The Chalet, New Road, Teignmouth.
1920. Nicol, William Drew, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Horton Mental Hospital, Epsom.
1923. Nicole, J. Ernest, L.M.S.S.A., D.P.M., Senior Assistant Medical Officer, Lancashire County Mental Hospital, Winwick, Warrington.
1923. Nicoll, James, M.D., C.M.Edin., D.P.H., Medical Superintendent, Fountain Children's Mental Hospital, Tooting Grove, London, S.W. 17.
1869. Nicolson, David, C.B., M.D., C.M.Aberd., M.R.C.P.Edin., Hanley, Park Road, Camberley, Surrey. (PRESIDENT, 1895-6.)
1920. Nix, Sidney, M.D., B.S.Durh., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Deputy Medical Superintendent, Graylingwell Mental Hospital, Chichester.

1922. Noble, Ralph Athelstane, M.B., Ch.M.Syd., D.P.M., Hon. Physician, Psychiatric Clinic, Royal Prince Alfred Hospital, Sydney, Australia; "Montrose," 143, Macquarie Street, Sydney, N.S.W., Australia.
1888. Nolan, Michael J., L.R.C.P.&S.Irel., M.P.C., J.P., Medical Superintendent, Down County Mental Hospital, Downpatrick. Consulting Visitor-in-Lunacy to the Lord Chief Justice, N. Ireland, and to the Chief Justice, Irish Free State. (PRESIDENT, 1924-25.)
1909. Norman, Hubert James, M.B., Ch.B.Edin., D.P.H., Medical Superintendent, Camberwell House Mental Hospital, Peckham Road, London, S.E. 5; Northcotes, 79, West Hill, Sydenham, London, S.E. 26. (Lect. on Ment. Dis., Westm. Hosp.)
1923. Noronha, Frank, M.B., C.M.Madras, D.P.M., Superintendent, Mental Hospital, Bangalore City, India.
1926. Northcote, Muriel L. M., M.B., B.S., D.P.M., Assistant Medical Officer, City Mental Hospital, Whitchurch, Cardiff.
1924. Odlum, Doris Maude, M.A.Oxon., M.A.Lond., M.R.C.S., L.R.C.P.Lond., D.P.M., 42, Harley Street, London, W. 1.
1903. O'Doherty, Patrick, B.A., M.B., B.Ch.R.U.I., Resident Medical Superintendent, District Mental Hospital, Sligo.
1918. Ogilvie, William Mitchell, M.B., C.M.Aberd., Medical Superintendent, City Mental Hospital, Ipswich.
1901. Ogilvy, David, B.A., M.D., B.Ch.Dubl., Medical Superintendent, Long Grove Mental Hospital, Epsom.
1911. Oliver, Norman Henry, M.R.C.S., L.R.C.P.Lond., Barrister-at-Law, Medical Superintendent, Ministry of Pensions Hospital; Latchmere, Ham Common, Surrey.
1922. O'Flaherty, Very Rev. Claude, M.B., Ch.B.Edin., The College, Millport, Buteshire.
1920. O'Neill, Arthur, O.B.E., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Napsbury Mental Hospital, St. Albans, Herts.
1924. O'Reilly, James Joseph, M.B., B.Ch.Belf., D.P.M., Assistant Medical Officer, Park Prewett Mental Hospital, Basingstoke.
1902. Orr, David, M.D., C.M.Edin., M.P.C., 88, Thirlastane Road, Edinburgh.
1910. Orr, James Henry Cubitt, M.D., Ch.B.Edin., Medical Superintendent, Midlothian and Peebles Asylum, Rosslyn Castle.
1916. Overbeck-Wright, Alexander William, M.D., Ch.B.Aberd., D.P.H., M.P.C., Lt.-Col. I.M.S., Superintendent, Asylum House, Agra, U.P., India. Address: c/o Messrs. King, King & Co., Bombay, India.
1928. Paddle, Kenneth Cecil Laurence, M.C., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, West Riding Mental Hospital, Wakefield.
1905. Paine, Frederick, M.D.Brux., M.R.C.P.Lond., M.R.C.S.Eng., D.P.M., Deputy Medical Superintendent, Claybury Mental Hospital, Woodford Bridge, Essex.
1927. Pal, Sachindra Bhushan, B.A., L.M.S.Calc., Senior Assistant Physician, Central Mental Hospital, Tanjong Rambutan, Federated Malay States.
1927. Parasuram, Govindarajpuram Rampattar, B.A., L.M.S.Madras, M.R.C.P.Edin., Deputy Medical Superintendent, Government Mental Hospital, Madras.
1920. Parkin, George Gray, M.D., Ch.B.Vict., Deputy Medical Superintendent, Cheshire County Mental Hospital, Parkside, Macclesfield.
1920. Parnis, Henry William, B.Sc., M.D.Malta, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.

1916. Patch, Charles James Lodge, M.C., L.R.C.P.&S.Edin., L.R.F.P.S., Glasg., Capt. *I.M.S.*, 8, Jail Road, Lahore, India.
1899. Patrick, John, M.B., Ch.B.R.U.I., Medical Superintendent, District Asylum, Omagh.
1928. Patterson, Edward Cecil, M.B., B.Ch.Belf., Assistant Medical Officer, Devon Mental Hospital, Exminster.
1907. Peachell, George Ernest, M.D., B.S., M.R.C.S., L.R.C.P.Lond., M.P.C., Whitechurch, Blandford.
1920. Pearn, Oscar Phillips Napier, L.S.A., M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Cane Hill Mental Hospital, Coulsdon, Surrey.
1913. Penny, Robert Augustus Greenwood, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Devon County Mental Hospital, Exminster.
1920. Penson, John Frederick, M.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P.Lond., D.P.M., Sunnycroft, St. Peter's Road, Reading.
1927. Perera, Clement Osmund, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Superintendent, Mental Hospital, Angoda, Ceylon.
1928. Perk, David, M.B., Ch.B.Leeds, Junior Assistant Medical Officer, West Riding Mental Hospital, Menston, near Leeds.
1911. Petrie, Alfred Alexander Webster, M.D., B.S., M.R.C.P.Lond., F.R.C.S. Edin., D.P.M., Medical Superintendent, Banstead Mental Hospital, Sutton, Surrey. (Lect. on Ment. Dis., West Lond. Post-Grad. College.)
1908. Phillips, John George Porter, M.D., B.S., M.R.C.S., F.R.C.P.Lond., M.P.C., Resident Physician - Superintendent, Bethlem Royal Hospital, London, S.E. 1. (*Secretary, Educational Committee, 1913-20.*) (Lect. on Ment. Dis., Bart.'s Hosp. and Lond. Sch. of Med. for Women.)
1910. Phillips, John Robert Parry, O.B.E., M.R.C.S., L.R.C.P.Lond., Kingsdown House, Box, Wilts.
1906. Phillips, Nathaniel Richard, M.D.Brux., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Monmouth County Mental Hospital, Abergavenny.
1905. Phillips, Norman Routh, M.D.Brux., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, St. Andrew's Hospital, Northampton.
1921. Phillips, Philip Gordon, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Bryn, The Avenue, Collingham, Leeds.
1924. Pickworth, Frederick Alfred, B.Sc., M.B., B.S., M.R.C.S., L.R.C.P.Lond., A.I.C.(exam.), Ph.C., Director, Joint Board of Research for Mental Diseases, City and University of Birmingham; Hollymoor Mental Hospital, Northfield, Birmingham.
1891. Pierce, Bedford, M.D., F.R.C.P.Lond., "Rosewood," Middlecave Road, Malton, Yorks. (*Secretary, N. and M. Division, 1900-8.*) (PRESIDENT, 1919-20.)
1888. Pietersen, James F. G., M.R.C.S., L.R.C.P.Lond., Ashwood House, Kingswinford, near Dudley, Stafford.
1896. Planck, Charles, M.A.Camb., M.R.C.S., L.R.C.P.Lond., "Pontresina," Perrymount Road, Haywards Heath, Sussex.
1912. Plummer, Edgar Curnow, M.R.C.S., L.R.C.P.Lond., 113, Park Road, Hanover Gate, London, N.W. 8.
1889. Pope, George Stevens, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Heigham Hall, Norwich.
1927. Porteous, Harold Burnet, M.B., Ch.B.Edin., D.P.H., D.P.M., Wing-Cdr. *R.A.F.*; Air Headquarters, Valletta, Malta.
1913. Potts, William A., M.A.Camb., M.D.Edin.& Birm., M.R.C.S., L.R.C.P.Lond., Medical Officer, Birmingham Committee for the Care of the Feeble-Minded; 118, Hagley Road, Egbaston, Birmingham.
1923. Power, Thomas Declan, B.A., M.D., B.Ch.Dubl., M.R.C.P.Lond., D.P.H., D.P.M., Assistant Medical Officer, Essex County Mental Hospital, Brentwood.

1921. Poynder, Ernest George Thornton, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Long Grove Mental Hospital, Epsom.
1918. Prideaux, Joseph Francis Engledue, M.R.C.S., L.R.C.P.Lond., D.C.M.S.; Ministry of Pensions, 1, Sanctuary Buildings, Great Smith Street, London, S.W. 1.
1928. Quine, Margaret Annette, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Lancashire County Mental Hospital, Winwick, Warrington, Lancs.
1928. Raitt, William John, M.B., Ch.B.Aberd., Assistant Physician, Crichton Royal, Dumfries.
1894. Rambaut, Daniel F., M.A., M.D., B.Ch.Dubl., Medical Superintendent, St. Andrew's Hospital; Priory Cottage, Northampton. (*Registrar since 1924.*)
1926. Ramsay, Johnston Campbell, M.B., B.Ch.Belf., D.P.M., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.
1889. Raw, Nathan, C.M.G., M.D., B.S., M.R.C.P.Lond., F.R.C.S., F.R.S. Edin., L.S.Sc.Durh., M.P.C., Lord Chancellor's Visitor; 30, Clarendon Court, Maida Vale, London, W. 9. (*Chairman, Parliamentary Committee since 1926.*) (PRESIDENT-ELECT, 1928-29.)
1913. Read, Charles Stanford, M.D., M.R.C.S., L.R.C.P.Lond., 22, Park Crescent, London, W. 1. (Lect. on Psychol. Med., Bethlem Royal Hospital.)
1920. Read, Walter Wolfe, M.D.Brux., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Berks County Mental Hospital, Moulsoford, Wallingford.
1899. Redington, John Murray, L.R.C.P., F.R.C.S.Irel., 63, Park Avenue, Sydney Parade, Dublin.
1927. Rees, Rufus Price, M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Joint Counties Mental Hospital, Carmarthen.
1927. Rees, Thomas Percy, B.Sc., M.B., B.Ch.Wales, M.R.C.P.Lond., M.R.C.S. Eng., D.P.M., Senior Assistant Medical Officer, Croydon Mental Hospital, Upper Warlingham, Surrey.
1911. Reeve, Ernest Frederick, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Lancashire County Mental Hospital, Rainhill, nr. Liverpool. (Lect. on Ment. Dis., Univ. of Liverp.)
1911. Reid, Daniel McKinley, M.D., Ch.B., F.R.F.P.S.Glas., Medical Superintendent, City Mental Hospital, Exeter.
1910. Reid, William, M.A.St.And., M.B., Ch.B.Edin., Medical Superintendent, Stafford Mental Hospital, Burntwood, Lichfield.
1923. Retallick-Moloney, Herbert Thomas, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Hanwell Mental Hospital, Southall.
1899. Rice, David, M.D.Brux., M.R.C.S., L.R.C.P.Lond., D.P.H., Medical Superintendent, City Mental Hospital, Hellesdon, Norwich.
1897. Richard, William John, M.A., M.B., C.M., F.R.F.P.S.Glas., Merryflats House, Govan, Glasgow. (Medical Superintendent, South General Hospital.)
1922. Riches, Reginald George, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Hanwell Mental Hospital, Southall, Middlesex.
1920. Rickman, John, M.A., M.D., B.Ch.Camb., Chief Assistant, Mental Out-Patients, St. Thomas's Hospital; 37, Devonshire Place, London, W. 1.
1911. Robarts, Henry Howard, M.D., Ch.B.Edin., D.P.H., Medical Officer, East Lothian Mental Hospital, Ennerdale, Haddington, N.B.
1922. Robb, John Robert Beith, L.R.C.P.&S.Edin., L.R.F.P.S.Glas., Assistant Physician, Glasgow District Mental Hospital, Gartloch, Gartcosh, N.B.
1921. Roberts, Edward Douglas Thomas, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.

1903. Roberts, Norcliffe, *O.B.E.*, M.D., B.S.Durb., D.P.M., Medical Superintendent, West Park Mental Hospital, Epsom.
1927. Robertson, David, M.D., Ch.B.Glasg., Junior Assistant Physician, Bethlem Royal Hospital, Lambeth, London, S.E. 1.
1908. Robertson, George Dunlop, L.R.C.S.&P.Edin., L.R.F.P.S.Glasg., Dipl. Psych., Senior Assistant Physician, Lanark District Mental Hospital, Hartwood, N.B.
1920. Robinson, William, M.D., Ch.B.Leeds, D.P.M., Medical Superintendent, City of London Mental Hospital, Stone, Dartford.
1922. Rodger, Kenneth Mann, M.B., Ch.B.Glasg., D.P.M., Deputy Medical Superintendent, Salop County Mental Hospital, Bicton Heath.
1914. Rodger, Murdoch Mann, M.D., Ch.B.Glasg., Dechmont, Helouan, Egypt.
1908. Rodgers, Frederick Millar, *O.B.E.*, M.D., Ch.B.Vict., D.P.H., Medical Superintendent, Lancashire County Mental Hospital, Winwick, Warrington.
1895. Rolleston, Lancelot William, *C.B.E.*, M.B., B.S.Durb., M.R.C.S., L.R.C.P. Lond., Queen Anne's Mansions, St. James's Park, London, S.W. 1.
1922. Rollins, Ernest Edward, B.A., M.B., B.Ch.Dubl., Resident Medical Officer, Brooke House, Upper Clapton, London, E. 5.
1924. Rose, Edward Snow, M.R.C.S., L.R.C.P.Lond., D.P.M., Lansdowne House, Romsey, Hants.
1888. Ross, Chisholm, M.D.Syd., M.B., C.M.Edin., 225, Macquarie Street, Sydney, New South Wales.
1910. Ross, Donald, M.B., Ch.B., M.R.C.P.Edin., M.P.C., *J.P.*, Medical Superintendent, Argyll and Bute Asylum; Tigh-na-Linne, Lochgilphead, Argyll. (*Vice-Chairman, Educational Committee since 1927.*)
1923. Ross, Thomas Arthur, M.D., C.M., F.R.C.P.Edin., Medical Director, Cassel Hospital, Swaylands, Penshurst, Kent.
1899. Rotherham, Arthur, M.A., M.B., B.Ch.Camb., Commissioner, Board of Control, Caxton House West, Westminster, S.W. 1; Elm House, Marshall Road, Farncombe, Surrey.
1922. Roy, John Allen Chisholm, M.B., Ch.B.Vict., Medical Superintendent, Manchester Royal Hospital, Cheadle, Cheshire.
1924. Rudolf, Gerald de Montjoie, M.R.C.S., L.R.C.P.Lond., D.P.H., D.P.M., Assistant Medical Officer, Cane Hill Mental Hospital, Coulsdon, Surrey.
1923. Russell, John, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer West Riding Mental Hospital, Menston, Leeds.
1912. Russell, John Ivison, M.B., Ch.B., F.R.F.P.S.Glasg., D.P.M., M.P.C., Medical Superintendent, North Riding Mental Hospital, Clifton, York.
1915. Russell, William, *M.C.*, M.D., Ch.B.Edin., Dip. Psych., D.T.M., Physician Superintendent, Witrand Institution, Potchefstroom, South Africa.
1912. Rutherford, Cecil, B.A., M.B., B.Ch.Dubl., Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.
1907. Rutherford, Henry Richard Charles, F.R.C.S., L.R.C.P.Irel., D.P.H., Medical Superintendent, Farnham House, Finglas, co. Dublin.
1896. Rutherford, James Mair, M.B., C.M., F.R.C.P.Edin., M.P.C., Brislington House, Bristol.
1922. Ruthven, Morton Wood, M.B., Ch.B.Edin., D.T.M., Assistant Medical Officer, Banstead Mental Hospital, Sutton, Surrey.
1902. Sall, Ernest Frederick, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, City Mental Hospital, Canterbury.
1908. Samuels, William Frederick, L.M., L.Ch.Dubl., Medical Superintendent, Central Mental Hospital; St. Dymphna's, Tanjong Rambutan, Perak, Federated Malay States.
1923. Sang, Janet Adeline Agnes, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Assistant Medical Officer, Lancashire County Mental Hospital, Prestwich, Manchester.

1894. Sankey, Edward Hugh Octavius, M.A., M.B., B.Ch.Camb., Resident Medical Licensee, Boreatton Park, Baschurch, Salop.
1906. Scanlan, John James, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., D.P.H., c/o Glyn Mills & Co., 3, Whitehall Place, London, S.W. 1.
1928. Scholberg, Harold Alfred, M.B., M.R.C.S., L.R.C.P.Lond., D.P.H. 3, St. Andrew's Crescent, Cardiff.
1926. Scoresby-Jackson, Margaret, M.D., B.S.Durh., Clinical Assistant, Neurological Department, Guy's Hospital; 28, Weymouth Street, Portland Place, London, W. 1.
1925. Scott, Francis Leonard, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, London County Mental Hospital, Bexley, Kent.
1911. Scroope, Gervace Wm. Mavy, M.B., B.Ch.Dubl., Assistant Medical Officer, Central Criminal Asylum, Dundrum, co. Dublin.
1880. Secombe, George Samuel, M.R.C.S., L.R.C.P.Lond., c/o Lloyds Bank, Threadneedle Street, London, E.C. 3.
1925. Selkirk, Elizabeth Thompson, M.B., Ch.B.Edin., Deputy Medical Superintendent, Hollymoor Mental Hospital, Northfield, Birmingham.
1912. Sergeant, John Noel, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Newlands House, Tooting Bec Common, London, S.W. 17. (*Secretary, South-Eastern Division since 1913.*)
1925. Shand, George Ernest, M.D., Ch.B.Aberd., D.P.H., Deputy Medical Superintendent, Winson Green Mental Hospital, Birmingham; 307, Gillott Road, Edgbaston, Birmingham.
1901. Shaw, Benjamin Henry, M.D., B.Ch.R.U.I., Medical Superintendent, County Mental Hospital, Stafford. (*Secretary, Research and Clinical Committee since 1927.*)
1905. Shaw, Charles John, M.D., Ch.B., F.R.C.P.Edin., J.P., Medical Superintendent, Royal Asylum, Montrose.
1904. Shaw, Patrick, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Hospital for Insane, Ballarat, Victoria, Australia.
1909. Shaw, William Samuel Jagoe, M.D.Belf., M.B., B.Ch.R.U.I., Lt.-Col. I.M.S., Calcote House, Sandicotes Road, Parkstone, Dorset.
1920. Shearer, Christina Hamilton, M.B., Ch.B.Glasg., Senior Medical Officer, Cassel's Hospital, Swaylands, Penshurst, Kent.
1928. Shepherd, Andrew, M.B., Ch.B.Glasg., Assistant Medical Officer, Hill End Mental Hospital, St. Albans, Herts.
1923. Shepherd, Charles Ernest Alan, M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Hants County Mental Hospital, Knowle, Fareham.
1927. Shera, Arthur Geoffrey, M.A., M.D., M.R.C.S., L.R.C.P.Lond., 10, Upperton Gardens, Eastbourne. (Pathologist to Princess Alice Hospital, Eastbourne.)
1928. Sheridan, Alfred, L.R.C.P.&S.Irel., Resident Medical Superintendent, Mayo County Mental Hospital, Castlebar, Ireland.
1914. Sherlock, Edward Birchall, B.Sc., M.D.Lond., D.P.H., Barrister-at-Law, Medical Superintendent, Darenth Industrial Colony, Dartford.
1914. Shield, Hubert, M.C., M.B., B.S.Durh., c/o Glyn, Mills & Co., 3, Whitehall Place, S.W. 1.
1923. Shore, G. W., M.D.Lond., D.P.H., D.P.M., Assistant Medical Officer, Springfield Mental Hospital, nr. Tooting, London, S.W. 17.
1922. Shortt, Jane Elder, M.B., Ch.B.Glasg., The Lawn, Lincoln.
1928. Silverston, Joseph Denzil, M.B., B.S.Durh., Deputy Medical Superintendent, County Mental Hospital, Lancaster.
1928. Sinclair, Arthur Crawford, M.D., D.P.M., Assistant Medical Officer, Brentwood, Essex.
1891. Skeen, James Humphry, M.B., C.M.Aberd., M.P.C., Medical Superintendent, New Saughton Hall, Polton, Midlothian.
1921. Skene, Leslie Henderson, M.C., M.B., Ch.B.Edin., Dipl.Psych., Medical Superintendent, Mental Hospital, Union Mills, Isle of Man.
1925. Skottowe, James Stewart Ian, M.B., Ch.B.Glasg., D.P.M., Senior Assistant Medical Officer, City Mental Hospital, Whitchurch, Cardiff.

1914. Slaney, Chas. Newnham, M.R.C.S., L.R.C.P.Lond., Medical Officer's House, H.M. Borstal Institution, Feltham, Middlesex.
1901. Slater, George Nathan Oscroft, M.D., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Essex County Mental Hospital, Brentwood.
1928. Smith, Arthur Wallace Herbert, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, South Yorks Mental Hospital, Sheffield.
1910. Smith, Gayton Warwick, M.D.Lond., B.S.Durh., M.R.C.S., L.R.C.P.Lond., D.P.H., Senior Assistant Medical Officer, Springfield Mental Hospital, nr. Tooting, London, S.W. 17.
1905. Smith, George William, O.B.E., M.B., Ch.B.Edin., Wyke House, Isleworth, Middlesex.
1926. Smith, Gordon John, M.B., Ch.B.Aberd., Assistant Physician, Royal Mental Hospital, Morningside, Edinburgh.
1923. Smith, Herbert, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Bristol Mental Hospital, Fishponds.
1899. Smith, John Grimmond, M.D., C.M.Edin., Medical Superintendent, Hereford County Mental Hospital, Burghill.
1920. Smith, Maurice Hamblin, M.A.Camb., M.D.Durh., M.R.C.S., L.R.C.P.Lond., Medical Officer, H.M. Prison, Birmingham. (Lect. on Crim., Univ. of Birm.)
1913. Smith, Thomas Cyril, M.B., Ch.B.Edin., Assistant Medical Officer, County Mental Hospital, Barnwood, Gloucester.
1921. Smyth, John Francis, M.D., B.Ch.N.U.I., D.P.M., Senior Assistant Medical Officer, West Riding Mental Hospital, Wakefield.
1899. Smyth, Walter Samuel, M.B., B.Ch.R.U.I., Assistant Medical Superintendent, District Asylum, Antrim.
1926. Snell, Harvie Kennard, M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.H., Medical Officer, Broadmoor Criminal Lunatic Asylum, Crowthorne, Berks.
1923. Somerville, George, M.D., Ch.B.Edin., D.P.M., Senior Assistant Medical Officer, West Ham Mental Hospital, Goodmayes, Ilford.
1913. Somerville, Henry, B.Sc., M.R.C.S., L.R.C.P.Lond., F.C.S., Harrold, Bedford.
1885. Soutar, James Greig, M.B., C.M.Edin., M.P.C., 20, Royal Parade, Cheltenham. (PRESIDENT, 1912-13.)
1906. Spark, Percy Charles, M.R.C.S., L.R.C.P.Lond., 3, Clapham Mansions, Nightingale Lane, London, S.W. 4.
1925. Speer, James Millar Craig, M.B., B.Ch.Belf., Assistant Medical Officer, Wilts County Mental Hospital, Devizes.
1922. Spence, Thomas Reginald Carwardine, M.C., M.B., Ch.B.Edin., Assistant Physician, Royal Edinburgh Hospital for Mental Disorders, Morningside; 2, Morningside Terrace, Edinburgh.
1891. Stansfield, Thomas Edward Knowles, C.B.E., M.B., C.M.Edin., Southmead, Wimbledon Park, London, S.W. 19.
1901. Starkey, William, M.B., B.Ch.R.U.I., Medical Superintendent, Plymouth Mental Hospital, Blackadon, Ivybridge. (*Secretary, South-Western Division, since 1922.*)
1928. Statham, Hugh, M.B., B.C.Camb., M.R.C.S., L.R.C.P.Lond., Physician for Nervous Diseases, Royal Victoria and West Hants Hospital; 31, Christchurch Road, Bournemouth.
1927. Steel, John P., M.D., Ch.B.Edin., Deputy Medical Superintendent, St. Luke's Hospital, Middlesbrough.
1925. Steel, Samuel Maxwell, M.B., Ch.B.Glasg., Assistant Medical Superintendent, Monyhull Colony, Kings Heath, Birmingham.
1907. Steele, Patrick, M.D., Ch.B., F.R.C.P.Edin., Medical Superintendent, Roxburgh District Asylum; The Hermitage, Melrose.
1914. Stephens, Harold Freize, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, The Manor Certified Institution, Epsom.

1909. Steward, Sidney John, *D.S.O.*, M.D., B.Ch.Camb., M.R.C.S., L.R.C.P. Lond., D.P.H., Langton Lodge, Farncombe, Surrey.
1922. Stewart, Francis Hugh, M.A., D.Sc.St.And., M.D., Ch.B.Edin., D.P.M., Major, *I.M.S.* (retired), Assistant Medical Officer, Staffordshire County Mental Hospital, Cheddleton, Leek.
1927. Stewart, Francis Melville, M.B., Ch.B.Edin., Second Assistant Medical Officer, County and City Mental Hospital, Littlemore, Oxford.
1887. Stewart, Rothsay Charles, L.S.A., M.R.C.S.Eng., Medical Superintendent, Leicester and Rutland County Mental Hospital, Narborough.
1914. Stewart, Roy MacKenzie, M.D., Ch.B., M.R.C.P.Edin., D.P.M., Medical Superintendent, Leavesden Mental Hospital; Woodside, Leavesden, Watford.
1905. Stilwell, Henry Francis, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Hayes Park, Hayes, Middlesex.
1899. Stilwell, Reginald John, M.R.C.S., L.R.C.P.Lond., Moorcroft House, Hillingdon, Middlesex.
1928. Stocks, Jane W., M.B., Ch.B.Glasg., Resident Medical Officer, Hollymoor Mental Hospital, Northfield, near Birmingham.
1897. Stoddart, William Henry Butter, M.D., B.S., F.R.C.P.Lond., M.R.C.S. Eng., M.P.C., Harcourt House, Cavendish Square, London, W. 1. (*Secretary, Educational Committee, 1908-1912.*) (Lect. on Ment. Dis., St. Thomas's Hosp.)
1909. Stokes, Frederick Ernest, M.D., Ch.B.Glasg., D.P.H., Senior Assistant Medical Officer, City Mental Hospital, Milton, Portsmouth.
1903. Stratton, Percy Haughton, M.R.C.S., L.R.C.P.Lond., York Lodge, Cliff Cottage Road, Bournemouth.
1928. Strecker, Herbert A. J., M.D., M.S., Priv.-Doz. Ment. Dis. Univ. Würzb.; Hon. Research Appointment to the Joint Board of Research for Mental Diseases, City and University of Birmingham; Hollymoor Mental Hospital, Northfield, Birmingham.
1885. Street, Charles Tidbury, M.R.C.S., L.R.C.P.Lond., Kettlebury, Churt, Farnham, Surrey.
1909. Stuart, Frederick Joshua, *O.B.E.*, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Northampton County Mental Hospital, Berrywood.
1927. Stungo, Ellis, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg. 10, Marshalsea Road, Southwark, London, S.E. 1.
1924. Sturrock, Alexander Corsar, M.A., M.D., C.M.Edin., M.R.C.P.Lond., Preston House, Eccles, Manchester. (Physician, Salford Royal Hospital.)
1900. Sturrock, James Prain, M.A.St.And., M.D., C.M.Edin., Commissioner, General Board of Control for Scotland; 36, Murrayfield Road, Edinburgh.
1886. Suffern, Alex. Canning, *O.B.E.*, M.D., M.Ch.R.U.I., Glen-y-Mor, Hill Head, Fareham.
1921. Suffern, Canning, M.A., M.B., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Glen-y-Mor, Hill Head, Fareham.
1922. Sullivan, Patrick Daniel, F.R.C.S., L.R.C.P.Irel., Medical Superintendent, Verville Asylum, Clontarf, co. Dublin; 44, Harrington Street, Dublin.
1918. Sutherland, Francis, M.B., Ch.B.Edin., D.P.H., Portree, Isle of Skye.
1919. Suttie, Ian D., M.B., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, Kenlaw House, Colinsburgh, Fife.
1928. Sykes, Elizabeth Sarah Marples, M.B., Ch.B.Sheff., Assistant Medical Officer, South Yorks Mental Hospital, Wadsley, Sheffield.
1928. Sykes, Kathleen Annie Harvey, M.D., B.S.Lond., M.B., Ch.B.Liverp., Assistant Medical Officer, Winson Green Mental Hospital, Birmingham.
1908. Swift, Eric W. D., M.B.Lond., Physician, Valkenberg Mental Hospital, Observaens, Cape Town, South Africa.

1914. Slaney, Chas. Newnham, M.R.C.S., L.R.C.P.Lond., Medical Officer's House, H.M. Borstal Institution, Feltham, Middlesex.
1901. Slater, George Nathan Oscroft, M.D., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Essex County Mental Hospital, Brentwood.
1928. Smith, Arthur Wallace Herbert, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, South Yorks Mental Hospital, Sheffield.
1910. Smith, Gayton Warwick, M.D.Lond., B.S.Durh., M.R.C.S., L.R.C.P.Lond., D.P.H., Senior Assistant Medical Officer, Springfield Mental Hospital, nr. Tooting, London, S.W. 17.
1905. Smith, George William, O.B.E., M.B., Ch.B.Edin., Wyke House, Isleworth, Middlesex.
1926. Smith, Gordon John, M.B., Ch.B.Aberd., Assistant Physician, Royal Mental Hospital, Morningside, Edinburgh.
1923. Smith, Herbert, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Bristol Mental Hospital, Fishponds.
1899. Smith, John Grimmond, M.D., C.M.Edin., Medical Superintendent, Hereford County Mental Hospital, Burghill.
1920. Smith, Maurice Hamblin, M.A.Camb., M.D.Durh., M.R.C.S., L.R.C.P.Lond., Medical Officer, H.M. Prison, Birmingham. (Lect. on Crim., Univ. of Birm.)
1913. Smith, Thomas Cyril, M.B., Ch.B.Edin., Assistant Medical Officer, County Mental Hospital, Barnwood, Gloucester.
1921. Smyth, John Francis, M.D., B.Ch.N.U.I., D.P.M., Senior Assistant Medical Officer, West Riding Mental Hospital, Wakefield.
1899. Smyth, Walter Samuel, M.B., B.Ch.R.U.I., Assistant Medical Superintendent, District Asylum, Antrim.
1926. Snell, Harvie Kennard, M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.H., Medical Officer, Broadmoor Criminal Lunatic Asylum, Crowthorne, Berks.
1923. Somerville, George, M.D., Ch.B.Edin., D.P.M., Senior Assistant Medical Officer, West Ham Mental Hospital, Goodmayes, Ilford.
1913. Somerville, Henry, B.Sc., M.R.C.S., L.R.C.P.Lond., F.C.S., Harrod, Bedford.
1885. Soutar, James Greig, M.B., C.M.Edin., M.P.C., 20, Royal Parade, Cheltenham. (PRESIDENT, 1912-13.)
1906. Spark, Percy Charles, M.R.C.S., L.R.C.P.Lond., 3, Clapham Mansions, Nightingale Lane, London, S.W. 4.
1925. Speer, James Millar Craig, M.B., B.Ch.Belf., Assistant Medical Officer, Wilts County Mental Hospital, Devizes.
1922. Spence, Thomas Reginald Carwardine, M.C., M.B., Ch.B.Edin., Assistant Physician, Royal Edinburgh Hospital for Mental Disorders, Morningside; 2, Morningside Terrace, Edinburgh.
1891. Stansfield, Thomas Edward Knowles, C.B.E., M.B., C.M.Edin., Southmead, Wimbledon Park, London, S.W. 19.
1901. Starkey, William, M.B., B.Ch.R.U.I., Medical Superintendent, Plymouth Mental Hospital, Blackadon, Ivybridge. (*Secretary, South-Western Division, since 1922.*)
1928. Statham, Hugh, M.B., B.C.Camb., M.R.C.S., L.R.C.P.Lond., Physician for Nervous Diseases, Royal Victoria and West Hants Hospital; 31, Christchurch Road, Bournemouth.
1927. Steel, John P., M.D., Ch.B.Edin., Deputy Medical Superintendent, St. Luke's Hospital, Middlesbrough.
1925. Steel, Samuel Maxwell, M.B., Ch.B.Glasg., Assistant Medical Superintendent, Monyhull Colony, Kings Heath, Birmingham.
1907. Steele, Patrick, M.D., Ch.B., F.R.C.P.Edin., Medical Superintendent, Roxburgh District Asylum; The Hermitage, Melrose.
1914. Stephens, Harold Freize, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, The Manor Certified Institution, Epsom.

1909. Steward, Sidney John, *D.S.O.*, M.D., B.Ch.Camb., M.R.C.S., L.R.C.P. Lond., D.P.H., Langton Lodge, Farncombe, Surrey.
1922. Stewart, Francis Hugh, M.A., D.Sc.St.And., M.D., Ch.B.Edin., D.P.M., Major, *I.M.S.* (retired), Assistant Medical Officer, Staffordshire County Mental Hospital, Cheddleton, Leek.
1927. Stewart, Francis Melville, M.B., Ch.B.Edin., Second Assistant Medical Officer, County and City Mental Hospital, Littlemore, Oxford.
1887. Stewart, Rothsay Charles, L.S.A., M.R.C.S.Eng., Medical Superintendent, Leicester and Rutland County Mental Hospital, Narborough.
1914. Stewart, Roy MacKenzie, M.D., Ch.B., M.R.C.P.Edin., D.P.M., Medical Superintendent, Leavesden Mental Hospital; Woodside, Leavesden, Watford.
1905. Stilwell, Henry Francis, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Hayes Park, Hayes, Middlesex.
1899. Stilwell, Reginald John, M.R.C.S., L.R.C.P.Lond., Moorcroft House, Hillingdon, Middlesex.
1928. Stocks, Jane W., M.B., Ch.B.Glasg., Resident Medical Officer, Hollymoor Mental Hospital, Northfield, near Birmingham.
1897. Stoddart, William Henry Butter, M.D., B.S., F.R.C.P.Lond., M.R.C.S. Eng., M.P.C., Harcourt House, Cavendish Square, London, W. 1. (*Secretary, Educational Committee, 1908-1912.*) (Lect. on Ment. Dis., St. Thomas's Hosp.)
1909. Stokes, Frederick Ernest, M.D., Ch.B.Glasg., D.P.H., Senior Assistant Medical Officer, City Mental Hospital, Milton, Portsmouth.
1903. Stratton, Percy Haughton, M.R.C.S., L.R.C.P.Lond., York Lodge, Cliff Cottage Road, Bournemouth.
1928. Strecker, Herbert A. J., M.D., M.S., Priv.-Doz. Ment. Dis. Univ. Würzb.; Hon. Research Appointment to the Joint Board of Research for Mental Diseases, City and University of Birmingham; Hollymoor Mental Hospital, Northfield, Birmingham.
1885. Street, Charles Tidbury, M.R.C.S., L.R.C.P.Lond., Kettlebury, Churt, Farnham, Surrey.
1909. Stuart, Frederick Joshua, *O.B.E.*, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Northampton County Mental Hospital, Berrywood.
1927. Stungo, Ellis, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg. 10, Marshalsea Road, Southwark, London, S.E. 1.
1924. Sturrock, Alexander Corsar, M.A., M.D., C.M.Edin., M.R.C.P.Lond., Preston House, Eccles, Manchester. (Physician, Salford Royal Hospital.)
1900. Sturrock, James Prain, M.A.St.And., M.D., C.M.Edin., Commissioner, General Board of Control for Scotland; 36, Murrayfield Road, Edinburgh.
1886. Suffern, Alex. Canning, *O.B.E.*, M.D., M.Ch.R.U.I., Glen-y-Mor, Hill Head, Fareham.
1921. Suffern, Canning, M.A., M.B., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Glen-y-Mor, Hill Head, Fareham.
1922. Sullivan, Patrick Daniel, F.R.C.S., L.R.C.P.Irel., Medical Superintendent, Verville Asylum, Clontarf, co. Dublin; 44, Harrington Street, Dublin.
1918. Sutherland, Francis, M.B., Ch.B.Edin., D.P.H., Portree, Isle of Skye.
1919. Suttie, Ian D., M.B., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, Kenlaw House, Colinsburgh, Fife.
1928. Sykes, Elizabeth Sarah Marples, M.B., Ch.B.Sheff., Assistant Medical Officer, South Yorks Mental Hospital, Wadsley, Sheffield.
1928. Sykes, Kathleen Annie Harvey, M.D., B.S.Lond., M.B., Ch.B.Liverp., Assistant Medical Officer, Winson Green Mental Hospital, Birmingham.
1908. Swift, Eric W. D., M.B.Lond., Physician, Valkenberg Mental Hospital, Observataens, Cape Town, South Africa.

1926. Talbot, Geoffrey, B.Sc., M.B., Ch.B.Manch., Assistant Medical Officer, Lancashire County Mental Hospital, Prestwich, Manchester.
- 1923 Tattersall, Stanley Roy, M.R.C.S., L.R.C.P.Lond., Pathologist, Lancashire County Mental Hospital, Lancaster.
- 1910 Taylor, Arthur Loudoun, B.Sc., M.B., Ch.B., F.R.C.P.Edin., Senior Assistant Medical Officer, Stafford County Mental Hospital, Burntwood, Lichfield.
1924. Taylor, Frederic Cecil Marsh, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Kent County Mental Hospital, Chartham Downs.
1897. Taylor, Frederic Ryott Percival, M.D., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, East Sussex County Mental Hospital, Hellingly. (*Chairman, Educational Committee since 1927.*)
1925. Taylor, Robert, L.R.C.P.&S.Irel., Assistant Medical Officer, St. Patrick's Hospital, Dublin.
1926. Tennent, Thomas, M.B., Ch.B.Glasg., D.P.H., D.P.M., Assistant Medical Officer, Maudsley Hospital, Denmark Hill, London, S.E. 5.
1921. Thomas, Cyril James, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Lancashire County Mental Hospital, Lancaster.
1920. Thomas, Frederic Percival Selwyn, M.D., Ch.B.Vict., The Oaks, Porthill, Staffordshire.
1908. Thomas, Joseph David, B.A., M.B., B.C.Camb., Northwoods House, Winterbourne, Bristol.
1911. Thomas, William Rees, M.D., B.S., M.R.C.S., M.R.C.P.Lond., D.P.M., M.P.C., Medical Superintendent, Rampton State Institution, near Retford, Notts; Gray Ridges, Woodbeck, Retford, Notts.
1925. Thompson, Robert, M.B., B.Ch.Belf., D.P.M., St. Patrick's Hospital, Dublin.
1921. Thomson, Aidan Gordon Wemyss, M.B., Ch.B.Glasg., Assistant Physician, Glasgow Royal Mental Hospital, Gartnavel.
1920. Thomson, William George, M.A., M.B., Ch.B.Aberd., D.P.H., D.P.M., Deputy Medical Superintendent, Manchester Royal Hospital, Cheadle, Cheshire.
1927. Thorpe, Frederick Thomas, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer and Pathologist, South Yorkshire Mental Hospital, Wadsley, Sheffield.
1901. Tighe, John Valerian George Brosnan, M.B., B.Ch.R.U.I., Medical Superintendent, Gateshead Mental Hospital, Stannington, Northumberland. (*Secretary, N. and M. Division since 1927.*)
1914. Tisdall, Charles Jerome, M.B., Ch.B.Edin., Shaftesbury House, Formby, Liverpool.
1903. Topham, J. Arthur, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Kent County Mental Hospital, Chartham Downs.
1896. Townsend, Arthur Allen Deykin, M.D., B.Ch.Birm., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Barnwood House, Gloucester.
1903. Tredgold, Alfred Frank, M.D.Durh., M.R.C.S., M.R.C.P.Lond., F.R.S. Edin., "St. Martin's," Guildford.
1908. Tuach-Mackenzie, William, M.D., Ch.B.Aberd., Physician-Superintendent, Royal and District Asylums, Dundee; Westgreen, Dundee. (Lect. on Ment. Dis., Univ. of St. Andrews.)
1906. Turnbull, Peter Mortimer, M.C., M.B., B.Ch.Aberd., D.P.M., Senior Assistant Medical Officer, Mental Hospital, Caterham.
1909. Turnbull, Robert Cyril, M.D., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Essex County Mental Hospital, Severalls, Colchester.
1906. Turner, Frank Douglas, M.B., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Royal Eastern Counties Institution, Colchester.
1922. Twomey, John Christopher, M.B., Ch.B.Liverp., D.P.H., Senior Assistant Physician, The Mental Hospital, Queenstown, Cape Province, South Africa; c/o Secretary for Interior, Pretoria.
1922. Viehoff, Herman Crowther, M.R.C.S., L.R.C.P.Lond., 48, Moor Lane, Great Crosby, Lancs.

1894. **Vincent**, William James N., C.B.E., M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, South Yorkshire Mental Hospital, Wadsley, Sheffield. (Lect. on Ment. Dis., Univ. of Sheff.)
1923. **Wadsworth**, George Reginald, M.B., B.Ch.Belf., Assistant Medical Officer, Lancashire County Mental Hospital, Lancaster.
1928. **Waldo**, Henry Cecil, M.R.C.S., L.R.C.P.Lond., *Barrister-at-Law*, Medical Superintendent, Notts County Mental Hospital, Radcliffe-on-Trent, Notts.
1926. **Walk**, Alexander, M.D., B.S.Lond., D.P.M., Assistant Medical Officer, Long Grove Mental Hospital, Epsom. (*Assistant Editor of Journal since 1928.*)
1914. **Walker**, Robert Clive, M.D., Ch.B.Edin., Deputy Medical Superintendent, West Riding Mental Hospital, Menston, Leeds.
1908. **Wallace**, John Andrew Leslie, M.D., Ch.B.Edin., M.P.C., *J.P.*, Mental Hospital, Callan Park, Sydney, New South Wales.
1912. **Wallace**, Vivian, L.R.C.P.&S.Irel., D.P.H., Ballinakill, Multyfarnham, co. Westmeath.
1926. **Wallis**, Robert Lauder Mackenzie, M.A., M.D.Camb., L.M.S.S.A., 106, Harley Street, London, W. 1.
1928. **Walsh**, Michael A., L.R.C.P.&S.I., D.P.M., Assistant Medical Officer, District Mental Hospital ("Portlaoighise"), Maryborough.
1889. **Warnock**, John, C.M.G., B.Sc., M.D., C.M.Edin., M.R.C.S.Eng., The Limes, 181, London Road, Twickenham.
1927. **Waterhouse**, Amyas Theodore, M.A., M.D., B.Ch.Oxon., M.R.C.S., L.R.C.P.Lond., Hon. Physician, Neurological Department, Radcliffe Infirmary; 35, Beaumont Street, Oxford.
1895. **Waterston**, Jane Elizabeth, M.D.Bruce., F.R.C.P.Irel., L.R.C.S.Edin., M.P.C., Govt. Official Visitor, Valkenberg Mental Hospital, Cape Town; 85, Parliament Street, Cape Town, South Africa.
1922. **Watson**, Douglas Chalmers, M.D., F.R.C.P.Edin., 28, Melville Street, Edinburgh. (Physician, Royal Infirmary, Edinburgh.)
1891. **Watson**, George Alfred, M.B., C.M.Edin., M.P.C., Pathologist to the Lancashire County Mental Hospitals; Rainhill Cottage, Rainhill, Nr. Liverpool. (Lect. on Neuro-Path. of Ment. Dis., Univ. of Liverp.)
1908. **Watson**, Hugh Ferguson, M.D., Ch.B.Glasg., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., D.P.H., F.R.S.Edin., Deputy Commissioner, General Board of Control for Scotland; Northcote, Edinburgh Road, Perth.
1924. **Watson**, John, M.C., M.B., B.Ch.Edin., Resident Medical Superintendent, District Asylum, Londonderry.
1911. **Webber**, Leonard Mortis, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Surrey County Mental Hospital, Netherne, Coulsdon.
1922. **Webster**, William Leckie, M.B., Ch.B.Edin., M.P.C., Major R.A.M.C., R.A.M.C. Mess, The Mall, Rawal Pindi, India.
1928. **Weston**, Angus Harold, M.B., Ch.B.Edin., Assistant Medical Officer, Devon Mental Hospital, Exminster.
1919. **Westrup**, Joseph Perceval, M.R.C.S., L.R.C.P.Lond., Medical Officer, The Old Manor, Salisbury.
1911. **White**, Edward Barton Cartwright, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, City Mental Hospital, Fishponds, Bristol. (Lect. on Ment. Dis., Univ. of Brist.)
1884. **White**, Ernest William, C.B.E. M.B., I.S.A., M.R.C.S., M.R.C.P.Lond., Betley House, near Shrewsbury. (*Secretary, S.E. Division, 1897-1900.*) (*Chairman, Parliamentary Committee, 1904-7.*) (*PRESIDENT 1903-4.*)
1927. **White**, Mary Anne, M.B., B.Ch.Belf., D.P.M., Assistant Medical Officer, Portrane Mental Hospital, Donabate, co. Dublin.
1921. **Whitelaw**, William, M.B., B.Ch.Glasg., 3, Talbot Terrace, Scotstounhill, Renfrewshire.

1889. Whitwell, James Richard, M.B., C.M.Edin., 66, York Mansions, Battersea Park, S.W. 11. (*Acting Hon. Librarian and Chairman, Library Committee since 1927; Librarian since 1928.*)
1913. Wilkins, William Douglas, M.B., Ch.B.Vict., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Stafford County Mental Hospital, Cheddleton, Leek.
1900. Wilkinson, Harry Bacon, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Plymouth Mental Hospital, Blackadon, Ivybridge, South Devon.
1925. Williams, Edward Lincoln, M.R.C.S., L.R.C.P.Lond., The Hall, Harrow Weald, Middlesex.
1925. Williams, Rhodri Gwyn, M.R.C.S., L.R.C.P.Lond., Claremont Mental Hospital, Perth, Western Australia.
1922. Williamson, David Hardie, M.B., Ch.B.Edin., Assistant Medical Officer, Glasgow District Mental Hospital, Woodilee, Lenzie, N.B.
1916. Williamson, Marguerite, M.B., Ch.B.Glasg., D.P.M., The Ochil Hills Sanatorium, Milnathort, Kinross-shire.
1923. Wilson, Alban, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Hants County Mental Hospital, Knowle, Fareham.
1927. Wilson, Charles Herbert, M.B., B.Ch.Dubl., General Hospital, Cheltenham, Glos.
1928. Wilson, Edward Alexander, M.D., Ch.B.Edin., Assistant Medical Officer, Mental Hospital, Caterham, Surrey.
1925. Wilson, Harriette Appleby, M.B., Ch.B.Leeds, D.P.M., Senior Assistant Medical Officer, West Riding Mental Hospital, Wakefield.
1923. Wilson, Isabel Grace Hood, M.B., Ch.B.Edin., D.P.M., Pathologist, Tavistock Square Clinic for Functional Nervous Diseases; 42, Harley Street, London, W. 1.
1920. Wilson, James Leitch, M.B., Ch.B.Edin., D.P.M., 81, Harley Street, London, W. 1.
1899. Wolseley-Lewis, Herbert, M.D.Brux., F.R.C.S., L.R.C.P.Lond., "Dormers," Wimborne, Dorset. (*Secretary, Parliamentary Committee, 1907-12, Chairman, 1912-21.*)
1921. Wood, Bertram William Francis, M.B., B.S.Leeds, West African Medical Staff; c/o P.O., Lagos, South Province, Nigeria.
1869. Wood, T. Outterson, M.D.Durh., M.R.C.P.Lond., F.R.C.P., F.R.C.S. Edin., "Lodore," Chelston Road, Torquay. (*PRESIDENT, 1905-6.*)
1912. Woods, James Cowan, B.A.R.U.I., M.D., B.S., M.R.C.S., L.R.C.P.Lond., 45, Weymouth Street, W. 1. (*Lect. on Ment. Dis., St. George's and London Hosps.*)
1885. Woods, John Francis, M.D.Durh., L.S.A., M.R.C.S.Eng., 7, Harley Street, Cavendish Square, London, W. 1.
1912. Wootton, John Charles, M.C., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Haydock Lodge, Newton-le-Willows, Lancs.
1922. Wootton, Leonard Henry, M.C., B.Sc., M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Ewell Colony, Surrey.
1900. Worth, Reginald, O.B.E., M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Springfield Mental Hospital, nr. Tooting, London, S.W. 17. (*General Secretary since 1919.*) (*Lect. on Ment. Dis., Westm. Hosp.*)
1917. Wright, Maurice Beresford, O.B.E., M.D., C.M.Edin., 86, Brook Street, London, W. 1.
1928. Yates, Arthur Gurney, M.A., M.D.Edin., M.R.C.P.Lond., Physician, Sheffield Royal Infirmary; 53, Wilkinson Street, Sheffield.
1921. Yellowlees, David, M.B., Ch.B.Glasg., 5, St. James Terrace, Glasgow, W.

1914. Yellowlees, Henry, *O.B.E.*, M.D., Ch.B., F.R.C.P.Edin., F.R.F.P.S. Glasg., D.P.M., Medical Superintendent, The Retreat, York.
 1926. Young, Hubert Turner Penn, M.B., Ch.B.Edin., Medical Officer, H.M. Prison, Parkhurst, Isle of Wight.

ORDINARY MEMBERS	727
HONORARY MEMBERS	33
CORRESPONDING MEMBERS	22
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Total	782

OBITUARY.

Honorary Member.

1895. Ferrier, Sir David, LL.D., Sc.D., M.D., F.R.C.P., F.R.S., 27, York House, Church Street, Kensington, London, W. 8.

Members.

1904. Bodvel-Roberts, Hugh Frank, M.A.Camb., L.S.A., M.R.C.S., L.R.C.P. Lond., Senior Assistant Medical Officer, Napsbury Mental Hospital, St. Albans, Herts.
 1909. Campbell, Donald Graham, M.B., C.M.Edin., Assistant Medical Officer, District Asylum; "Auchinellan," 12, Reidhaven Street, Elgin.
 1898. Labey, Julius, L.S.A., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Public Asylum, Jersey; The Myrtles, St. Saviour's, Jersey.
 1923. Macdonald, Colin, L.R.F.P.S.Glasg., Medical Officer of Kilfinichen; Bunessau, Mull, by Oban, N.B.
 1896. Morton, William Britain, M.D., M.R.C.S., L.R.C.P.Lond., Superintendent, Wonford House, Exeter.
 1908. Prentice, Reginald Wickham, L.M.S.S.A., Bridge House, Ringwood.
 1926. Russell, Elizabeth Dill, M.R.C.S., L.R.C.P.Lond., D.P.H., Assistant Physician, West Koppies Mental Hospital, Pretoria, South Africa.
 1877. Shuttleworth, George E., B.A.Lond., M.D.Heidelb., L.S.A., M.R.C.S. Eng., 36, Lambolle Road, Hampstead, London, N.W. 3.
 1911. Smith, Thomas Waddelow, L.S.A., L.R.C.P.Lond., F.R.C.S.Eng., M.P.C., "Robinwood," Wells Road, Mapperley, Nottingham.
 1875. Spence, J. Beveridge, *O.B.E.*, M.D., M.Ch.Q.U.I., L.A.H.Dubl., 1, St. Matthew's Road, St. Leonards-on-Sea. (*First Registrar*, 1892-1899; *Chairman, Parliamentary Committee*, 1910-12.) (PRESIDENT, 1899-1900.)

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Part I.—Original Articles.

GENERAL PARALYSIS.

A DISCUSSION WHICH TOOK PLACE ON NOVEMBER 23, 1928, UNDER
THE AUSPICES OF THE GENERAL PARALYSIS SUB-COMMITTEE,
AT A GENERAL MEETING OF THE ROYAL MEDICO-PSYCHOLOGICAL
ASSOCIATION.

THIS discussion was arranged by permission of the President to afford members the opportunity of considering certain points raised relating to the diagnosis, pathology and treatment of general paralysis in papers read by Dr. J. Brander and Dr. J. F. Smyth at the Annual Meeting on July 13, 1928.

The Sub-Committee had previously circularized these points, which were the following :

THE DIAGNOSIS.

1. Is the diagnosis of general paralysis justified on laboratory findings only, *i.e.*, without the support of (a) mental, (b) physical, or (c) both mental and physical signs? If not, then what physical and mental symptoms are necessary to support laboratory findings in order to justify a diagnosis of general paralysis?

2. Are cases now being diagnosed and treated as general paralysis in virtue of certain common laboratory findings, which otherwise would not have been diagnosed as such? If so, do these cases represent an altered type of general paralysis, or are they merely the cases which were formerly classed as cerebral syphilis and treated as such with a reasonable prospect of improvement or cure?

3. Can cases of acute cerebral syphilis be distinguished from general paralysis clinically or serologically? If so, how?

4. To what extent is there unanimity of opinion as to the laboratory findings which justify or support the diagnosis of general

paralysis? [This question arises because of the necessity for a complete standard correlation between the mental and physical signs and the serological changes in such cases.]

THE PATHOLOGY.

1. Is there a special neurotropic strain of spirochæte in general paralysis?

2. Should cases of acute cerebral syphilis (infection *via* blood-vessels and not lymphatics) be regarded as suffering from general paralysis?

3. Is general paralysis due to a pure or a mixed infection?

4. Are the pathological findings in general paralysis pathognomonic or are they merely those found in all cases of dementia?

TREATMENT.

1. The application of malaria and tryparsamide therapy to cases of early syphilis showing pathological changes in the cerebro-spinal fluid.

2. The cause of the variation of the results of malaria and tryparsamide therapy in general paralysis claimed by different observers.

3. Should malaria therapy be supplemented by anti-syphilitic measures?

The PRESIDENT (Prof. J. Shaw Bolton) presided, and opened the discussion by calling upon Dr. J. Brander to give a short summary of the views he had expressed in his paper at the Annual Meeting, which had not yet appeared in the Journal.

Dr. J. BRANDER (Bexley) said that in his paper he had tried to create some certainty on the subject of the diagnosis of general paralysis. In the amount of time he was allowed on the present occasion it would be impossible for him to do more than indicate a few points which, he thought, should receive the serious consideration of the General Paralysis Sub-Committee.

The first and the most important point was, Did we know what general paralysis was? Had he been asked that question a few years ago he would have said, "Yes, certainly, we can make that diagnosis." But since serological methods were introduced in the diagnosis of general paralysis, many conditions were being called general paralysis which would not have been so classified at one time. This error, he thought, had arisen in two or three main ways, which it would be his effort to indicate.

Originally the diagnosis was based on clinical grounds; there was

a definite mental state which enabled one to say, "This condition can only be general paralysis, for there is no other mental disorder in which this behaviour is found." In the second place, the physical signs, when they occurred, were unequivocal. The kind of speech found in patients with the disease was said by the neurologist of thirty years ago to be one which could not very well be mistaken for anything else. On the mental and the physical condition the diagnosis of general paralysis was made, and on such diagnosis there was established a hopeless prognosis, for there was said to be a strong resistance to treatment. The speaker came into psychiatry at about the time when laboratory studies were commencing. He and his colleagues made the diagnosis of general paralysis, and then, as a matter of curiosity, they sent the specimens of blood and cerebro-spinal fluid to the laboratory, just to see what the pathologist would report. In one case, he remembered, the report came back that it was negative. He and his colleagues said, "This is general paralysis; we will send the specimens up again." The second time the people in the laboratory acknowledged that technical errors influenced the reactions. He had been through the case-papers of all patients admitted during his first five years at hospital, and during that time 166 cases were diagnosed as general paralysis, and the diagnosis was arrived at on clinical grounds. Of 111 cases the report was positive except in one, and that one patient was still alive in 1910, and on parole, meaning that 110 out of 111 diagnoses were confirmed by a positive Wassermann. He argued that this justified his contention that the clinical diagnosis was pretty reliable. During the same period 7 cases had had some other diagnosis, arrived at clinically, altered to general paralysis of the insane, on the strength of the laboratory findings. Those seven cases were all interesting. Three of them died of general paralysis. A fourth case remitted; after two years he was discharged. The fifth continued unchanged indefinitely. In 1910 all his reactions were positive, and in 1923 they were little altered. At the request of his friends he was transferred to another mental hospital, where they had more convenience for visiting. His blood and cerebro-spinal fluid still gave the reactions, therefore he was treated with malaria. A month ago, when the speaker last made inquiries, he was in much the same state as eighteen years ago. From the speaker's experience he would say that eighteen years from now the man would be appreciably older, but not much altered otherwise.

The sixth case had had previous attacks of mental disorder—mania and melancholia. He was admitted in 1911, recovered from his attack, and was discharged to the care of his friends. During

the summer just past, having done much useful work in the meantime, he was re-admitted. He was discharged recovered last month.

The seventh patient showed all the reactions, and the diagnosis of dementia præcox was altered to that of general paralysis. Now, eighteen years afterwards, he was a very useful man, and all his reactions had cleared up spontaneously except that in the middle of the gold curve there was a 1, 3, 1. Thus, in four out of the seven cases in which the diagnosis turned on the Wassermann reaction, the patients were still alive. Of the 110 in which the clinical diagnosis was merely confirmed by the positive Wassermann, all were dead. The other cases, in which a Wassermann was not done, ran the ordinary course of general paralysis, and every one of them—150—showed typical general paralytic findings at the *post-mortem*. He hoped members present would agree with him that those figures showed that general paralysis was a definite clinical entity long before laboratory tests were heard of, and that laboratory tests might introduce a fallacy. He could mention many other types, but there was not now time.

He hoped his hearers would not think that this question of diagnosis was of purely academic interest. It was essential to recognize the difference between the general paralytic, the subject of syphilitic brain disease, and a case of ordinary mental disorder who happened to have syphilis. It was now known that one might get a positive reaction in the spinal fluid of secondary and tertiary syphilitic patients without symptoms, with increase of cells and protein and the parietic gold curve, but they were not absolute signs of general paralysis. Workers on the Continent—as probably most members knew—had been suggesting that the action of malaria in cases of general paralysis might be a completion of the cycle of reactions in the body, to convert the latent secondary syphilis into a tertiary syphilis, which then might either undergo spontaneous recovery, or might be amenable to treatment by ordinary anti-syphilitic remedies.

He would close by saying that not long ago he was reading some literature on the subject, when he came across an article relating a histological investigation which had been made into some cases. It gave an account of a man supposed to have general paralysis who, a year after admission, was given malaria. A fortnight later he died of lobar pneumonia, and the observer found that some of the appearances of the brain were consistent with the man having had general paralysis, therefore the malaria had contributed to the cerebral syphilis. He mentioned that simply to show that the only way to prevent such reports was to obtain as clear an idea as

possible of what was meant by general paralysis, and that was the object of this meeting.

Dr. W. A. CALDWELL (The Maudsley Hospital) said he wanted to say a few words upon the theory of there being neurotropic and dermatropic strains of the spirochæte. For many years it had been realized that though many people acquired syphilis with the usual characteristics, only 4% of those suffering from syphilis developed general paralysis later, and only 3% of them became tabetics. A hypothesis advanced to account for this was that there was a special causal strain of spirochæte, which had as its natural habitat the central nervous system, as compared with the ordinary strain of spirochæte, which grew in the dermal structures and the viscera of the body. Much evidence had been adduced to support that theory, both in the way of statistics and of experimental investigation. One important piece of evidence was the fact that in tropical and subtropical countries—China was the one most quoted—where syphilis was rife, general paralysis was almost unknown, workers in such countries having seldom, if ever, come across a case of general paralysis. But that evidence might be refuted by the fact that no one had really, with specific purpose, gone out to look for cases of general paralysis in those countries; they had been aliens in a strange land, not knowing the native tongue, and knowing but little of the psychology of the people, in addition to which they had large clinics and a large amount of work to do. Hence it was very likely that no real search had been made for cases of general paralysis. Another point which was brought up was the incidence of conjugal and consanguineous neuro-syphilis. Many observers had described cases of conjugal and consanguineous neuro-syphilis, but when one studied the relatively few cases described in comparison with the tremendous number of general paralytics, it would be seen that the mere fact that a few of them had been described—and they had been described because of their fewness—did not lend much evidence to the theory of the dual type of spirochæte.

Another point brought forward in favour of the view was that several people infected from the same source had developed general paralysis. The fact that those cases were cited in all the text-books and were classical, and that everyone had read or heard about them at some time, rather condemned the theory. If such cases had been common, if they had been the usual sort of happening there would have been no occasion to quote them.

Fournier brought stronger evidence to support the theory of a dual type of spirochæte. He had examined the histories of several

hundreds of general paralytics, from the primary stage, through the secondary, right up to the onset of general paralysis, and he stated that in the primary stage the sore was a very transitory one, the secondary stage was present in relatively few of the cases and was of a very fleeting character. In only 4 of 187 cases was he able to find recognizable tertiaries. The fallacy lay in the fact that since the infection produced such a transitory primary lesion, and since there were few or no secondary lesions, might not those people have developed general paralysis because treatment had been inefficient.

Another point brought up to support the hypothesis was that tertiary syphilitic lesions were seldom found in general paralytics. Perhaps the reason was largely because *post-mortem* examinations on general paralytics had been carried out in a rather lax manner. Several authorities in Lancashire last year published a report on *post-mortems* they had held over 100 cases of general paralysis, the examinations having been carried out in a systematic and thorough manner, and in almost all the cases there were found evidences of syphilitic lesions elsewhere than in the brain. In a large majority of the cases there was evidence of involvement of the aorta, and in many of the cases the examiners were able to demonstrate the presence of the spirochæte in the walls of the aorta. This showed that in general paralysis the syphilitic lesions were distributed generally throughout the body, as in ordinary cases of syphilis. Levaditi and Marie, who perhaps had investigated this subject more thoroughly than anybody else on the experimental side, chose for their experiments rabbits, but it was a bad choice, as that animal was liable to infection in the ordinary way by a spirochæte which was morphologically and biologically similar to the *Treponema pallidum*. Those workers infected a certain group of rabbits with the blood from a general paralytic, and they infected another group of rabbits from a human chancre. The primary lesion of the rabbits infected from general paralytics differed from the others in that it was a much shallower lesion; it was of a papulo-squamous nature, in comparison with the typical indurated, hard-based chancre. In the chancre which arose from the general paralytic infection the spirochæte was confined to the superficial layers of the skin; there was only a periarteritis, no evidence of endarteritis. The incubation period was a very long one, in comparison with the usual short incubation period in the rabbits infected from the ordinary chancre, also the virulence of the infection was very much less. The serum of a rabbit which had been inoculated from the general paralytic was inoculated into a human subject, and he showed no lesions, whereas a volunteer who was

inoculated with the serum of a rabbit infected by the more virulent strain of spirochæte, which came from the human chancre, produced typical signs of primary syphilis and gave a positive Wassermann. These findings showed a definite difference between the two types of spirochæte. But the authors condemned their own work by publishing, three or four years later, similar differences which they found in cases that had been inoculated from various strains of spirochæte found in human chancres—just as marked differences as were found in the investigations previously mentioned.

The conclusion was that the spirochæte, as was the case with all other organisms, differed from day to day, from source to source, differed in virulence and in its degree of adaptability. Carandette and Yawnill supported the hypothesis that, rather than there being a difference caused by one being a specific neurotropic organism and the other a dermatropic, the spirochætes were one and the same family, only differing in virulence, and that the reason one infected person developed visceral syphilis and another general paralysis was due to a difference in the soil—the person infected—rather than an essential difference in the spirochæte itself.

Dr. W. D. NICOL (Horton) remarked that there was one thing he wanted to make a plea for, especially as he had had the opportunity, in the last year, of visiting hospitals throughout Great Britain on behalf of the Ministry of Health in connection with the malarial treatment of general paralysis. Besides the mental hospitals, he had also had access to general hospitals in his inquiry into these cases. During the course of that inquiry he had been struck with the absence, in a large proportion of cases, of physical signs, and with the vagueness of the mental symptoms. His plea, therefore, was that these cases should be seen and placed under treatment as early as possible. Dr. Brander had said that general paralysis of the insane was a definite clinical entity, which stood alone, and that it was known before serological investigations were made. The speaker admitted that much depended on the skill of the individual clinician, but the importance of early diagnosis should encourage all to examine cases of mild psychosis more frequently from the point of view of the serological findings they presented. There occurred an early stage, in which the patient was free from physical signs and symptoms, but the all-important syphilitic changes were present in the cerebro-spinal fluid. Dunker, in a paper read in America last year, analysed 74 early cases of general paralysis of the insane, and that authority found that—in the order of frequency—the most common symptoms were emotional irritability, the patient being restless and fidgety,

though some were abnormally quiet and preoccupied, listless, and apathetic; loss of body-weight was marked. Some had forgetfulness, in some there was an increased tendency to sleep; others showed defective judgment. Admittedly, all those were vague symptoms, but they were present. Therefore anyone between 30 and 50 years of age who had an indefinite neurotic complaint should be examined from the standpoint of the possibility of general paralysis of the insane, as also should those who got epileptiform attacks at or after middle life. The practitioner, as a rule, was too easily satisfied with the diagnosis of "neurosis" or "neurasthenia" in the first case, and of "epilepsy" in the second place. The fully developed psychosis was preceded, for some months or longer, by these general, indefinite neurasthenic complaints. In Vienna they were now treating even cases of primary syphilis with malaria. They were also treating with malaria a certain type of case—of which the speaker saw a number during the war—that had had a sound course of anti-syphilitic treatment, but whose serological findings were obstinately positive. And according to reports the results had been fairly good, in that after the malaria treatment the serological findings had been definitely improved.

He agreed that the malarial treatment was not easy to look after and control, and that it called for much care and management; but, given proper skill and nursing, it was not such a serious matter as was sometimes maintained by doctors in general hospitals.

Dr. NATHAN RAW (Lord Chancellor's Visitor) said this was a subject in which he had taken an intense interest for a long time. He thought all were agreed with the dictum—"No syphilis, no general paralysis." Even fifty years ago it was thought that general paralysis was associated with syphilis. Bearing on the last remark of Dr. Caldwell, that there was something to be said for the environment, the speaker had had a very interesting experience, and it might to some extent provide a reason for the fact that only 4% of the people attacked with syphilis developed general paralysis. In 1888 he was assistant medical officer at the Durham County Asylum, where there was a very astute medical superintendent, Dr. Robert Smith. Dr. Smith was always impressed with the fact that he had so many cases of general paralysis at his asylum, while superintendents at other mental hospitals did not, and he could find no reason for the difference. Sir David Drummond, a distinguished physician in the North—still alive, he was glad to say—was the first to suggest that tabes was a direct result of syphilis; Sir David also suggested that general paralysis was probably associated with syphilis, and the surmise, Dr. Raw thought,

had now been universally accepted as true. He, the speaker, proceeded from the Durham County Asylum—where the residents in the asylum led a rather strenuous life—to the calm of the Kent County Asylum, Barming Heath, where there was not the same strenuous life. In the latter institution he was impressed with the fact that there was practically no general paralysis in the whole of that asylum. For his M.D. thesis he prepared careful notes of 100 cases of general paralysis, and at that date the people who examined him, both the external examiner and the professor, admitted they had not seen a case of general paralysis, or one which had been recognized as such, in a general hospital. He, Dr. Raw, agreed that the spirochæte which caused syphilis was a universal spirochæte, and that there were no differences in virulence or in character between the different forms of spirochæte, but he did think that the environment—or, as Dr. Caldwell put it, the soil—had a great deal to do with whether a man attacked with syphilis would or would not develop general paralysis. And the kind of life he led, whether quiet or exciting, whether he took much alcohol or not, had, he thought, an important bearing on whether the spirochæte with which he was infected would or would not attack his nervous system.

Another curious thing was the rarity with which women were attacked with general paralysis. Out of the 100 cases of general paralysis which he saw at Durham County Asylum only 3 were in women. It was very difficult to explain the disparity, unless it was that, on the whole, the woman's life was less strenuous than that of the man.

He did not think any further progress had been made in the ætiology of general paralysis, because the older physicians were just as acute in diagnosing general paralysis as were present-day physicians; and he thought the Wassermann test could only be regarded, in a very large percentage of cases, as confirmatory rather than diagnostic in itself.

Dr. T. SAXTY GOOD (Oxford) said he did not feel very competent to speak on this subject, as his own experience of general paralysis was confined to a comparatively small number of cases, but he would like to say a few words supporting Dr. Brander's remarks as to the importance of correlating the clinical and pathological data in the diagnosis of general paralysis. He, the speaker, was attached to a general hospital, and that hospital used the Sigma test for syphilis. This test indicated the degree of infection in units. General paralysis always gave a positive cerebro-spinal fluid, but a positive cerebro-spinal fluid might not be general paralysis.

During the war he first noticed that cases came to his department who had been treated by salvarsan, with clinical symptoms of acute general paralysis, which symptoms appeared to have been greatly accelerated by the anti-syphilitic injections. These cases ran a very rapid course and at death *post-mortems* showed undoubted general paralysis. Clinical cases, however, of general paralysis which, both at the general and mental hospitals, had been treated at first with malaria and after treatment had undergone a course of injections by salvarsan and bismuth, seemed on the other hand to have further improved by the anti-syphilitic remedy. The Sigma test after malarial treatment often showed no diminution in the number of units. Some cases showed an increase. The clinical condition generally improved. In all cases first treated by malaria and subsequently given a three months' course of salvarsan and bismuth there was a diminution in the units in both cerebro-spinal fluid and blood. Therefore, his experience seemed to indicate :

(1) That malaria produced improvement of the patient clinically but had no effect in diminishing the number of units in the Sigma test of the cerebro-spinal fluid.

(2) That after malarial treatment, salvarsan and bismuth injections were not only well borne, but appeared to lower the number of units of infection.

(3) That whereas some cases of general paralysis treated primarily by salvarsan preparations appeared to rapidly become worse, cases treated first by malaria did not show this tendency. On the contrary the malarial treatment appeared to, as it were, enhance the value of the anti-syphilitic injections.

He was putting these points forward tentatively. What he wished to emphasize was, that cases having a positive cerebro-spinal fluid should be verified by a goldsol test and clinical findings before being treated by salvarsan preparations. Cases having a positive cerebro-spinal fluid showing any symptoms even suggesting general paralysis were probably safer to treat by malaria and possibly these cases, if treated afterwards by anti-syphilitic injections, might be cured.

Dr. I. FROST (Horton) said he believed that some very important work by Monrad-Krohn, of Oslo, threw considerable light on this question of the ætiology of general paralysis. He wished to address a question specially to those members of the Association whose experience went back some thirty years. About that time there was one physician in Oslo who refused to use any mercurial preparation or iodide of potash in the treatment of syphilitic cases. Twenty years later it was found that none of the general paralytics

who entered the hospitals at Oslo had been treated for their syphilis by this physician who obstinately refused to use mercury. The theory was that those cases of syphilis which were treated by these remedies had a greater liability towards the later acquisition of general paralysis than those not so treated. He was asking whether the experience of any members of the Association bore that out in any way.

Dr. R. M. STEWART (Leavesden) said he had gained the impression from remarks which had been made, and particularly from the phrasing of paragraph 1 of the "Points for Discussion," that laboratory findings were in danger of being given too prominent a position in the diagnosis of general paralysis, and he asked what would the great psychiatrists of the past have said of the question, "What physical and mental symptoms are necessary to support laboratory findings in order to justify a diagnosis of general paralysis?" Surely laboratory technique must always have a subordinate place in diagnosis, and could never supplant the results obtained from careful clinical observation.

With regard to the second question, "Are cases now being diagnosed and treated as general paralysis in virtue of certain common laboratory findings?" he would only express the hope that the refinements of laboratory technique had not yet brought them to such a stage.

Admittedly, general paralysis had altered in type during the last decade, just as the clinical manifestations of syphilis had altered. It was exceptional now to see the classical grandiose type with all the physical signs described in text-books.

He considered that the distinction between acute cerebral syphilis and general paralysis was possible, both clinically and serologically—clinically by a careful analysis of the neurological signs, and serologically by noting the effect of treatment. Alterations in the cerebro-spinal fluid were rapidly effected if the case was one of cerebral syphilis, whereas treatment by arsenical preparations had little or no effect on the fluid in general paralysis, the reactions remaining unaltered.

Lastly, in answer to the question, "To what extent is there unanimity of opinion as to the laboratory findings which justify or support the diagnosis of general paralysis?" the speaker thought the consensus of opinion was in favour of the view that no single test or combination of tests was sufficient to establish the diagnosis of general paralysis; while of great value in indicating syphilitic infection of the nervous system, they could not be relied upon to

differentiate with certainty general paralysis from other forms of neuro-syphilis.

Drs. Greenfield and Carmichael, who had a very wide experience of neurosyphilis at the National Hospital, stated, "No single reaction suffices to establish the diagnosis, and a thorough examination of all the elements of the fluid can, at most, prove that there is severe syphilitic disease of the nervous system." From experience gained in the examination of nearly 5,000 fluids the speaker had arrived at a similar conclusion.

The experimental work of Levaditi and Marie, which seemed to prove the existence of a special neurotropic strain of spirochæte, was largely discounted by clinical data. The recorded instances of families, whose several members, after acquiring syphilis from widely different sources, had all developed neuro-syphilis did not favour such a view. Another serious objection to this theory was to be found in the well-authenticated reports of syphilitic twins, one of whom developed juvenile general paralysis or tabes, while the other showed cutaneous and visceral signs of syphilis, but no involvement of the nervous system.

The absence of general paralysis in certain races, notably those of China and Persia, was also used as an argument to support the theory of different strains of organism, but it was of some importance to note that in such countries malaria was literally a universal disease, and it might well be that these races owed their freedom from neuro-syphilis to the protective value of malarial infection.

The question whether cases of acute cerebral syphilis could be regarded as suffering from general paralysis could be answered in the negative without any reservation. No one had shown the clinical and pathological distinctions between the two conditions more clearly than the late Sir Frederick Mott.

General paralysis must be regarded as a pure infection, but in its late stages the cerebro-spinal fluid was often invaded by numerous other organisms. Obviously the presence of a secondary infection did not improve the prospect of cure, hence the importance of early treatment.

He thought that the pathological findings in general paralysis were pathognomonic and, as Alzheimer had pointed out, the entire nervous system was involved. In no other disease did one see such a pronounced destruction of cortical neurons and association-fibre systems. Perivascular infiltration was of less importance, being imitated in cerebral syphilis, trypanosomiasis, lethargic encephalitis, rabies and other diseases. The sprouting and formation of new capillaries was very characteristic of general paralysis, and the

demonstration of the spirochæte in the brain clinched the pathological diagnosis.

With regard to the treatment of general paralysis by induced malaria, he had found little benefit from its use in juvenile cases. It certainly prolonged life, but did little else. At one time he thought its failure could be attributed to the mass invasion of the juvenile parietic's brain by the spirochæte, but he had been compelled to abandon this view, since in several cases coming to *post-mortem* a careful search had failed to reveal any spirochætes. The resistance of the juvenile general paralytic to this form of treatment was a problem which demanded further study.

Prof. G. M. ROBERTSON (Edinburgh) said he was not present in time to hear some of the arguments and statements which had been advanced in the earlier part of the meeting.

The subject under discussion was undoubtedly a most interesting one. It was said by Baillarger that the most important event in the history of mental medicine was the discovery of general paralysis, and he thought those present would agree that the full and proper understanding of general paralysis was the most important knowledge one could have of mental disorders.

One of the points which had been raised in this question, concerning which printed notes were issued, was with regard to the certainty of diagnosis of general paralysis. His own opinion—with which he thought his hearers would agree—was that there was no important disease from which the human being suffered that could be diagnosed with such certainty as general paralysis. There were some cases, but they were only a small proportion, in that one could not be quite sure, but in the vast majority the diagnosis, he thought, was as certain as it was in respect of any other important disease. Not only were there mental symptoms, which were not very diagnostic from the differential point of view, not only were there the physical signs, but there were also the laboratory findings, which were very various and largely independent of each other. And if there were in a given case a consensus of all these points, the diagnosis was certain. As the last speaker said, however, those engaged in laboratory tests made the statement that there was no laboratory test or finding which could be regarded as absolutely diagnostic of the disease, and with that he agreed, because every one of the laboratory findings could also be found in conditions other than general paralysis. The important point in diagnosis was the presence of a combination of the various symptoms. No one had the right to diagnose general paralysis from the mental symptoms alone, nor from the physical

signs alone, nor from the laboratory findings alone. The difficult point was, to what extent must there be this combination? It might be a very slight combination; there might be but slight harmony between these various conditions, but there must be some species of harmony for the diagnosis to be made.

As another speaker said, the factor which differentiated general paralysis from any other syphilitic condition was the test of treatment. Some time ago a writer stated that once a method of curing general paralysis was discovered, then general paralysis as a specific entity would disappear. And it would appear that that stage had now nearly been reached. In the year 1922 there was held in Paris an International Congress to celebrate the discovery of general paralysis, and the organizers were good enough to appoint him, the speaker, a vice-president. At that Congress the workers on the Continent stated that there was no cure for general paralysis, and the statement was repeated again and again at the meetings. In the summer he, Prof. Robertson, was President of the Section of Neurology and Psychiatry at the British Medical Association meeting at Glasgow, and there were representatives from this country, America and elsewhere. General paralysis was discussed, and there again it was stated that there was no remedy or cure for general paralysis. It was now known that there were two remedies which, apparently, cured many cases of general paralysis. Perhaps sufficient time might not have elapsed to enable one to use the word "cure," but there might be such remissions, and they might take place so frequently, that the possibility of cure could well be entertained. The treatments he referred to were malaria and tryparsamide. He, the speaker, was the first to introduce the intrathecal treatment of general paralysis by salvarsanized serum, but, though improvement ensued, one never got such remissions as could be seen now, with a negative Wassermann in blood and cerebrospinal fluid. At present it was not known how the treatments acted. It was not known how malaria acted, but it was thought it so stimulated the defences of the body that it enabled the body to overcome the activities of the spirochæte. He supposed tryparsamide acted in the same way as salvarsan did in ordinary syphilis. As some of these cases recovered, the dividing line became narrower and narrower. And this made necessary some definition as to what one meant by general paralysis and what one meant by disease. He would not, however, pursue that line now. There might be mono-symptomatic tabes, and tabes related to general paralysis, and there might be many symptoms of general paralysis. He, the speaker, delivered his course of the Morison Lectures at the Royal College of Physicians of Edinburgh, which were the first

lectures to appear after the discovery of the spirochæte in the brain. Noguchi sent over a specimen, and it was shown at a Quarterly Meeting of the Association in London in the year 1913 or 1914. The spirochæte having been found in the brain of these cases, he said it was a syphilitic disease. He pointed out that there were all sorts and degrees of general paralysis, and probably in the future cases would be recognized which had not been diagnosed in the past. The diagnosis was now more accurate, more certain, and he thought more cases of it were being diagnosed to-day than before, because in the old days the physicians said that no one had a right to diagnose general paralysis until he was absolutely certain of it—that making such a diagnosis was consigning the patient to his death.

Dr. B. H. SHAW (Stafford) : I regard general paralysis as syphilis, and any claim of cure must, therefore, as generally accepted, depend on the return of negative blood Wassermann taken quarterly for a continuous period of at least two and preferably five years. I tend to look on the distinction between general paralysis and purely vascular cerebral syphilis as dependent on serological improvement as a result of present-day treatment. In general paralysis, a "Wassermann-fast" state of the blood exists which in my experience is as yet unamenable to treatment.

As regards a neurotropic form of spirochæte, we really know very little about the organism ; it may exist in granular form, in which case, if there are varieties, the conveyance of malarial parasites from one syphilitic person to another either directly or *via* mosquitoes might give rise to a mixed infection, but I am of opinion that the explanation of why general paralysis occurs in such a small proportion of syphilitics is dependent on the character of the medium in which it grows. The factor influencing this may possibly be alcoholism. One does not now meet, in my experience—and I have heard it alluded to by others—expansive ideas and delusions so commonly as in pre-war cases, and this might be correlated with the fact that between 1914 and 1919 the mortality from alcoholism and its results fell by about 60%, and between 1917 and 1919 the deaths from general paralysis fell from 65 per million persons to 40, at about which figure it has practically remained. Intensive treatment of syphilis by arsenical preparations began in 1916. Malarial therapy was introduced in 1923, and has not apparently caused any marked alteration in the Registrar-General's returns as yet—there is a slight rise between 1926 and 1927.

At present I confine treatment to tryparsamide, with fairly good clinical results so far, and am of opinion that it is from improvement

in arsenical treatment that we may expect the best results. The discharge of any patient clinically and serologically diagnosed as general paralysis should be very carefully safeguarded, as I have recently heard of some financial disasters resulting in cases stated to have recovered. If any temporary benefit occurs after malarial infection, such alteration is probably due to stimulation of cellular metabolism ; but that any real improvement occurs in the syphilitic process and pathological changes present is hardly credible.

I have known a considerable number of syphilitics who contracted malaria, and malarial people who got syphilis. One is especially recalled to my mind—a man who had the three plasmodia actively present, *viz.*, B.T., M.T. and quartan. He one day contracted syphilis, which ran a normal course. I have a healthy respect for the aggressiveness of the spirochæte, and in a rough and tumble with an army corps of malarial plasmodia my money would go on little J.T.S. every time.

I can imagine, in an after-history of the war of 1914–1918, written in the year 2500 A.D., one coming across the following : “ A curious and interesting commentary on the psychological state of the people was an organized attempt to deplete their insane population by infecting them with a disease known as malaria. Some historians of the period state that this was really due to an obsession on the part of the medical authorities of that time to the effect that a terminal disorganized condition of the central nervous system due to infection by the spirochæte of a disease known as syphilis was curable by infection with malaria. Although all obsessions are necessarily difficult to comprehend, the rationale of this seems peculiarly so, inasmuch as the medical profession must have been aware at that time that no such antagonism really existed between these organisms. The suggestion, therefore, that the real reason was that first mentioned is most probable, since the introduction of a benign type of malaria, easily combated even at that period in healthy persons, would undoubtedly result in increased mortality amongst the debilitated insane.”

By the way, I do hope the term “ general paralysis ” will continue to be used on death certificates and not be replaced by “ syphilis,” because in the latter event the Registrar-General’s returns will show a complete disappearance of the former and the triumphant vindication of the efficacy of malarial so-called therapy.

Dr. F. H. STEWART (Cheddleton) : With reference to the diagnosis of early cases of general paralysis, one does not, in the nature of things, see cases devoid of symptoms in county mental hospitals, and I will therefore confine my remarks to those points which are

necessary to prove that the cases which we are treating as paretics do actually suffer from that disease.

In our series of cases at the Cheddleton Mental Hospital all had some mental symptoms, sufficient to be certifiable, and all had some physical signs, such as inequality of the pupils, Argyll Robertson reaction, exaggerated or lost knee-jerks. They also all showed the following laboratory findings: positive Wassermann in the blood and cerebro-spinal fluid, marked increase in cells, and the paretic curve in the colloidal gold or benzoin test. It is the latter test which marks them off sharply from the cerebral syphilitics, but having said this I am obviously laying myself open to the criticism which I am trying to combat, and in order to prove my contention that our statistics are not falsified by showing cured syphilitics as cured paretics, I will quote briefly the symptoms of the last eight cases of our series, which are considered as cured or greatly improved.

Case 1: No knee-jerks; Argyll Robertson pupil. Foolishly garrulous and exalted; wandered from his home and committed petty theft.

Case 2: Unequal pupils; Argyll Robertson reaction. Said he won the war, and was making a new race of giants. Sleepless.

Case 3: Slurring speech; unequal pupils; insomnia for one year. Said he was born in 1925. Hallucinated.

Case 4: Argyll Robertson pupils; no knee-jerks. Bought two motor cars with worthless cheques, his position being that of an undertaker's assistant.

Case 5: Contracted pupils, not responding to darkness; depressed. Described amorous adventures in South Africa, where he had never been. Hallucinated.

Case 6: Sluggish pupils; restless, childish, sleepless; had a seizure.

Case 7: No pupil reflexes. Grandiose delusions: said he was the Postmaster-General.

Case 8: Immobile pupils. Said he could do anything and that he had bought two expensive motor cars, although his pay was £2 per week.

Cases such as these cannot be called anything but paretics.

Having, then, made it clear that the cases which are included in my statistics were really suffering from general paralysis, I wish to pass to the subject of treatment, and especially to paragraph 2 of the syllabus. And I wish to suggest that the cause of the variation in results of malarial therapy claimed by different observers is as follows:

Malarial therapy includes three separate factors: (1) the antigenic action of the malarial parasite, (2) the stimulating and

alterative action of short sharp pyrexia, and (3) the prostrating effect of long-drawn-out fever and prolonged severe illness when the malaria is allowed to continue for more than three or four days. We all know the condition to which a patient is reduced at the end of three weeks of malaria.

Now, in the conventional course of malarial treatment, which prescribes twelve rigors, all three factors are allowed free play, and the result to the patient will depend upon whether factors (1) and (2), which are beneficial, outweigh factor (3), which is disastrous, or *vice versa*.

During the last two years I have treated my cases by the first two factors only, on the following plan. The patient is inoculated in the usual way and allowed to develop malaria, but the fever is stopped by quinine after the first, second or third rigor. He nearly always shows prompt improvement, to such an extent that he can be put through a course of mental and physical re-education, combined with tryparsamide. After an interval of one to three months he is again inoculated and the same course is gone through again. If he is still not fit to return to his business, the course is repeated again and again until he is, or until it is clear that no further improvement can be expected. Patients have already been put through four such courses. Little difficulty is experienced in re-inoculating; if one strain of parasite does not succeed, another should be tried or the dose raised.

Twenty-five cases have been treated so far on this plan, but as the last six are too recent to judge, I will base my figures on the first nineteen only. For comparison I will give the analysis of twenty-six cases treated prior to 1927 on the conventional twelve-rigor plan.

Twelve-rigor method :

Cured or greatly improved	. . . . .	23·6%
Improved	. . . . .	11 %
Not improved	. . . . .	65·3%

Short or apyrexial method :

Cured or greatly improved	. . . . .	42·1%
Improved	. . . . .	26·3%
Not improved	. . . . .	31·5%

In neither series were the cases selected, all patients diagnosed as paretics being treated except the moribund.

The standard set for cure or great improvement is that the patient should either return to his proper work outside or carry out intelligent and valuable work in hospital. "Improved" implies manual labour in hospital—the condition of a good working dement. "Not improved" includes non-workers and the dead.

These figures are, of course, not based on a very large number of cases, but they seem to support my contention that the most important factor in malarial treatment is not the fever, but the specific although heterologous antigenic power of the malarial parasite. We find a parallel in the interaction of vaccinia and rabies in rabbits. If these two viruses are inoculated simultaneously rabies does not develop; it is overcome by the antibodies called out by the heterologous antigen of vaccinia.

This view will then explain the lack of success reported by some observers, since by continuing a debilitating illness they are doing away with the resistance aroused in their patients. We must learn to use malaria in the same way in which we use a bacterial vaccine—by repeated doses, well spaced, and so adjusted in dose as to cause gradual progressive cure.

Dr. G. DE M. RUDOLF (Claybury) : The variations in the results of treatment of general paralysis claimed by different observers depend, to my mind, upon—

- (1) Diagnosis by different observers.
- (2) Whether only certain types of cases are selected or not.
- (3) The relative proportion of cases with certain characteristics in an unselected series.
- (4) The size of the series.
- (5) The method of treatment.
- (6) The standard of improvement adopted by different observers.
- (7) Other factors, largely unknown, collectively termed "chance."

The effect of diagnosis by different observers is clear, and it is also clear that series containing favourable types only will show a high rate of improvement. Perhaps it is less obvious that an unselected series of cases may also contain a greater proportion of a certain type of case than does another unselected series. For instance, we know that a higher proportion of cases with a short history in a series give a high rate of improvement, but this is not the only factor involved, for not all cases with short histories improve, nor do all those with long histories of general paralysis fail to improve. In a comparatively small series of 89 unselected cases treated with malaria under standard conditions, I found that the highest discharge-rates occur in the cases with short histories, in the younger patients, in those with the most strongly positive Wassermann reaction in the cerebro-spinal fluid, in those in good health, amongst those reported as abstainers from alcohol and in

the expansive and depressed types. However, a classification of cases based on the mental types is to some extent unreliable, not only because the mental characteristics of some general paralytics change, but also because a patient may be placed in more than one group. For instance, a patient who is expansive and maniacal, or a patient who is depressed and demented, could be placed in one of two groups.

Thus, a patient who shows good prospects of improvement from the short duration of his general paralysis may not do so from other aspects. So a selection of apparently favourable cases is of no value for comparative purposes, as all the factors likely to affect the result of the treatment cannot be taken into consideration.

The relative magnitudes of the series to be compared is of great importance. If tests, such as Poisson's formula, be applied to small series the fallacy of judging by such series is at once apparent. Poisson's formula gives the probabilities of an event occurring in a similar but much smaller series than that to which the formula is applied. The formula can only be applied to series in which there are only two possibilities, *i.e.*, only if the event can happen or cannot happen. For instance, if the series of 89 patients already referred to be studied it is found that 33, or 37.1%, of cases were discharged from the hospital and 62.9% were not discharged. On applying Poisson's formula, it is found that in a similar but smaller series of cases there is a probability of the discharges varying from 46.1 to 28.1%. Owing to the relative smallness of a series of 89 patients a variation of 18% may be expected in other similar, but smaller, series of cases.

The method of treatment adopted may affect the results. With regard to therapeutic malaria there is, at present, no definite information as to whether mosquito or blood inoculation is the better. If blood inoculation gives the better results, should the blood be injected intravenously, intramuscularly, intracutaneously or subcutaneously? The number of febrile paroxysms, the duration and degree of pyrexia, the frequency with which the temperature is recorded, the amount of quinine given may all be important factors in the treatment.

There is no common standard as to what condition constitutes an improvement. An acute observer will notice an improvement where a less acute observer will fail to do so when minor degrees of improvement are being studied. A decision that a patient is fit for discharge made by one observer may not be agreed with by a second observer. The social circumstances of the patient may also affect his discharge. Certain cases who have improved but are not normal could be discharged to the care of an intelligent relative

with ample time to attend to the patient, whereas the same patients could not be discharged if they had no one to take care of them.

Finally I must include all those factors, largely unknown, that influence the results of treatment and which we call "chance." However, as we know that the great bulk of the fluctuations of sampling lies within a range of plus or minus three times the standard deviation, it is possible to determine whether the differences in two series indicate differences in the conditions in the universes from which the two series were drawn, or whether the difference is due to fluctuations of sampling and is not significant.

Summing up, it would appear impossible to explain, in any simple fashion, the differences in results of treatment obtained by indifferent observers.

Point for discussion No. 3 :

The question whether malarial therapy should be supplemented by other anti-syphilitic measures may, I think, be answered in the affirmative. In 1925 a committee from the London County Mental Hospitals was formed under the chairmanship of Dr. Golla. This committee reported in 1926 (*Brit. Med. Journ.*, 1926, ii, p. 603) that of 87 patients treated with malaria but with no arsenic 35·6% were discharged and 32·2% had died. Of 36 patients treated with malaria and arsenic 41·7% were discharged and only 5·5% had died. All cases had been watched for at least six months after treatment.

Dr. DOUGLAS McRAE (who was heard very indistinctly by the reporter) spoke of his association with Dr. W. Ford-Robertson in his investigations into the cause of general paralysis. He also drew attention to the work of Prof. Bevan Lewis in regard to the clinical and pathological aspects of general paralysis (*vide* President's summary of the discussion later).

Dr. J. GREIG SOUTAR said he had nothing to contribute to this discussion in the way of statistics, but for his own information he had a few questions to ask. He thought that general paralysis at an early stage had become very difficult to diagnose. As Prof. Robertson said, it was easy for one who has had experience to diagnose it when certain physical and mental signs and symptoms were present. It was, however, very important that one should be able to diagnose it at an early stage, and it was that stage which really needed clearing up. Patients were seen who showed certain indications, some irritability perhaps, some failure of memory, etc., all departures from normality, and on examination it would be found there was a little failure in the reaction of the eye, a little tremor of the face or tongue perhaps. One had the cerebro-spinal fluid examined, and the report was that the Wassermann was

positive. Was that case necessarily a general paralytic? If it were a general paralytic in the early stage, treatment ought to be applied at once. He had had early cases in which the malarial treatment was applied, and there had been excellent recoveries, but one was not sure whether it was general paralysis. Others of doubtful character were treated in the same way, but they went on and died. It was right to try the malarial treatment; it did the patient no particular harm, and it might be that one was treating an early case in the stage when the disease was specially amenable. But simply because a person had got a positive Wassermann he did not exclude every form of mental disorder other than general paralysis. There was no reason why syphilitics who had a positive Wassermann should necessarily have general paralysis; they might be suffering from any other form of psychosis. It might be an ordinary melancholia or a variety of delusional insanity. And that was a point he would like to have more firmly established in the investigations being made in this most important study. What he had said, though no real contribution to the discussion, was in the nature of suggestions for the General Paralysis Sub-Committee.

Dr. J. R. LORD (Horton) said that they could always rely upon something helpful from Dr. Soutar, whose opinion commanded universal respect in the Association. Continuing, he remarked that from his own personal experience general paralysis was being cured, and even cases showing advanced symptoms of the malady so far improved as to be considered of sound mind. Whether such results were of a permanent nature time alone would show, but so far there was good evidence that in many cases they were. His experience in this matter was one of the most remarkable and amazing he had ever had. He had seen cases admitted—not one, but many—of undoubted general paralysis as definite as any cases could be, and they had been a few weeks or months later presented to him as fit to return to their homes—all after malaria treatment. There was no imagination about this—it was solid fact, and one to which he could not shut his eyes.

He warned them against belittling this work by arguing that either the form of general paralysis had changed, or that such cases as got better were not general paralysis but some other undefined condition. One could always argue like that of any advance in medicine. Let them take care not to repeat London's reception of the Lister anti-septic treatment of surgical cases, and at some future time have to look back upon the delaying of good work for humanity with regret and not a little shame.

They would shortly have before them a report on this subject

by Admiral Meagher, an eminent naval neurologist, who had toured widely at the instance of the Board of Control, making a personal investigation in regard to malarial and other modern forms of treatment of general paralysis, which should convince to the contrary those who did not believe in the results already obtained.

The General Paralysis Sub-Committee proposed to establish a national register of general paralytics, their symptoms and form, and the results of treatment, and the immediate point was to determine what symptomatology qualified for admission to this record. The cases would in any event need classification. On what lines were they to be classified? Such a register would record all form of treatment.

That was the basic reason for the interest this sub-committee were taking in this and any future discussion on this subject, and the points put down on the programme were not statements of facts, but queries to be threshed out. In the Journal he intended to publish in full both that and any discussion which subsequently might be held at any and every meeting of the Association or of its Divisions. Additional remarks might be sent in, because speeches that afternoon were necessarily curtailed by time.

In these days medical students were taught that preventive medicine was the all-important matter in practice; the necessity for "cures" should be avoided. All this applied with great force to general paralysis, which hitherto had destroyed annually a small army of the most virile and useful section of the community, the go-ahead and active fighters in every walk of life, men who enjoyed life to the uttermost.

To reduce that waste of life was the particular object of the General Paralysis Sub-Committee which the Research and Clinical Committee of the Association had appointed.

Dr. DONALD ROSS warned members against trusting too implicitly to serological tests. Such tests when positive should be regarded as confirmatory of the clinical findings.

Dr. J. F. SMYTH (Wakefield) said that a general survey of results of his investigations led to the conclusion that there were two distinct pathological processes at work in general paralysis:

(1) A local irritative and destructive change, confined mainly to the cortical regions supplied by the anterior and middle cerebral arteries. This change was associated with the presence of spirochætes in those regions, and was characterized by a distinct specific neuroglial reaction in the deeper layers of the cortex.

(2) A general vascular proliferative change accompanied by destruction and degeneration of neurons. This he believed to be mainly the reaction of the brain to the prolonged effects of syphilis,

and analogous to the marked vascular changes occurring in the other body tissues in systemic syphilis and in general paralysis. It did not appear to depend on the actual presence of the spirochæte in the cortex.

The relative intensity and persistence of each process accounted for the variation in the clinical signs and the morbid changes in the different types of case. A preponderance of vascular change with few spirochætes was to be inferred in the confused or demented type of case, while the presence of the spirochæte in large numbers in the cortex was characteristic of the more active grandiose or emotional type.

It was interesting to record, from the therapeutic point of view, that in the treatment of general paralysis by malarial inoculation and tryparsamide, the best results had been obtained in grandiose cases and in those with agitated melancholia. In cases of the confused or demented type little or no improvement had followed. That might seem paradoxical, but there was no doubt that the majority of the confusional cases did not reach a mental hospital until the disease had advanced sufficiently to cause permanent damage to the cortex. Such cases could not be cured, and arrest of the morbid process was the most that could be hoped for. The emotional type of case, by reason of a more active mental alienation, came under observation at an earlier stage of the disease.

Whether the removal of the spirochæte from the cortex would result in inhibition of the vascular proliferation and the neuronc degeneration was a matter for speculation. There was little alteration in the cerebro-spinal fluid reactions after treatment by the present therapeutic methods, which suggested that all the pathological factors had not yet been countered.

Examination of the other organs of the body in general paralysis also revealed this tendency to excessive vascular proliferation, and the marked fibrosis of the aorta and other arteries showed the process in the vascular tissue itself. These changes were a manifestation of a pathological process which reached its climax in the central nervous system, and it would seem that the vascular process was capable of proceeding for a considerable time until neuronc breakdown at last developed and the least stable parts of the cortex precipitated the onset of mental symptoms.

The work of Fildes and McIntosh on parasyphilis of the nervous system had led them to conclude that hypersensitization of the nervous system was produced, in all probability, by the passage of the spirochæte or its toxins up the nerves from the skin and mucous membranes during the secondary period. If such were the case, the routine examination of the cerebro-spinal fluid in early syphilis

offered the best hope of diagnosing involvement of the nervous system. Only 2% showed any change in the cerebro-spinal fluid, yet it was significant that only 2% of all cases of syphilis developed general paralysis. Thus it was not unlikely that cases of early syphilis which showed changes in the cerebro-spinal fluid were potential paretics, and it was to such cases that present therapeutic methods might, with advantage, be applied.

SUMMARY OF DISCUSSION BY THE PRESIDENT.

After some further remarks by Dr. Brander, the President summed up the discussion in the following words:

Dr. Brander's paper is of peculiar interest owing to the fact that it has been written by a comparatively young man and, nevertheless, contains subject-matter which one would have expected to hear from a member of thirty or more years' experience. In a word, Dr. Brander's thesis is that general paralysis, when diagnosed on clinical grounds, has a fatal issue in approximately 100% of cases, and he disputes the diagnosis of general paralysis for the very large number of cases which improve, react to treatment, or remain stationary for very long periods. There can be little or no doubt that Dr. Brander's thesis is correct for the disease as known some thirty or forty years ago, namely, for the acute fulminating confusional cases of text-book type. The term "general paralysis" has, however, gradually come to include numerous cases with atypical symptomatology and course. As examples I may mention the two types of juvenile general paralysis and the tabetic and chronic adult types of cases. Using the term "general paralysis" in the wider sense, I have myself little doubt that certain aberrant types, namely, the imbecile juvenile, the senile and many cases in women, give a cerebro-spinal Wassermann reaction less frequently than do the more typical cases. There is also little doubt that cases of the text-book type exhibit a vicious circle of degeneration of neurons, protective proliferation of vessels, and over-reaction of repair on the part of the neuroglia, every one of these three factors tending to accentuate the other.

The chief questions which have become prominent during the discussion are whether we should revert to a more restricted definition of what is meant by general paralysis, whether the disease itself is entirely due to spirochætal invasion of the cortex, and, if not, what influence is exerted by this factor, and lastly the question of the success of treatment by malaria and other modern methods.

Dr. Caldwell, in his remarks, discusses the question whether one type of spirochæte exists in primary, secondary and tertiary

syphilitic lesions, or whether syphilis of the central nervous system is due to a special variety of spirochæte. He holds the former view.

Dr. Nicol refers to an inquiry concerning malarial treatment which has been taking place in certain general and mental hospitals, and states that remarkable results are obtained in early cases, which exhibit few clinical and physical symptoms. He urges the early examination of all cases in which the slightest premonitory symptoms are to be found.

Dr. Nathan Raw holds firmly to the thesis of "no syphilis, no general paralysis." He discussed the influence of the general physiological make-up of the individual with reference to the onset of general paralysis, and also laid stress on the influence of extraneous factors, such as a strenuous life in contrast to a quiet one. He regards the value of the Wassermann reaction as much greater from the confirmatory than from the diagnostic point of view.

Dr. Good, on the other hand, states that he often makes his diagnosis on the examination of the cerebro-spinal fluid alone. He refers to the fatal effects of salvarsan in early cases, and states that in early cases malarial treatment followed by salvarsan results in considerable improvement, whereas malarial treatment employed without the later use of salvarsan results in no change.

Dr. Frost raised the question of what effect early antisyphilitic treatment has on the subsequent development of general paralysis, and whether such treatment predisposes to the occurrence of general paralysis.

Dr. R. M. Stewart expresses the opinion that too much stress has been laid on laboratory procedures, and would support diagnosis based on clinical symptoms and physical signs only. He remarks that out of a personal experience of some 5000 cerebro-spinal fluids no one laboratory test is diagnostic of general paralysis. On the question whether general paralysis and cerebral syphilis can be with certainty diagnosed from one another, he remarks that this can be done only by treatment.

Prof. Robertson spoke from a similar point of view. He remarked that no important disease could be diagnosed with such certainty as can general paralysis, and he suggests that in order to arrive at this certainty there should be a consensus of the various clinical and pathological tests. He remarks that no laboratory test taken alone, no physical sign taken alone, and no clinical symptom taken alone, can be regarded as conclusive; there must be an agreement between all three. He lastly remarked that the test of treatment finally settled the question, and he referred to the two methods, malaria and tryparsamide.

Dr. Shaw remarked that in order to obtain a cure he should treat general paralysis as a variety of syphilis, and as evidence of cure should rely upon the same test as he would in syphilis, namely, a negative Wassermann for five years continuously. He remarked that, in his opinion, diagnosis should depend upon the question of whether there was serological improvement as the result of treatment. He opposed the idea of a second variety of spirochæte, and thought that many aberrant types might be explained as the result of a combination of alcohol and syphilis. He thought that some association existed between the present markedly decreased incidence of alcoholic insanity and the incidence of general paralysis.

Dr. F. H. Stewart gave a lengthy description of the malarial treatment they had carried out at Cheddleton. With regard to the question whether the cases were general paralytics or not, he remarked that all cases treated exhibited some clinical signs and some physical signs, and all gave positive Wassermans in blood and cerebro-spinal fluid, together with a paretic curve. He remarked that the effects of malarial therapy were produced by the antigenic action of malaria, by the stimulating effects of pyrexia and by the prostrating effect of illness, and he appeared to lay chief stress on the first of these. He referred in detail to the eight last cases which had been treated and as the result had been either cured or greatly improved. I must say that the description of the clinical types in these eight cases when compared with the results of treatment given by him agreed remarkably with the spot prognoses made by me as he described the cases. I marked down Cases 1, 2, 3, 4, 7 and 8 as "improved," Case 5 as "recovered," and Case 6 as "not improved." Dr. Stewart stated that Cases 1, 2 and 3 were sent out on trial after working very well in hospital, that Case 4 was discharged cured, that Case 5 was known to be well eighteen months after discharge, that Case 6 was still in the hospital and was working, that Case 7 had improved and would probably be discharged, and that Case 8 had been discharged. This comparison certainly made me feel a reasonable doubt as to whether the malarial treatment had very much effect on the course of any of the cases.

Dr. Rudolf, of Claybury, discussed the question of diagnosis and treatment at some length, and concluded that it was impossible to explain the differences in the results obtained by different observers, and that a careful study of the subject made him satisfied that the fallacies were so numerous that nothing definite followed at all.

Dr. McRae referred to the work on diphtheroid bacilli by Ford-Robertson, with whom he worked, and, therefore, had felt

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Dr. McRae referred to the work on diphtheroid bacilli by Ford-Robertson, with whom he worked, and, therefore, had felt

intensely interested in the discussion. He remarked on the disparity between the clinical and pathological aspects. He said that one hears a lot about cures, but that he himself would prefer to hear as much at least on the subject of diagnosis. He suggested that great caution should be exercised in diagnosis, and in particular in drawing conclusions on the subject of remissions. He drew attention to the fact that most remissions took place soon after admission to hospital in consequence of the improved treatment received by the case, and suggested that statistics with regard to remissions after admission would produce interesting results. He remarked that in his experience he had met many cases which exhibited prolonged remission, long before the modern treatment was heard of. He earnestly expressed a warning against hasty conclusions, and ended his contribution by a kindly reference to Prof. Bevan-Lewis, referring to the five types of general paralysis described by him in 1896.

Dr. Soutar referred to the necessity for the earliest possible diagnosis in order that treatment might be commenced as early as possible. When cases recovered after malarial treatment the question might readily arise whether the case had really been one of general paralysis or not. From the practical point of view, he especially stressed the necessity for early diagnosis in the hope of stopping the symptoms, whether they were due to general paralysis or not.

Dr. Lord remarked that the subject should be approached with care and with the full appreciation of the fact that prevention was better than cure. What were the earliest indications of general paralysis was a very important question for determination. Hence the suggestion of a national register put forward by the General Paralysis Sub-Committee for this purpose.

Dr. Ross stated that the early diagnosis of general paralysis followed the war. He referred to 400 cases in hospital three years ago with no clinical information whatever, and he stated that 77 of these cases gave a positive Wassermann for the blood and 7 a positive Wassermann for the cerebro-spinal fluid, and he referred in this connection to the 5% or so of general paralytics who occurred amongst known subjects of syphilis. He warned the meeting, however, not to trust entirely to laboratory findings, and reported a case of his which had previously been under treatment eighteen years ago, and was at the present time just the same as on that occasion. This case was certainly not one of general paralysis in spite of positive Wassermans in the blood and cerebro-spinal fluid. He preferred to make his diagnosis primarily on clinical grounds, and to regard pathological findings as a useful help.

Before noting the concluding remarks of Drs. Smyth and Brander,

I should like to refer on behalf of Dr. Paddle, of Wakefield, to seven cases of general paralysis treated by tryparsamide. Of the seven, two, who were both in the last stage of general paralysis when treated, died. A third, also in the last stage, showed no improvement; three cases were improved, and the seventh was much improved and has since been discharged. Of the five cases in which the serological test was taken before and after a course of tryparsamide, in only one did the cerebro-spinal fluid Wassermann change from positive to negative. In two the blood Wassermann changed from positive to negative, and in one from positive to doubtful. The least number of weekly injections given was three of 3 grm. each, and the maximum was twelve. Only in one case was there any constitutional reaction of any importance. Of the seven only one was a recent case, and only that one improved continuously both mentally and physically. He also was of the grandiose and exalted type with little confusion, whereas the other six were of the dull and apathetic type, with much confusion and few and vague delusions of grandeur. Writing with a knowledge of Dr. Smyth's histological investigations, Dr. Paddle remarks that, in his opinion, an improvement or a cure is to be expected in recent cases of the grandiose and exalted types with little confusion, in which there are many spirochætes in the cortex and little vascular change.

Dr. Smyth, as his contribution to the discussion, summarized his histological investigations, which had been carried out on fifty-two cases of verifying *post-mortems*, with the object of correlating the symptomatology and course with the histological findings. He states that spirochætes are found most frequently amongst males in rapid subacute grandiose cases and amongst females in euphoric and emotional cases, also in cases of depression. They are scanty or absent in chronic and acute confused cases. They exist in the lower part of the pyramidal layer and thereabouts in the gyrus rectus, prefrontal, motor and first temporal regions. They are, therefore, presumably due to lymphatic infection in the distribution of the anterior and middle cerebral arteries. The vascular changes present have no relation to the number of spirochætes, and the same remark applies to cerebral wasting. The neuroglial reaction which exists in the deeper layers of the cortex is, however, definitely proportionate to the number of spirochætes present. Hence, of the three changes found in the cortex, the neuroglial reaction is the only one which is definitely related in degree to the presence and number of spirochætes. The vascular proliferation is a generalized process throughout the cortex and occurs in all regions independently of their presence. The cerebral wasting which occurs, though

generally profound where large numbers of spirochætes exist, does not vary in area in proportion to the numbers present, but, on the contrary, progresses in definite order, beginning in the most recently evolved and least stable parts, and being to some extent indefinitely variable. Regarding the question of a neurotropic type of spirochæte, Dr. Smyth remarked that the view appeared to him unnecessary, and that the reason for the differences in the spirochæte was really the fact that it was living in an adverse environment. He remarked upon the generally accepted statement that of all cases of syphilis 2 to 4% eventually develop general paralysis, and that of all cases of syphilis 2 to 4% eventually give a positive Wassermann in the cerebro-spinal fluid. It was therefore likely that the latter were potential paralytics.

Dr. Brander drew attention to the fact that certain symptoms of general paralysis, such as loss of expression, tremors, spasticity, etc., were not necessarily or even probably symptoms of disease of the cortex. They might be due to change in the basal ganglia or substantia nigra. He referred to changes around the ventricles and to the granulations in the ventricles, and also to changes in the posterior lobe of the pituitary body, which disappeared after treatment by malaria. He asked, therefore, whether general paralysis was syphilis of the cortex, or of the mid-brain, or of the pituitary body, and whether it was a peculiar form of syphilis. He remarked that, in his opinion, general paralysis was a particular reaction of the body to the spirochæte which might last for years without showing any frank lesion.

The discussion was then adjourned to the next Quarterly Meeting.

THE RELATION OF UNRESOLVED INFECTIVE PROCESSES FOLLOWING ACUTE INFECTIVE DISEASES TO THE CAUSATION OF MENTAL DISORDER.*

By T. C. GRAVES, B.Sc., M.D., B.S.Lond., F.R.C.S.Eng.,
Chief Medical Officer, City of Birmingham Mental Hospitals.

HISTORICAL NOTE.

WHEN I first began the study of mental disorders, I realized that patients were, apart from their mental disorder, physically ill, and I was attracted to a study of the circulatory disturbances in these cases. This led me to consider whether these general circulatory disturbances were responsible for the mental state, in the same way that intracranial circulatory disturbances were in surgical brain cases showing mental symptoms. Examination almost invariably revealed weakness of the heart's action, irregularity of the pulse, low or high blood-pressure, and disturbances of the peripheral circulation. It was thus conceivable that disturbance of blood composition and supply might cause disturbance of oxidation in the brain and that many of these abnormal circulatory manifestations might be responsible for the production of mental disturbances. A study of various physiological and biochemical observations suggested that possibly there was in these cases some deficiency of essential salts, such as calcium. This led me to the treatment of mental disorders by the administration of salts of calcium—choosing calcium lactate. Fortunately I found at that time (1919) a very remarkable case showing severe mental symptoms and unusual circulatory disturbances.

CASE I.—*Male, single, et. 22, munition worker, first certification, admitted September 10, 1918. Recurrent acute delirium of a very marked degree. The attacks would last from three weeks to a month, and were preceded by and associated with extreme circulatory disturbances, shown by massive œdema, cyanosis and thin uncountable pulse. Systolic blood-pressure 80 mm. Hg. I noted the effects of sedative drugs, and on a subsequent breakdown in February, 1919, gave him calcium lactate, using a watery solution of a preparation by Messrs. Ferris, of Bristol. The effect was remarkable. On previous occasions in spite of the administration of sedative drugs his attacks had lasted from three weeks to a month with a period of about a fortnight's quiescence. After giving him calcium lactate his symptoms abated within thirty-six hours.*

The question then arose: Was this salt actually producing improvement? As soon as I found the symptoms abating, I therefore stopped its further administration, and the symptoms returned. Renewal of the treatment again produced cessation of the symptoms, and by frequently stopping and resuming I became satisfied that the salt was responsible for the improvement.

It was remarkable that just as the circulatory symptoms preceded the acute mental symptoms, so these latter subsided earlier than the circulatory symptoms after the administration of the salt. I continued it, and the patient showed no further relapse, and became a well-behaved and industrious person.

After he had been on this treatment for some time he told me that a tooth was aching. I found he had an abscess around a carious tooth. I extracted the tooth. Following

* A paper read before the Round-Table Conference of the Department of Institutions and Agencies of New Jersey at the State Hospital at Trenton, N.J., U.S.A., August 15, 1928. (Abridged.)

this, however, he again for a short time showed, though in less degree, mental and circulatory symptoms, which, however, subsided on treatment being resumed, and later he was able to keep well without it. He was discharged recovered in June, 1919. I followed up his case for five years, during which time he remained quite well.

Encouraged by this experience I tried similar treatment in other cases, and still further satisfied myself that it certainly had some value. I later realized that most of the cases of more lasting improvement were those in which the patient had asked me to remove septic and aching teeth, and it was remarkable that no such request had ever been made before I commenced treatment with calcium lactate.

An observation made by Grove and Vines, of Cambridge, who had been working out the effect of the administration of calcium in conditions of chronic sepsis, and more particularly in cases of chronic varicose ulcers, threw some light on the matter which confirmed my conclusions. Among their published observations was the description of one case in which a woman suffering from such an ulcer had also shown symptoms of melancholia; after the administration of calcium she developed an abscess around a carious tooth, and after its extraction the melancholia had subsided. They concluded that the calcium treatment had stimulated leucocytic activity around the chronically diseased tooth.

It was about this time that I obtained a preparation called collosol calcium, consisting of calcium oleate and stearate in colloidal form and suitable for hypodermic injection. I had long wanted such a preparation, for the giving of calcium lactate by mouth resulted in improvement in many cases but only up to a certain point. So I concluded that if I could give calcium beneath the skin and so make sure that it reached the blood-stream I might obtain better results.

Other preparations of calcium, *e. g.*, calcium chloride, if injected beneath the skin, might cause necrosis at the site of injection. Collosol calcium, even when injected in large quantities, caused no local necrosis. I used it in a large number of cases, and was struck by the fact that nearly all of them developed abscesses distant from the site of administration, and nearly always around diseased teeth.

Following the removal of these teeth, the mental improvement, hitherto only partially shown, now became much more marked. My experience supported the view taken by Grove and Vines that calcium stimulated the leucocytic activity in areas of chronic sepsis.

In other words I came to the conclusion that in these cases defective leucocytic activity at the site of a chronic infective process was due to calcium deficiency.

During my visit to Dr. Henry A. Cotton, at the New Jersey State Hospital at Trenton, I was much interested in the extensive and valuable biochemical work carried on in the research laboratory of the hospital.

I found that much work had been done on the estimation of blood calcium, using the Kramer and Tisdall method, and I was told that a considerable number of cases on admission had shown a reduction in the calcium content of the blood.

I thus arrived at conclusions similar to those of Cotton, but by a different route. My treatment of mental disorders associated with chronic infection was sound up to a point, but removal of the septic foci or infective processes was essential to complete recovery. The work of William Hunter, Lewis Bruce and Patrick Watson-Williams confirmed this broad conception.

CHRONIC INFECTION IN MENTAL DISORDERS.

Chronic infective processes in cases of mental disorder are generally of long standing. In this connection, it is worth emphasizing that chronic infective processes do not include merely focal infections in the form of diseased teeth, tonsils, nasal sinuses, gall-bladder, appendix, etc. A chronic infective process implies a general biochemical disorder, the full extent of which we may not fully realize at present, and of which one example may be a calcium deficiency.

A chronic infective process has generally been preceded by an

acute infective process more or less well marked, which subsides but leaves behind areas of unresolved infection, and in these areas general poisoning goes on. In this paper I want to emphasize the occurrence of mental disorder associated with unresolved infection such as that following measles, scarlet fever, encephalitis lethargica, pneumococcal, intestinal, influenzal and other septic infections, sometimes pure and in other cases mixed.

Why the acute infective process associated with these diseases should leave behind it areas of unresolved infection I do not know, but it is possible that there may be some local maldevelopment of structure together with a general biochemical disorder. As an example of maldevelopment, we may take a case where there is a badly developed nasal septum, which may prevent the effective drainage of nasal sinuses and so cause the infective process to persist. From this persisting infection there may develop later definite disease of the tonsils. Thus infection may gradually spread throughout the system, and if it finds another area of weakened resistance a further reinforcement of the infective process results.

We may therefore visualize a mother focus and later several daughter foci, and these with the resultant general biochemical disturbances constitute the chronic infective process. The longer this cycle goes on, although perhaps in a slow, insidious and chronic form, the greater the reduction of general health.

MEASLES.

For example I will quote a case following measles :

CASE 2.—A youth, *æt.* 21, was admitted in a state of katatonia. He was a dangerous automaton, completely confused, resistive, had been wet and dirty and exhibited numerous other symptoms. His history was that at the age of 4 he had measles, at 5 mumps, at 6 whooping-cough. At 7 right facial tic developed, spasmodic twitching and screwing up of the right eye and right side of face and nose. Between 9-10 this became worse—twitching almost continually. Afterwards this became less acute, and reappeared only occasionally when tired or fatigued. Sniffing of the nose was associated. Astigmatism was found and glasses prescribed. At 15½ slight nervous breakdown, bad cold and carbuncles; at this time studying for matriculation. At 16 bad fall off his motor-cycle, ? due to vertigo. At 16½ passed matriculation. Taken ill almost immediately afterwards with nervous breakdown. Extreme depression, lassitude, tendency to fall with power gone from limbs. At 17½ started work in a factory. At 17 years 10 months severe nervous breakdown; similar symptoms to previous illness. At 18½ started work. At 18 years 11 months nervous breakdown again. After this became very unmanageable, and as his father said, "damned awkward." He tried poultry-farming unsuccessfully. It was hoped that service discipline would be useful and he enlisted in August, 1927. Unfortunately this did not follow. He had a very acute "nervous breakdown," and as he made no improvement was eventually certified and sent to the mental hospital six months after the onset of the symptoms.

It was useless to attempt an ear, nose and throat investigation at the time because his resistiveness was so marked, but I was convinced from his history that some focus of unresolved infection remained.

In due course he was anæsthetized and the ear, nose and throat investigated. Although on inspection no evidence of pus was seen in the nose, and the tonsils were healthy, nevertheless, on using the Watson-Williams technique, pus was found in the right sphenoidal and ethmoidal cavities. These were opened and drained. He was somewhat unmanageable that night, but on the following day his temperature rose and he began to talk sensibly, although he did not know where he was and spoke only of his home. The raised temperature continued during the next day and subsided during the two days following. During the succeeding weeks his memory gradually returned, but right up to the time of his discharge he said that he had no memory of what happened after he had reported sick in the service. When seen later by the aural surgeon the nasal condition was regarded as satisfactory. He was given a course of intravenous typhoid vaccine, following which his improvement was still more marked. During the whole course he was given calcium, and after the operation bowel irrigations and ultra-violet light. He was discharged recovered. His parents were fully satisfied, and his father volunteered the statement that the "damned awkwardness" he had displayed for several years before joining the service had passed away.

In this case, therefore, we can trace the gradual development of mental symptoms from an old measles infection, which occurred long before puberty.

SCARLET FEVER.

We will now consider a case of mental disorder which in the same way can be traced back to an old scarlet fever infection:

CASE 3.—Female, single, clerk, æt. 27, admitted October 8, 1925. First certification.

History: Family—Healthy. Personal—At 10 severe septic scarlet fever followed by bilateral otitis media. Pneumonia at 22, and later syphilis insontium, primary sore on lip.

Present attack: For a year preceding admission suffered from "gastric catarrh," severe pains in stomach and "asthma." Onset of attack of mental disorder sudden; commenced with exaltation, persecutory ideas, poor memory, mental confusion, loss of appetite, insomnia and later violent, noisy, uncontrollable conduct. Certified on October 8, 1925.

On admission: Continuation of similar conduct by day and night. Complete confusion. Destructive to clothing and bedding. Wet and dirty. Carious teeth. Vaginal and foetid bilateral ear discharges. Spitting pus indiscriminately. Blood Wassermann reaction 20 units. Antiseptic treatment of cervicitis, etc. Gradual removal of carious teeth and roots.

December 16: Sufficiently amenable to be seen by the visiting aural surgeon,

who found bilateral chronic suppurative otitis media. Pus and polypi in both meatuses. Puncture of right antrum found pus. Bilateral Caldwell-Luc advised. Doubt felt whether she would tolerate operation. Further general treatment continued. Antistreptococcal serum given; catamenia reappeared once, with mental exacerbation, but ceased when serum stopped.

March 3, 1926: General condition improved, so Caldwell-Luc operation performed on *left antrum*. Pus on culture gave *Str. albus* and *Str. subacidus*. Collapse followed operation. Slow recovery; confusion cleared. General physical and mental improvement. Menstruation returned but with no associated mental exacerbation. Able to go on parole with relatives. *Left ear discharge diminished*. Right ear still discharged pus. Advised to have Caldwell-Luc on right side. Accepted advice willingly, showing insight into her case. Novarsenobillon given.

May 26, 1926: *Right Caldwell-Luc* operation, removal of inspissated pus and polypi, and intra-nasal drainage. Recovery uneventful. Catamenia continued to appear. General physical and mental improvement. *Right ear discharge diminished*, became serous and foetor disappeared. Learnt to wash out her own antra. Discharge from cervix uteri ceased. Sent out on trial to care of relatives, July 8, 1926. Her family doctor's, relatives' and visitor's reports satisfactory.

Discharged recovered August, 1926. Attended out-patient department at Ear, Nose and Throat Hospital on account of right ear. Subsequent reports as to mental stability satisfactory.

CASE 4.—*Vide Journ. of Ment. Sci.*, October 1927, pp. 563-565.

In these two cases note the diminution of ear discharge following sinus drainage on the affected side.

INFLUENZA.

I now draw your attention to some cases in which areas of unresolved infection followed acute influenza, treatment of which resulted in improvement of a disordered mental state.

The work of Fraenkel and Gerber has shown the importance of disease of the nasal sinuses in cases of influenza.

In cases following influenza the onset of the mental disorder may be immediate or may be delayed for a considerable period.

Immediate Group.

I will first submit cases where there was an immediate relationship:

CASE 5.—Female, married, æt. 37 on admission on February 7, 1927. First certification.

History: Family—No psychotic history. Patient—Childhood normal. Became forewoman in machine shop, where she did well; later married. Two children; no miscarriages. Had recently had "influenzal" colds, not severe enough to require stay in bed. Not alcoholic.

Present illness: Been working hard looking after family. Teeth had been getting bad for some time but she refused to have them seen to. During month preceding admission lost weight. Became depressed, dreamy and apathetic. Acute mental symptoms developed a week before admission and at a time when an influenza epidemic was prevalent. Became confused, terrified, visually hallucinated, talked nonsense loudly; sleep bad for the last four days; mistook identities; struggling and violent.

On admission: Menstruating profusely. The acute symptoms necessitating certification had therefore developed coincidentally with the premenstrual phase.

Complete confusion. Speech a rapid inconsequent muttering. Apparently auditory and visual hallucinations. Resistive to nursing attention. Impulsively violent.

Seriously ill. Phlyctenular conjunctivitis (*left*). Heart dilated, sounds soft and of poor quality, mitral systolic murmur; regular feeble pulse, 82; later became 100 to 120. Intensely pale. Temperature normal. A few scattered rhonchi in lungs. Tongue dry. Ulcerated septic gums. Superficial ulceration of congested soft palate, especially *left* side. Bilateral ptosis, worse *left*. Wassermann reaction negative. Later uterus was found to be partially retroverted, chronically subinvolved, and from cervix there was a thick, curdy, muco-purulent discharge.

Course: Antistreptococcal serum mitigated the symptoms of profound toxæmia. Septic roots and carious teeth extracted at intervals. Gynæcologically treated with antiseptics and this treatment was continued.

Tonsils, pus in both; post-nasal space, pus on *left* side. Ears—both drums showed scar of an old healed perforation. Transillumination of sinuses: right antrum dim; *left* antrum black; frontals clear.

Anterior rhinoscopy: Wet septic nose. She was still very ill and general treatment was carried on. Later a general sinus examination. Using Watson-Williams's suction syringe technique gave muco-pus in right sphenoid, muco-pus in left ethmoid, and from the *left* antrum pus *escaped under pressure*. The *left* antrum was drained intranasally. Convalescence from operation was satisfactory and she began to show definite physical improvement, so that she was able to be up and about. Catamenia, which had been in abeyance, returned. She said her head felt clearer, though she was still to some extent confused. She showed slow physical and mental improvement but was able to go out on parole with friends.

She gained weight, but sleep was variable, and at times she showed impulsive behaviour.

Although tonic treatment was continued, the next menstruation was missed and mentally she appeared stationary; auditory hallucinations were evidently still present. Apparently did not recognize her children.

The "closed" sepsis had now been converted into "open," and therefore recourse was had to non-specific protein therapy to provoke a focal reaction. T.A.B. was given intravenously. A good reaction was obtained, temperatures up to 104.6° F., herpes around lips and nose, and such severe pain in back that no more injections were given.

A definite mental improvement now ensued. Catamenia returned, followed by further physical and mental improvement and thereafter continued regularly. She showed a gain of two stones on admission weight. Colour good. Blood-pressure, which before operation had been 114/78 recumbent, was now 132/80 recumbent. Eyes clear; only a few dilated vessels in *left* conjunctiva. Mentally, conduct, manner, conversation normal, gained an insight into her case and was able to describe her auditory and visual hallucinations without embarrassment. Said her mind became definitely clear a week after T.A.B. treatment, and that at the menstruation following she had a "moving-about sensation" in her head and after the completion of the period her head felt clearer. Discharged recovered after a satisfactory month's trial, January, 1928. Subsequent mental progress satisfactory. July, 1928, husband reported mental condition excellent.

In this case the patient was in a state of profound toxæmia, although there were no sudden acute influenzal symptoms as generally shown by a more healthy person.

There was a history, however, of repeated "influenzal colds." Such influenzal symptoms as might have been present were rapidly succeeded by the development of the acute delirium, the symptoms of which were intensified by the premenstrual phase of the menstruation present on admission. The septic roots (covered by a denture) were responsible for the antral disease, and upon this gradually progressive chronic septic condition an influenzal infection was superimposed.

There was no connection between the pulmonary condition and

the mental symptoms displayed. The causation of the toxæmic state was in the skull, and although the antistreptococcal serum undoubtedly mitigated the intensity of the toxæmia, recovery did not ensue until the nasal sinuses had been opened and drained, and a focal reaction (indicated by the herpes) induced by non-specific protein therapy.

CASE 6.—Housewife, married, æt. 29 on admission on March 27, 1927. First certification.

History: Family—Not psychotic. Four brothers and one sister alive and well. Personal—Non-alcoholic. Always of a nervous disposition. Happily married. No domestic worries. No miscarriages.

Present illness: Instrumental delivery of her first child nine and a half months before admission to mental hospital. Suckled the child. Later developed insomnia. Contracted influenza February, 1927, followed by pneumonia and pleurisy; became depressed, later excited and talkative; expressed persecutory ideas, showed evidence of auditory hallucinations. On account of pleuritic effusion admitted to a general hospital, but mental state was such that certification became necessary. She was rambling in speech, laughing and singing in a strange way almost continuously; imagined she saw a lion, an octopus and a peculiar kind of fowl in the ward.

On admission: 6 st. 4 lb. Very poorly nourished. Pale. Very seriously ill, yet resisted nursing observations and attention. Temperature 100.4° F. Cardiac sounds faint and distant, no murmurs, rate irregular, pulse fairly well sustained; poor peripheral circulation. Lungs: Pleuritic effusion to lower angle of scapula on left side. Bronchitis and dry pleurisy at right base. Tongue dirty, gums unhealthy, some decayed and septic teeth. Pupils reacted to L. and A., no nystagmus. Plantar flexor, deep reflexes brisk. Kernig absent. Ankle clonus both ankles. Muscular tone poor. Abdomen normal. Urine 1030, acid. Slight trace of albumen. Blood: Wassermann negative, Widal negative to all groups. Noisy, excited, restless, exalted, attention not held; appeared to appreciate simple questions, but replies wandering. Triple disorientation. Alternately bursts into tears and song. No insight; judgment lost; fleeting delusions.

Course: During the last days of April and first week of May temperature varied between 97° F. and 99.8°, pulse up to 108; later, temperature became persistently subnormal.

By the middle of May was on the whole quieter, but physically she regressed; chest condition remained much the same; passed some foul blood-stained stools. By the end of May some slight physical and mental improvement, but still confined to bed. At the end of the first week in June improvement maintained, less confused, quieter and sufficiently amenable for a gynæcological examination. There was found an acute inflammation of vulva, vagina, Bartholin's glands and cervix with a muco-purulent discharge. The condition suggested gonorrhœa but the bacteriological findings were negative. Antiseptic dressings applied to the lower genital tract.

By the beginning of July she showed gradual improvement, but would only answer simple questions in monosyllables. Still confused, memory impaired; said she was not married, and had no memory of where she was before admission. Physically much improved, gained weight, colour better and chest condition had cleared. Dental treatment and actinotherapy given.

Improvement doubtful as she appeared to be passing into chronic state.

A review during the early part of October, 1927, showed: Slow thought processes, orientation fair; realized she had been ill and confused ("mithered"), and displayed some appreciation of her present condition. Troubled with a "voice" in the right ear; realized it was not real, but it was a source of worry. Her head was heavy, as if there were a ton weight on the top. At times had a bad headache, and then the weight sensation became worse and passed on to the back of the head. Appetite good, bowels regular and sleep better.

Stated she had been subject to colds from a child; used to get constant "sore throats," and had them so bad that she could not swallow. Willing to have her tonsils removed.

The ear, nose and throat condition was : Chronic follicular tonsillitis, especially marked on right side. Wet, septic nose. Retraction of both membranæ tympani. All sinuses dim on transillumination, especially right antrum.

On October 21, 1927, under general anæsthesia, tonsil dissection; both very adherent. Adenoids—a large pad removed.

General sinus examination using the Watson-Williams suction syringe technique. Sphenoidal sinuses, hæmorrhagic returns. Antra, pus in left.

On November 9, 1927, throat satisfactory. Albumen *nil*. Blood-pressure : recumbent, 118 ; sitting, 112 ; standing, 120. Weight, 9 st. 1 lb. Mentally, a considerable improvement. The "voice" has gone completely, no buzzing in ears, no dizziness or headaches ; weight on top of head has gone and head feels lighter. Volunteers that her vision is better. Her responses are brisker and her facial expression (previously fixed and puzzled) is now normally mobile.

November 10, 1927 : Sent out on trial in care of relatives.

December 8, 1927 : Her family doctor's, the visitor's and relatives' reports satisfactory. Discharged recovered.

May, 1928, visitor's report : Interviewed patient and her sister. Sister stated very satisfactory in every way. Appetite, sleep and weight satisfactory. She was bright and contented. Menstruation (which had been in abeyance during her stay in hospital) returned in December, 1927, and had been regular since. Had had a very mild attack of influenza this year lasting only two days.

In this case the influenzal infection was responsible for an acute exacerbation of a pre-existing septic infection in the upper respiratory tract and its extension to the nasal sinuses, producing a hæmorrhagic type of reaction in the sphenoidal sinuses and a purulent one in the maxillary antrum. Associated was a bowel infection, shown by the foul hæmorrhagic stools, and there was also an acute infection of the lower genital tract. She presented a picture of a massive infection of the mucosæ of the alimentary, genital and respiratory tracts, the latter involving also the pleuræ.

With the subsidence of the inflammatory states elsewhere there was also a relative diminution of the inflammatory process in the mucosæ of the nasal sinuses, which did not, however, return to the condition obtaining before the onset of the influenzal attack.

Parallel with the subsidence of the acute processes there was an improvement in the general physical health, and a reduction of the acute delirious hallucinated state to one of quiet subacute confusion with persistence of hallucination although in lowered intensity, together with headaches and head sensations. These latter symptoms varied, and it is probable that these variations were dependent on other exacerbating factors, such as the phases of the reproductive cycle. In her case there were moliminal reactions, *i. e.*, conduct reactions comparable to other symptoms displayed in sane cases at what should be the menstrual period, thus showing that the ovarian secretion may be active although the uterine mucosa is not functioning.

A certain stabilization had now been reached, but the balance was insecure, and with the onset of winter it would be reasonable to expect a re-intensification of symptoms.

The removal of the septic foci in the head was followed by the

disappearance of these residual symptoms, and she became more stable at a higher level mentally and physically.

Delayed Group.

In this group are cases in which there is no immediate relation between the subsidence of the influenzal symptoms and the development of the manifestations of acute mental disorder. During the interval the individual may be indefinitely ill, owing to the incomplete resolution of a low-grade sinusitis consequent upon the influenzal infection, or there may be intermittent periods of apparent good health. Later, as a result of some exacerbating agency, the sinusitis again becomes dominant.

The symptoms are usually, first, insomnia and headache, and later the development of an abnormal mental state.

An example of the first category is the following history given by a husband concerning his wife, who was admitted in a state of confusion :

"She had influenza, did not go to bed and has not been the same since. The first thing she could not sleep, became 'low' and then developed depression." In this case antral sinusitis was subsequently proved to be present.

As an example of the second category, where periods of good health may be shown between the influenzal attack and the onset of definite mental symptoms, is a case reported by Mr. Patrick Watson-Williams, of Bristol.

M—, æt. 29 (neurasthenia, nasal catarrh). 1901, severe influenza. 1903, appendicitis. 1907, appendicectomy. 1908, prolonged insomnia, depression; went voyage. 1908-11, health normal. 1911, February, influenza slight; headache, insomnia, depression. Consulted four physicians; went voyage; suicidal, incapable of any mental effort. Played golf well and looked strong. 1911, August, chronic pan-sinusitis. Delusional insanity. Operations on sinuses. Culture showed pure *Staphylococcus aureus*. Cured. Mental recovery complete. 1927, December, good health for sixteen years.

In this case of occult nasal sepsis an abdominal operation became necessary. Early mental symptoms developed but passed away, to be followed much later, after the exacerbating influence of a slight attack of influenza, by definite mental symptoms of a more severe character.

In such cases mental disorder succeeding an operation may be attributed to the abdominal condition, or to the operation, rather than to the primary cause of both conditions, *viz.*, the septic disease in the skull.

Another case illustrating a period of ill-health between the

attack of influenza and the onset of a certifiable mental state is the following :

CASE 7.—Single, domestic, æt. 45 on admission September 14, 1927.

History: Family—No psychotic history. Present illness: Suffered with headaches for many years. Influenza early in 1927; did not effectually recover, became depressed. During August, 1927, condition became worse; finally certified.

On admission: Menstruation had been in abeyance for three months before admission, when she was found to be depressed, agitated, showing considerable fear manifestations, restless and confused. Cutaneous, oral, nasal, bowel and gynæcological sepsis.

Wassermann reaction and Widal negative.

Treatment of oral, bowel and genital sepsis together with a course of non-specific protein therapy resulted in some improvement. Hypertrophied and purulent tonsils were dissected and ethmoidal infection treated. After this the facial colour improved and sepsis diminished considerably. Menstruation returned and was regular. Marked mental and physical improvement succeeded. Discharged recovered, after a satisfactory month's trial, during which the improvement continued.

In March, 1928, her doctor's, the visitor's and relatives' reports were satisfactory.

In this case, æt. 45, the onset of acute symptoms was associated with an amenorrhœa, which, together with the mental state, might have been attributed to the onset of the climacteric, yet with the removal of septic conditions the menstrual function returned and the mental state improved.

Some conclusions as regards influenza and mental disorder.—(1) In persons without psychotic inheritance but with pre-existing septic states in the head (which may date from childhood and may be responsible for some predisposition to mental disorder), an attack of influenza, by causing an acute exacerbation of the pre-existing pathological process, may precipitate serious mental disturbance, even though constitutional symptoms of influenza may be slight or absent. (2) The pre-existing pathological processes may be responsible, directly or indirectly, for changes elsewhere in the body, and from these collectively further general toxæmia may ensue; when these secondary processes have subsided the original focus in the head does not necessarily return to that obtaining before the acute exacerbation, and some of the mental symptoms displayed during the acme of the acute process may persist. (3) The mental symptoms and the corresponding pathological conditions of septic foci with deficient or defective drainage may continue indefinitely, being subject to periods of exacerbation and quiescence. (4) The usual influenzal symptoms displayed by a normal or relatively healthy person may show considerable differences from those occurring in persons with an existing chronic septic process in the head. (5) Within the skull, therefore, pathological processes may exist, the extent of which may determine the degree of mental symptoms displayed.

ENCEPHALITIS LETHARGICA.

From influenza we pass on to encephalitis lethargica. In some cases of encephalitis the onset of the condition has been preceded by what has been regarded by relatives as "a violent cold." In others an "influenzal" attack has preceded.

Crafts, of Minneapolis, says :

"In considering the question of differentiation of encephalitis (at its onset) from influenza, we enter the still debatable ground of possible real relationship between these conditions: whether they are identical or totally different in origin, whether due to variant behaviour of the same virus at different stages or periods of its life-history, or whether an influenzal attack simply serves as the vehicle of entrance for the germ of encephalitis. Final determination of the relationship must wait on the exact identification of a common or separate and distinct micro-organism."

I do not propose to discuss whether visible or ultra-visible viruses are the cause. In 1924 observations by Mr. Musgrave Woodman fortified us in regarding such cases as worthy of investigation for ear, nose and throat disease. Some later observations made by Yates, of Birmingham, were that diseased conditions of the nose and throat preceded this disease, and that a diseased nasal sinus mucosa was more permeable than a normal healthy mucosa.

Although one of the portals of entry of infection is supposed to be the nasopharyngeal mucosa, few observations have been published on this important aspect of the disease.

Attention seems to have been directed more to neurological and general treatment than to the ascertainment and treatment of local diseased conditions, *i. e.*, to areas of unresolved infection which probably act as *reservoirs of infection*, and so maintain and intensify the pathological process and consequently maintain the manifestation of symptoms.

Crafts has, however, noted that diseased conditions of the nose, mouth, etc., are common in encephalitis and apparently precede its onset. He records cases of otitis media, diseased teeth, tonsils, etc., and even noted one case where examination suggested disease of the left frontal and maxillary sinuses, but apparently did not proceed further.

The cases of encephalitis lethargica that have been investigated and treated by us belong to two main types—(1) the chronic and (2) the acute.

(1) The chronic: these are cases which have passed into a chronic stage, and with progressive mental and physical deterioration become certified after many years (five, six or ten).

In these cases areas of unresolved infection acting as reservoirs had been operating over a long period of time, and the process had become chronic. In the majority of the cases heart and other

tissue damage was present. In all there was present clinical evidence of chronic septic processes in the nose and throat, and in those cases in which the Watson-Williams suction syringe technique could be carried out, evidence of nasal sinuses infected with streptococci was found (generally posterior).

Treatment of these diseased areas has, I think, produced some partial arrest of symptoms; the regrettable thing is that the cases did not arrive sooner.

(2) The acute: these, on admission, have shown acute mental symptoms with definite evidence of ocular palsies, ptosis, pupil disturbances, Parkinsonianism, etc.

In some, treatment of gross dental sepsis has been followed by mental and physical improvement, by recovery and satisfactory reports subsequently.

In others, chiefly adolescents, septic tonsils, adenoids and infected nasal sinuses have been found. On removal or drainage mental and physical improvement and discharge have followed.

In these there was definite pathological conduct, and in the females menstrual irregularities. Following the removal of the septic disease in the head menstruation has become regular and conduct normal.

I will now give details of a case illustrating the latter group :

CASE 16.—Single, gas-fitter, æt. 31 on admission on August 9, 1927. First certification.

History: Family—Mother's sister died in a mental hospital. Mother died in 1917 from bronchitis and asthma, which had troubled her for many years, having suffered with nasal catarrh all her life. Personal—1912, rheumatic fever. In army from 1914 to 1919; was never in hospital, but had frequent attacks of neuralgia of right face and temple. Bad teeth, frequent toothache. On demobilization from the army his relatives noted that he was "nervous" and twitched his left eyelid muscles, and was continually attempting, unsuccessfully, to clear his nose. In 1925 he was discharged from his work on account of bad memory causing him to make frequent mistakes. In the summer of 1925 he suffered with neuralgia and "neurasthenia," and it would appear that from this time up till the middle of 1927 he was in a state of chronic confusion without any other definite signs or symptoms, physical or psychical.

From May until July, 1927, he developed frontal and right temporal headaches, twitching of the left face returned and olfactory and auditory disturbances appeared.

He had sensations of "gases and chloroform" and "voices of people" talking about him. The "voices" seemed to come more from the right than the left and also appeared to be above.

His symptoms increased in intensity and he was certified on August 9, 1927. It was reported that "he imagined people were shouting about him outside, that they came up to the house and threw gases and chloroform. He broke a window because he was 'fed up' with the shouting about him. Imagined people followed him in motor cars and told people not to give him work. He sits staring or rolls about and laughs. Threatens to set the house on fire and burn us all. Says we are poisoning him."

On admission: Blood Wassermann reaction negative. Cardiovascular, urinary, lower respiratory and lower alimentary systems appeared normal. Carious teeth and septic gums; streptococcal gingivitis. No indications of gross nasal sepsis. Complained of electricity in frontal region. Ptosis on left side more marked. Left face moved less freely than right. Tremor of tongue.

Chronic confusion, hallucinated in olfactory, auditory and cutaneous fields. Memory very bad. Stated that he felt tired all the time.

During August and September extractions of thirteen diseased teeth produced some exacerbation reaction which was mitigated by antistreptococcal serum. In October a course of non-specific protein therapy, T.A.B., was given, herpes appeared round the mouth and under the left lower eyelid, accompanied by some stiffness in right jaw, and the left pupil was noted as larger than the right. Pains in the head and hallucinations became more marked, and facial expression became definitely Parkinsonian. All these symptoms subsided. A general sinus examination by Watson-Williams technique was carried out, and pus was found in all the nasal sinuses except the right sphenoid.

Drainage of all the infected sinuses was carried out. A rapid improvement followed. "Voices" ceased. Facial tone and mobility improved, although the right nasolabial fold was less marked than the left and some degree of left ptosis was still present.

During May, 1928, another course of T.A.B. was given and this time caused no headaches, no confusion, no sensory disturbances, and only at the end of the course was some herpes shown.

(Compare this result with the symptoms shown following the previous course of T.A.B. It is therefore clear that, as shown by the other cases, non-specific protein therapy produces intensification of symptoms when a "closed" focus of sepsis is present and improvement of symptoms when an "open" focus is present.)

The pupils were still unequal and, to eliminate any possibility of a syphilitic basis for this inequality, the cerebro-spinal fluid was examined as well as the blood; the results were negative.

Lumbar puncture caused some return of headaches. These later subsided. Colon irrigation had been carried out from admission. General improvement continued and he showed improved facial tone, ptosis was much less in evidence and the nasolabial folds became equal. Mentally he was now quite well and worked well out of doors. His relatives did not press for discharge, so we were able to observe him for some time. No relapse occurred. His conduct on parole was satisfactory. In June, 1928, he was sent out on a month's trial. His relatives had been sceptical as to the permanence of the improvement, but at the end of the month they were quite satisfied. His doctor's and the visitor's reports were satisfactory and he was discharged.

ACUTE SEPTIC INFECTION.

I now pass on to relate a case where there was a history of septic throat disease and, many years later, of severe enteritis, and still later of mental disorder of the dementia præcox fantastica type:

CASE 18.—Female, single, æt. 22 on admission August 25, 1927. First certification.

She had been a nurse in general training. No psychotic family history.

Early in her teens she had had a severe attack of septic tonsillitis with enlarged glands in the neck, both sides. This later cleared up. In the summer of 1925, whilst nursing babies suffering from summer diarrhoea, she developed enteritis, which under treatment subsided. In the following autumn she had an attack of acute mental confusion and was treated in the general hospital. This subsided after two months, and six months later she was able to take up nursing work again in another general hospital. In the summer of 1927 she again broke down mentally.

After a period of relative quiescence of symptoms a fugue phase appeared, and certification became necessary.

On admission: Subacute confusion, exaltation; said she was a queen and the Virgin Mary. Her conversation was erotic and religious. At times she was impulsive and violent as an alternative to periods of day-dreaming. Her peripheral circulation was intensely cyanotic and hands and feet were cold. Dental, genital and ear, nose and throat sepsis were present.

44 UNRESOLVED INFECTION AND MENTAL DISORDER.

On September 14, 1927, ear, nose and throat examination showed pus in right middle meatus. Tonsils enlarged and septic. Post-nasal mucus. Ears normal. Left antrum dark. Frontals dim.

Gynæcological treatment with antiseptics was followed.

On September 21, 1927, a general sinus examination, using the Watson-Williams technique, gave: Sphenoids—right, clear; left, pus. Ethmoids—right, muco-pus; left, mucus. Antra—right, clear; left, pus.

Drainage of the left sphenoid and left antrum was carried out and the other sinuses, as is usual with this technique, were irrigated with 1/10,000 biniodide of mercury solution. The tonsils were dissected. Both were septic and adherent and there was evidence of an old quinsy in the left tonsil.

Immediately after the operation it was noted by the nursing staff, and independently also by her sister, that the exalted ideas had disappeared, and the patient subsequently stated that she had then for the first time become aware of her surroundings.

Soon after the tonsil beds were healed dental treatment was undertaken and two carious and abscessed right lower molars were extracted and the four wisdom teeth, all of which were extremely badly impacted and unerupted. On recovery from this dental treatment she stated that a former feeling of stiffness in the jaws, worse in the mornings, had disappeared.

On recovery from the dental treatment she was given a course of intravenous T.A.B., and it was then noted that her general muscular tone was much improved. She was brisker and more alert, and she carried herself better. Mentally she was improving, grandiose ideas had disappeared and she was showing a lesser tendency to erotic conversation.

Throughout the course of her treatment bowel lavage had been given. This treatment was now given on the continuous colon-irrigation table, and she stated she could appreciate the benefit therefrom. Ultra-violet light and calcium therapy had also been practised throughout the treatment of her case.

By December, 1927, the cyanosis had considerably improved. On admission in August her hands had been blue, cold and wet; in December they were pink, warm and dry. Mentally she was quite well and her conversation was now modest.

She was sent out on trial in January, 1928, and discharged recovered in February, 1928, as her relatives and her family doctor were satisfied. Subsequent reports have been satisfactory.

In this case the findings indicate that the severe septic disease of the throat had left behind areas of unresolved infection in the head. This possibly set up bowel infection with reduction of resistance. The apparently quiescent infection in the upper respiratory tract became active, resulting in sinusitis and so producing mental symptoms as well as disturbances of the circulation.

In conclusion I beg to acknowledge with thanks the assistance given me in the work by the Visiting, Research and Resident Staff of the Birmingham Mental Hospitals.

SOME REMARKS ON THE CERTIFICATION OF THE MENTAL DEFECTIVE.*

By J. E. MIDDLEMISS, M.R.C.S.Eng., L.R.C.P.Lond.,
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Medical Officer to the Leeds Committee for the Care of Mental Defectives

SOME few years ago, when the Annual Meeting of this Association was held at York, I had the temerity to inflict upon it a paper dealing with the subject of mental defect. Whether one derives a certain subconscious sense of security in speaking on one's native heath I hardly dare speculate. Whether, on the other hand, the circumstance of propinquity, as it were, to one's roof-tree stirs and stimulates that spark of local patriotism which lies latent in the humblest I leave to the conjecture of those of my hearers who may be psycho-analytically minded and sufficiently interested.

Another consideration which might have damped a little my ardour on this occasion was the choice and subject-matter of my paper. Recognizing that for these many years past the primary purpose of this Association has been the study of psychiatry in all its modes and aspects, and that inevitably this must still retain the strongest hold upon its interests and affections, one hesitates to intrude upon its notice a subject which can, at best, have but a limited appeal. It will, however, be within the knowledge of most of my hearers that during the last few years this Association has enlarged the scope of its activities, so as to include within its purview not only its primary objective, psychiatry proper, but all forms of scientific endeavour which may be supposed to bear, however indirectly, upon the subject of mental disease.

Within such a scheme one feels that the subject of mental defect has a legitimate place. In thus throwing open its hospitality to the sister sciences this Association has wilfully incurred certain responsibilities and obligations. Amongst the lesser, and I trust not the least tolerable of these, must be included the sufferance of such a paper as the present one.

It is hardly possible to conclude this apologia without a reference to our former President, Dr. J. R. Lord, who I believe was mainly

* A paper read at a meeting of the Northern and Midland Division, held at St. Luke's Hospital, Middlesbrough, on October 25, 1928.

instrumental in enlarging the functions of this Association, and to whom I feel we can never be sufficiently grateful.

Since the coming into force of the Mental Deficiency Act of 1913 up to the present time I have been concerned, as the Medical Officer to the Leeds Committee for the Care of the Mentally Defective, with the examination and certification where necessary of all defectives within that area, and I suppose within that period I have encountered upwards of 1,000 cases of all grades and types. It has occurred to me that it may be of interest to summarize the conclusions I have arrived at as a result of this experience.

Before beginning this work I had no experience of mental defectives beyond those encountered as a medical officer to one of the Scottish mental hospitals, where, of course, no particular differentiation was made between them and any other type of patient, except that they naturally gravitated to the chronic wards, and presumably were given the sort of unskilled work they would nowadays be doing in recognized institutions for mental defectives.

From the inception of the Mental Deficiency Act one was faced with the detection and appraisal of a clinical condition always existent, it is true, but now for the first time accorded, as it were, official recognition. It might have been supposed that on the analogy of the lunacy certificate the examiner would have been allowed to use his own discretion as to what did or did not constitute mental defect. To a certain extent this was actually the case, for the definitions of mental defect introduced in the Act were so vague and indeterminate, both in defining the different grades and in marking the border-line between the higher grades and normality, as, in fact, to throw the whole onus upon the examiner.

It will be apparent at once that whereas the criterion employed in the recognition of insanity is, in the main, a qualitative one, in the case of mental defect it is largely a quantitative one. A consideration of the original definition of the feeble-minded person will make my point clear. Feeble-minded persons as defined in the Act of 1913 are "persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others." There was, of course, and is still, no qualitative test whereby one could determine whether the defect was so pronounced as to require care, supervision, etc. It became, therefore, largely a matter of individual opinion in a given case, and no doubt the adoption of varying standards in different parts of the country will go far to explain some of the anomalies as to certification which have been commented upon from time to time. One felt in those early and pioneer days a

considerable responsibility not altogether remote from that of a boundary commission defining new territory. The matter was further complicated by the definition of feeble-minded children. A feeble-minded child, according to the Act, was one "who by reason of such defectiveness appeared to be permanently incapable of receiving proper benefit from the instruction in ordinary schools." Here it will be noted one was introduced to a new standard as to what constituted mental defect, *viz.*, a scholastic one. The point is of more than academic interest, because children who were unable to benefit by ordinary scholastic instruction and who were deemed by the educational authorities to need further supervision came, either at the age of sixteen or before, automatically under the care of the local authority, and as the Act came more fully into operation this would constitute the main channel for the ascertainment of mental defect. The further fact that the majority of such children attended special schools and were under the charge of teachers and others whose outlook was in the main scholastic tended still further to the stressing of the pedagogic criterion of what constituted mental defect.

The widespread adoption of the Binet-Simon intelligence tests with their later modifications and elaborations provided a ready means of assessing intelligence, and by their quantitative definiteness they no doubt afforded a sense of security in doubtful cases to many a harassed and perplexed school doctor. Thus it came about that almost imperceptibly a sort of double standard of diagnosis came into being, the one based largely, if not solely on the scholastic and educational attainments of the examinee, and the other mainly on a review of his conduct. I will not say that in a given case either standard was exclusively adopted, but there is no doubt that in the case of children the pedagogic method of approach became the prevailing and prepotent one—so much so, indeed, that the whole subject of mental defect threatened to become the peculiar province of the scholastic profession. Books were written and theories propounded in which not only was the mentality of the defective considered apart from its physical substratum, but one particular modality of the mind, the "intelligence," was taken as the index of the mental powers of the individual as a whole. A certain inborn reluctance to worship at new shrines, as well as a distrust of methods which seemed at once too clever and too glib, led me quite early to adopt a somewhat sceptical attitude towards so-called intelligence tests, and indeed towards scholastic standards in general.

In considering, for instance, whether I was justified in certifying an individual past school age, I felt on much surer ground when able to furnish a continuous record of anti-social conduct than where the only available evidence consisted in school records or

the results of scholastic tests. Particularly was this the case in the courts where it was a question perhaps of an isolated misdemeanour. Magistrates, I found, were disposed to brush aside ruthlessly any evidence of defect that was based mainly on academical standards, and with this point of view I must confess to having found much in common. Another very obvious objection to the acceptance of scholastic tests at their face value was that they appeared to take little or no account of the emotional reactions of the examinee. It was, for instance, quite a common experience to find a child tremulous and tearful, or in a condition of emotional stupor which baffled all attempts at interrogation, who later, after recovering his confidence and equilibrium, gave quite a creditable performance. It seemed to me then, as it does now, that unless some attempt were made to evaluate and allow for the emotional frustrations and inhibitions which figure so largely in the mental make-up of most defectives, the results of such scholastic tests would have to be seriously discounted. Even granted that such emotional inhibitions as I have described are in themselves to some extent symptomatic of a defective mentality, still they are encountered at times in the most cultivated and intelligent, and in any complete mental inventory they should be accorded their due value.

However certain one may be of one's conclusions, it is always encouraging to find them endorsed and supported by other and more eminent authorities, and when some years ago, in an article which I have not by me, Dr. Auden, of Birmingham, espoused views very similar to those I have just expressed he found at least one appreciative reader.

Further experience of the practical working of the Mental Deficiency Act tended to intensify one's conviction of the paramount importance of conduct in the ascertainment and assessment of mental defect.

Profound as the influence of the late Dr. Mercier's teaching has been on the direction of psychiatric thought, I venture to say that it is in the problems peculiar to mental defect that it assumes supreme significance. So much so that I have come to regard his dicta as almost axiomatic in this connection, and where, as is not infrequently the case, there has been reasonable doubt as to the existence of mental defect, data as to conduct have become for me more and more the deciding factor.

It may be admitted at once that the school record when available is a valuable auxiliary in arriving at a decision, but where the scholastic performance and the record of conduct are at variance I should unhesitatingly pin my faith to the latter. In the vast

majority of cases—and for this the gods be thanked—the two are found to be mutually confirmatory. With the passing of the amended Act of 1927 many of the difficulties of certification have disappeared, and have now only a retrospective interest. Whereas formerly it was necessary to prove the existence of mental defect from birth or from an early age, this frequently difficult and often impossible task is no longer obligatory. Mental defectiveness is now defined as “a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury.”

It is, of course, common knowledge that the main purpose of this particular provision was to bring within the scope of the Act the increasing number of cases met with as sequelæ of encephalitis lethargica or other acquired cases occurring in later childhood or adolescence. In my own experience the number of cases which could have been certified under this head even with the added facilities referred to have been negligibly small; whether this be due to the imperfections in the system of ascertainment or to the varying regional incidence of this disorder I do not know. Where, I think, the new regulations will be particularly valuable will be in dealing with those adult cases in which there is presumptive evidence of mental defect, but no direct proof of its having existed from an early age. Under the old *régime* such cases, though clinically unequivocal, were immune from certification. My view has always been that where the present condition was obviously one of mental defect, this, by implication, must necessarily have existed from birth or from an early age, even in the absence of direct evidence which would establish a continuum of mental inferiority through the intervening years. An obvious pitfall in so interpreting the terms of the definition was that a case presenting the clinical characteristics of amentia might conceivably be one of dementia sequential to an acute psychosis. Usually, however, there were sufficient data in the history of the case to obviate a gross error of this sort. The difficulty lay in inducing a magistrate to accept this version of the situation. In the majority of cases the latter would insist, not unnaturally, on observing the letter of the law, and where there was no direct evidence bearing on the early life of the examinee, usually refused to make an order. Now, thanks to the amended Act, “ nous avons changé tout cela,” and henceforth such cases will be appreciably easier to deal with.

Another direction in which certification will be facilitated will be in that considerable body of cases in which the defect is first manifested about the age of puberty. Up to the time of leaving

school there may have been no overt evidence of mental abnormality, even from the narrow academic point of view, and it is only when called upon to make the more complicated adjustments of every-day life that the lacunæ in mental equipment become glaringly apparent. Although in the majority of such cases the defect was undoubtedly inherent, awaiting only the clash of circumstance to reveal itself, the fact remains that under the old regulations one could not certify without doing violence to one's legal conscience. In any case the magistrate rising superior to subtle scientific considerations might inconveniently ask for proof of defect from an early age. Defects in social adjustment have ample opportunity to reveal themselves before the age of eighteen, and one feels, and is grateful for, a new sense of security in dealing with such cases.

It is hardly possible to leave this subject without some reference, however brief, to the vexed question of moral defect. In the amended Act of 1927 the terms of the definition of moral defect have been notably altered in several respects. The term "moral imbecile," which, in so far as it implied a parity of mental status with that of the true imbecile, was clearly a misnomer, has now been done away with altogether. In its stead we have the phrase "moral defective." It may be useful to contrast the original definition of the so-called moral imbecile with that now adopted. Moral imbeciles as defined in the original Act were "persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect." Moral defectives as now defined are "persons in whose case there exists mental defectiveness, coupled with strongly vicious or criminal propensities, and who require care, supervision and control for the protection of others." One cannot be sufficiently grateful *en passant* for the gift of the adverb in the phrase "strongly vicious," even though counter-balanced by the cumbrous and surely hybrid infliction "defectiveness." Why not defect *tout court* as heretofore? Coming to more serious criticism, it will be seen at once that the present definition, though by no means perfect, is a great step forward.

Firstly it is no longer obligatory to trace back the mental defect to an early age, which in cases where moral obliquity first manifested itself at or about puberty was an impossible task. Secondly, the phrase, "on which punishment has had little or no 'deterrent effect,'" was always exceptionable. By some, only such punishment as followed an infraction of the penal code was considered as fulfilling the terms of the definition; whereas of course it was conceivable that individuals more fortunately placed, but equally

incurable and impervious to ordinary parental correction, would in that case escape certification. Moreover the implication that an individual should be allowed to graduate in the higher branches of the criminal art until such time as his case was beyond all dubiety was, to say the least of it, unsatisfactory. This, by the way, is no fancy picture, because I can recall at least one case in which the criminal record extended into the teens of years before the individual was finally certified as a moral imbecile.

Whilst the situation has been perceptibly eased in the direction indicated, there is one point, and that a fundamental one, in which I think the present definition is susceptible of improvement. Dr. Tredgold has stated that a considerable number of those certified as moral defectives are merely feeble-minded persons who happen to exhibit in addition vicious and immoral characteristics. This I believe to be true, as is also the further fact cited by the same authority, that the majority of those correctly designated as moral defectives will on due investigation usually provide sufficient evidence of mental defect apart from the specific anti-social acts which first brought them under notice. There exists, however, a considerable number of cases clearly meant to be included under this section of the Act, whose mental defect would hardly be demonstrable, except in so far as it is implicit in their anti-social conduct. I cannot help thinking that the phrase "coupled with" in this connection is an unfortunate one. It would seem to imply that a moral defective is merely a defective to whom is superadded a proclivity for vice. This smacks of the water-tight division of mental faculties which characterized the older psychologies, and scarcely, I think, meets the occasion. I seek no fame as the framer of definitions, but for me a moral defective is one whose commission of a series of anti-social acts is characterized by a fundamental unwisdom and lack of purpose which is at once the expression and evidence of a constitutional mental defect. Perhaps this is what the present definition really intends, but I can foresee that awkward conjunction proving a stumbling-block to a tender conscience.

There are some, I believe, bold enough and heretical enough to deny the existence of moral defect *in toto*. At any rate, they would deny the existence of moral defect in so far as it implies an imperfection in the physical substratum of mind at all comparable with that which is associated with other types of amentia. Rather would they postulate a mind potentially capable at the outset of developing along normal lines, but which by a cruel conjunction of circumstances has been forced to evolve as it were by dubious and subterranean routes. For them I take it the social phenomenon

which we are pleased to designate moral defect is due to the suppression and stifling of healthy instincts, which, denied their normal and customary outlet, find eventual expression in the characteristic perversions of conduct with which we are familiar. *Ex hypothesi* one may presume that if individuals of this type be caught early, so to speak, and their mental reactions suitably elucidated and interpreted, they may reasonably expect to be restored to normal or quasi-normal mental health. A considerable number of cases have been recorded where treatment along these lines has met with a gratifying success. To such cases the term "moral defect" in its customary connotation is obviously inapplicable. My experience of the treatment of moral defectives is so slight that I am not in a position to dogmatize on the subject, but I have encountered cases whose environmental setting was so unfortunate that it would be difficult to imagine the emergence of a normal moral sentiment, whatever the individual's original potentialities might have been. When, further, such individuals have been found to respond to more favourable surroundings, it becomes difficult to avoid the conclusion that there is such a thing as acquired moral defect, if this does not involve a contradiction of terms. The justification for the use of the term "defect" in this connection would be that lacking the transplantation to a more congenial soil, this type of individual would not fail to exhibit eventually all the characteristic features of moral defect. Whilst admitting so much, I am yet persuaded that there remains a nucleus unable to respond to the most favourable environment, and to whom the legal definition is properly applicable. Here I believe we are faced with a mental anomaly infinitely more complex, yet as definite and ineluctable as that found in any other type of amentia, and possibly in the last resort resting on a physical basis as assured.

This is not the place or the occasion to discuss the psychology of moral defect in any of its bearings, indeed I am conscious of having already exceeded my terms of reference and I rather fear the limits of your patience. With an apologia I began this paper, and with an apologia it is fitting I should conclude.

THE BACTERIAL DIGESTION OF TYROSINE, TRYPTOPHANE AND HISTIDINE IN MENTAL DISEASE.

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It has often been suggested that functional diseases of the nervous system are caused by intestinal toxæmia, and this suggestion has been revived by certain recent work.

Buscaino (1923-26) has described lesions of the small intestine in mental patients which result in undue permeability of its walls. He also describes a toxic substance in the urine in acute confusional and alcoholic insanity and in dementia præcox. This substance is brought down as a black precipitate by silver nitrate in the cold. The liver is deranged in these cases, and decarboxylates amino-acids presented to it instead of deaminizing them.

Ermanno Scheiner (1927, 1928), after investigating the urine of similar cases, finds that the black reaction of Buscaino is not due to an increase of uric acid or to diminution of chlorides in the urine, but to certain aromatic bodies. The uroscopin reaction for indol-acetic acid is constantly present in the urine of confusional, alcoholic and dementia præcox patients; it is due to functional change in the liver secondary to the intestinal lesions demonstrated by Buscaino, Mazzanti and Roberti. The urine of the same patients, and of cases of acute yellow atrophy, cancer of liver and advanced typhoid also constantly gives Millon's reaction; this is due, not to free phenol, aromatic oxyacids or tyrosine, but to a hitherto unknown derivative of tryptophane which possesses a hydroxyl group attached to a benzene ring. The method of isolation and characteristics of this substance are described. Although the author shows that the unknown derivative is neither phenol, aromatic oxyacid nor tyrosine, there is one Millon-reacting body which he does not exclude, namely, tyramine, and after reading his description it is difficult to avoid the conclusion that he is dealing with this substance.

The present writer (1928) pointed out that the intestinal bacteria of the acutely insane are much more active in attacking tyrosine

than are those from healthy persons. The bacteria most active in this respect are the bacillus of Morgan and *B. phenologenes* of Berthelot. These bacteria form phenol in great quantity when grown in an alkaline tyrosine medium, but in an acid medium containing tyrosine with either glucose or glycerine they form the poisonous base tyramine.

We are therefore led back to consider whether functional mental disease is associated either as effect or cause with an increased absorption and elimination of the following substances: Phenol, tyramine, indole, scatole, indolethylamine and histamine. These are the poisonous or semi-poisonous derivatives of the three important amino-acids, tyrosine, tryptophane and histidine. The present paper is concerned with methods for the investigation of this question. It contains a description of (1) a method of analyzing the derivatives of tyrosine formed by bacterial action, so that we can estimate to what extent any given intestinal flora will produce phenol and tyramine; (2) methods of estimating the output in the urine of the derivatives of the above three amino-acids which result from bacterial decomposition.*

The following table shows what these products are and how they are dealt with in the body.

TABLE I.

Intestinal bacteria form—	The liver detoxicates to—	The kidneys excrete as—
Tyrosine—Phenol . . .	Ethereal sulphates	Phenyl-sulphate.
P-cresol . . .	"	P-cresyl-sulphate.
P-hydroxyphenyl- acetic acid . . .	"	P-hydroxyphenylacetic acid.
Tyramine . . .	P-hydroxyphenyl- acetic acid	"
Tryptophane—Indole . . .	Ethereal sulphates	Pot. indoxyl-sulphate.
Scatole . . .	"	Ethereal sulphates.
Indolacetic acid . . .	"	Indolacetic acid.
Indolethylamine	Indolacetic acid	"
Histamine — Imidazolacetic, lactic, propionic acids	"	Imidazoles.
Histamine . . .	Not deaminized	Not as histamine.

In compiling the above table and working out the following analytical methods I have consulted the writings of the undermentioned authors: Dale, Ewins, Laidlaw, Mellanby and Twort, Koessler and Hanke, and Scheiner. I am also indebted to Dr. Laidlaw for valuable advice by letter. Cole's text-book of *Practical Physiological Chemistry* is indispensable to anyone working on these lines.

* The derivatives found in the urine may, however, be formed by deranged metabolism in the body as well as by bacterial decomposition in the intestine.

ANALYSIS OF A BACTERIAL CULTURE FOR THE DERIVATIVES OF TYROSINE.

Culture Medium (Koessler and Hanke).

A. Without carbohydrate :

Tyrosine	0·1
Ammon. chloride	0·1
Pot. nitrate	0·1
Pot. dihydrogen phosphate	0·2
Sod. chloride	0·4
Sod. sulphate anhyd.	0·01
Sod. bicarbonate	0·2
Calc. chloride anhyd.	0·005
Water	to 100

Distribute in test-tubes, 10 c.c. of medium in each, and sterilize.

B. With carbohydrate :

As above, but add glycerol 2 c.c. or glucose 1 gm.

Preparation of the culture.—Emulsify two large loops of fæces in a culture-tube of bouillon, incubate for twenty-four hours and sow on two agar slopes, incubate for twenty-four hours. Inoculate one tube of medium A and one of B from each agar slope, transferring all the growth. Incubate two to seven days and analyse as under.

ANALYSIS.

Solutions required.—Millon's solution : Dissolve mercury in its own weight of nitric acid. Dilute the solution obtained with twice its volume of distilled water and decant.

Standard colour solutions : Make up phenol, tyramine and tyrosine in the following graduated dilutions : 0·05, 0·03, 0·025, 0·017, 0·015, 0·0075, 0·00375, 0·00187, 0·0009%. Distribute in test-tubes, 5 c.c. in each, add 8 drops of Millon's solution to each, and bring to the boil. The colour will develop on cooling. These standards are used in estimating the tyrosine derivatives of the culture. They should be freshly prepared.

Stage 1 : Distillation of phenol.—Decant 10 c.c. of the culture into a 100 c.c. flat-bottomed flask, render faintly acid with dilute hydrochloric acid, stopper with a rubber stopper through which a glass tube bent twice at right angles leads to a test-tube immersed in a vessel of cold water. Distil over 6 c.c., add 4 c.c. of distilled water to the flask and distil 4 c.c. more. The distillate is treated with Millon's solution as above and compared with the standard phenol series. In making the comparison the standards and the unknown must, of course, be in cordite tubes of equal diameter, and it is well to use a comparator (see Cole's *Practical Physiological Chemistry*).

Stage 2 : Ether extraction of p-hydroxyphenylacetic acid.—Make up the residue in the flask to 6 c.c., add 0·5 c.c. of 10% hydrochloric acid, boil in an open beaker for three minutes (to ensure the complete removal of phenol), add a little distilled water to wash out the beaker and transfer to a small extraction bottle. Shake up with 10 c.c. of ether, pipette off the ether, and repeat this process our times, making five ether extractions in all. Evaporate a

portion of the fifth extract, dissolve in distilled water and test with Millon's solution to make sure that all p-hydroxyphenylacetic acid has been removed. Evaporate the combined ether extracts (the ether can be recovered by a suitable condenser), dissolve the residue in 10 c.c. of distilled water, treat with Millon's solution as above and compare with the phenol standards. (I have not obtained p-hydroxyphenylacetic acid in quantity, and therefore have not been able to make a standard colour series of this acid. Its estimation in terms of phenol is, however, sufficient for the present purpose.)

Stage 3: Extraction of tyramine by cold acetone.—The acid aqueous residue in the extraction bottle is made faintly alkaline with sodium carbonate, transferred to a short wide tube and evaporated to dryness in a boiling water-bath. 10 c.c. of acetone are added, the tube stoppered, and left for twelve hours at room temperature or in an incubator at 37° C.; the acetone is then decanted into a centrifuge tube and spun for five minutes, pipetted off carefully and evaporated completely; the residue is dissolved in 10 c.c. of distilled water, treated with Millon's solution and compared with the tyramine standards, which must be Milloned at the same time.

Stage 4: Estimation of remaining unaltered tyrosine.—The residue left in the tube after the acetone has been pipetted off, plus any deposit in the centrifuge tube, are dissolved in 10 c.c. of distilled water, treated with Millon's solution and compared with the tyrosine standards.

The solubility of tyramine and tyrosine in ether, and of slightly alkalinized tyramine and tyrosine in absolute alcohol and in acetone, was tested under conditions identical with those given and resulted as follows:

	Ether.	Absolute alcohol.	Acetone.
Tyramine	. 0'0001	. Over 0'05	. Over 0'05%.
Tyrosine	. 0	. 0'0006	. 0%.

In one series of experiments the tyramine and tyrosine were dissolved separately in Koessler and Hanke's salt solution, the solutions were then acidified and alkalinized as in the analysis, evaporated and extracted separately with alcohol and with acetone; in another a pinch of the solid base or aminoacid was digested in the solvent at 37° C., spun in a centrifuge, the solvent pipetted off, evaporated, and the residue tested after solution in distilled water. The solubility in ether was tested in the latter way. It should be said that 0'05% is the highest percentage which can be estimated colorimetrically with Millon's solution, while 0'0001% represents the very faintest colour perceptible. It will be seen that absolute alcohol dissolves a perceptible amount of tyrosine, and is therefore not a suitable agent for Stage 3 of the analysis.

URINE ANALYSIS.

- (1) Quantity.
- (2) Specific gravity.
- (3) pH.
- (4) Test for albumen.

If present acidulate, boil, cool and filter, and use the filtrate for all further work.

- (5) Test for sugar.
- (6) Estimation of the derivatives of tyrosine.

(a) *Hydrolyse the urine.*—Take 13.5 c.c. of hydrochloric acid of sp. gr. 1.16 and make up to 100 c.c. with urine, giving 5% hydrochloric acid. Boil under reflux condenser for one hour.

(b) *Millon's test on hydrolysed urine.*—To 10 c.c. hydrolysed urine add saturated solution of sodium carbonate until just alkaline to litmus; add 1 c.c. more urine. To some of this faintly acid fluid add in one tube a half volume of Millon's solution, and in another an equal volume. A heavy precipitate forms with some evolution of gas. Heat to boiling and allow to stand. Colour will develop in the supernatant fluid, which can be matched against phenol standards.*

(c) *Distil for phenol.*—Take 10 c.c. of hydrolysed urine in a flask and proceed as in stage 1 of the culture analysis above.

(d) *Extraction of p-hydroxyphenylacetic acid as in stage 2 above.*

(e) *Extraction of tyramine as in stage 3 above.*†

(f) *Estimation of tyrosine as in stage 4 above.*

(7) Estimation of the derivatives of tryptophane.

(a) *Indican, potassium indoxyl sulphate.*—Test untreated urine by Jaffé's method (Cole, *Practical Physiological Chemistry*).

(b) *Scatole* (Scheiner, 1927).—Rosenbach's test: To 5 c.c. urine add 1–2 drops of nitric acid in the cold. A rosy colour develops in abnormal urine. Normal urine gives the reaction with 5–6 drops and heating.

(c) *Indolacetic acid.*—Preliminary clearing with lead acetate (Koessler and Hanke, 1924, xvi). Take 100 c.c. urine in a 250 c.c. flask; add 25 c.c. saturated solution of lead acetate; do not filter. Add 10% sodium hydroxide until the supernatant fluid is colourless and until test portions of fluid no longer give a precipitate with soda (the liquid is then just alkaline to litmus). Avoid excess of

* Scheiner, 1927–28, gives the following method of using Millon's reagent on urine: The reagent is made up with 1 part by weight of mercury to 2 of nitric acid. The urine is diluted 1/10 and acidified with 10% sulphuric acid. A series of further dilutions is then made up to 1/100. Take 3 c.c. diluted urine; add 4 drops of Millon. A red precipitate forms in the cold. Heat gently but not to boiling. A red precipitate with a rosy supernatant fluid results when the test is positive. None of the specimens which I have examined by this method have been positive. If Millon's reagent made with equal parts of mercury and nitric acid is added to untreated urine and boiled, a red colour will sometimes appear in the supernatant fluid. This generally indicates p-hydroxyphenylacetic acid.

† The titration of the acetone extract and residue with Millon's reagent is not satisfactory, since many of the disturbing constituents of the urine, e.g., urea, chlorides, etc., are present in both. The faint pink which sometimes develops is washed out by these bodies. The modified Ehrlich-Pauly reaction described below will probably prove much more effective.

alkali. The precipitate contains aromatic hydroxyacids (but not indolacetic), polyphenols and all urinary colouring matter; the water-clear fluid contains imidazoles (and indolacetic acid). Filter.

Test the filtrate for indolacetic acid (Ewins and Laidlaw, 1913; Scheiner, 1927). Acidify the filtrate with acetic acid. Take 3 c.c. in a test-tube; add 1 c.c. of strong hydrochloric acid and 1-2 drops of 0.5% sodium nitrite. A rosy colour develops. As indolacetic acid in quantity has not been available I have matched the colour against standard phenols treated with Millon's reagent, which gives an arbitrary standard useful for comparative work.

Indolacetic acid is not excreted as such in the urine, but combined with glycine, as indolaceturic acid (Ewins and Laidlaw, 1913). If untreated urine containing an appreciable amount of this acid is tested with 1/2 volume of strong hydrochloric acid and a drop of nitric acid and then heated, it will develop a purple red colour, which later turns to bright yellow. Indolacetic acid is formed by hydrolysis with the alkali used in clearing the urine.

(8) Estimation of the derivatives of histidine.

Imidazoles (imidazolacetic, and possibly lactic and propionic acids).

(a) *Preliminary clearing with lead acetate and sodium hydroxide as in (7) (c) above.*

(b) *Estimation of imidazoles by the p-diazobenzenesulphonic acid method, modified Ehrlich-Pauly reaction.*

The solutions used and the mode of mixing are described by Koessler and Hanke, 1919, ii. They estimate the imidazoles by comparison in a colorimeter with standard congo-red and methyl-orange solutions; the comparison has to be done within a few minutes. The method here described is original; it has the advantage of dispensing with a colorimeter, and the reading can be taken at any time within twenty-four hours or more.

Solution (i) stock sulphanilic acid: 4.5 gm. of sulphanilic acid are dissolved in 45 c.c. of 37% hydrochloric acid (sp. gr. 1.19) in a 500 c.c. flask, and distilled water added to the mark. (The amount of hydrochloric acid may be reduced to 4.5 c.c. without affecting the activity of the reagent.)

(ii) Stock sodium nitrite: Sodium nitrite 22.5 gm. is dissolved in distilled water and diluted to 500 c.c. in a volumetric flask.

(iii) Pure sodium carbonate 1.1% in distilled water.

Preparation of the reagent: Take 3 c.c. each of solutions i and ii in a 100 c.c. volumetric flask, place in an ice-bath for five minutes. Add 12 c.c. of solution ii, mix and put back in the bath for 5 minutes. Add distilled water to the mark and put back in the bath, where it should be kept; do not use in less than 15 minutes nor after 24 hours.

Preparation of the standards: Make up solutions of histamine or histidine hydrochloride (Brit. Drug Houses) in the following dilutions: 0.02, 0.01, 0.005, 0.0025%. Put up four cordite tubes opposite the four dilutions, and into each tube measure—the reagent 1 c.c.; sodium carbonate solution (No. iii) 2.5 c.c.; histamine or histidine solution from the corresponding dilution 5 c.c. Mix immediately. After 15 minutes it will be found that the dilution 0.02 gives a pure yellow, 0.01 and 0.005 a distinct orange, and 0.0025 a red colour.

(c) *The test proper.*

This test reacts with the tyrosine-phenol group as well as with imidazoles.

Tyrosine and tyramin both give red, with a faint brown tinge when viewed across the tube and an orange tinge when viewed lengthwise. The colour weakens progressively with increasing dilution of the tyrosine or tyramine, so that a quantitative colour scale could easily be made. P-hydroxyphenylacetic acid and phenol give a vivid bile yellow; they can be distinguished readily by looking down the tube, when the former will appear orange and the latter pure yellow. A mixture of equal quantities of histamine and tyramine still shows the colour change from yellow to orange between the dilutions 0.02 and 0.01, but this is certainly less decisive than with unmixed histamine; it is fully developed, however, in the 0.005 dilution. Tyramine, if present, might therefore lead to over-estimation of imidazoles. Phenol and p-hydroxyphenylacetic acid will not interfere, since they are removed by the lead acetate.

Make dilutions of the filtrate (leaded urine) from (8) (a) above as follows, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, $\frac{1}{64}$, $\frac{1}{128}$, and put up in eight tubes in a rack. Put eight cordite tubes of uniform diameter opposite these and measure into them—the reagent, 1 c.c.; sodium carbonate solution (No. iii), 2.5 c.c.; the corresponding dilution of urinary filtrate, 5 c.c. Mix immediately after adding the filtrate to each tube. Allow to stand for fifteen minutes or more, until full colour develops. A point will then be found in the series where the same change of colour takes place as in the standard, *viz.*, from pure yellow to orange and red. The concentration of imidazoles in the first orange tube corresponds with 0.01% histamine. The valency of the reagent may change after solution i has been kept for some time. It is therefore advisable to put up the standard histamine every day the test is made.

The change of colour does not depend in any way on the pH of the particular dilution. If two series of histamine or histidine

TABLE II.—*Analysis of Tyrosine Cultures.*

	Phenol.	P-hydroxy-phenylacetic acid.	Tyramine.	Tyrosine.
Inoculum-fæces, D. H.— Acute mania :				
Tyrosine salt sol. incubated 9 days .	0.03	0.0004	0	0
Glucose tyrosine, incubated 9 days .	0.0002	0.001	0.0062	0.004
Inoculum-mixed <i>B. morgani</i> and <i>phenologenes</i> :				
Tyrosine salt sol. Incubated 9 days .	0.036	0.001	0	0
Glucose tyrosine. Incubated 9 days .	0.0001	0.002	0	0
Inoculum-fæces, W. A.— Acute delirium :				
Tyrosine salt sol. Incubated 2 days .	0.033	0.0001	0	0
Glucose tyrosine. Incubated 2 days .	0.0006	0.001	0	0
Inoculum-fæces, B. M.— Manic-depressive :				
Tyrosine salt sol. Incubated 10 days .	0.021	0.0002	0	0
Glucose tyrosine. Incubated 10 days .	0	0.0008	0.001	?
Inoculum-fæces, F. O.— Recur. confusional :				
Tyrosine salt sol. Incubated 2 days .	0.011	0	0	0
Glucose tyrosine. Incubated 2 days .	0	0.0001	0.0015	0.004
Inoculum-fæces, healthy control :				
Tyrosine salt sol. Incubated 10 days .	0.021	0.0001	0	0
Glucose tyrosine. Incubated 10 days .	0	0.0008	0.001	?

TABLE III.—*Urine Analysis.*

HEALTHY CONTROLS.

	Quantity, c.c.	Sp. Gr.	pH.	Million, untreated urine.	Million, hydrolysed urine.	Phenol, %.	P-hydroxyphenyl-acetic acid, %.	Tyramine, %.	Indican, jafé.	Indolacetic acid, %.	Imidazoles, %.	Phenol, grm. per 6 hours.	P-hydroxyphenyl-acetic acid, grm. per 6 hours.	Indolacetic acid, grm. per 6 hours.	Imidazoles, grm. per 6 hours.	
P—:																
Night	..	1032	5.5	0.001	..	..	..	..	..	..	0.75	..	..	..	..	..
"	..	1024	5.7	0.002	..	..	..	..	..	..	0.187	..	..	..	..	..
10 p.m.—6 a.m.	..	1020	5.6	..	..	0.0049	0.0012	..	+	0	0	0.0084	0.0021	0	0	0
N—:																
Night	..	1022	5.7	0.001	..	..	..	..	..	..	0.25	..	..	..	..	..
11 a.m.	0.0085	..	..	0.0085	..	..	..	..	..	..	..	..	..
10 p.m.—6 a.m.	..	1016	6.1	..	..	0.0007	0.0012	..	0	0	0.11	0.0036	0.0054	0	0	0.49
G—:																
Night	..	1016	6.4	0.002	..	..	..	..	..	..	0.218	..	..	..	..	..
Midday	..	1024	..	..	0.0006	0.003	0.0019	0	..	..	..	..	..	..	..	..
Midnight—6 a.m.	..	1030	6.1	0.006	..	0.0058	0.0037	0.0005	..	0	0	0.0139	0.0088	0	0	0
D—:																
2 p.m.	..	1028	5.7	0.003	..	..	0.0002	..	#	..	0	..	..	..	..	..
B—:																
Night	..	1020	6.2	0.0005	..	..	..	..	+	..	0.12	..	..	..	..	..

TABLE IV.—Urine Analysis.

PSYCHOTICS.

F. R.—	Melancholia, acute:	720	1024	..	..	0	..	..	0.12	0.045	0.0086	..	0.864
	Noon—6 p.m.	350	1020	6.3	0.0004	0.0012	0.0003	..	0.05	..	0.0042	..	0.175
	6 p.m.—midnight	240	1020	5.6	0.0005	0.0002	0.0003	..	0.12	0.0162	0.0021	..	0.216
	Midnight—8 a.m.	..	1024	5.6	0.0005	0.0009	0.0012	..	0.015	..	..	..	..
	8 a.m.—noon	540	1024	6.2	0.0071	0.0059	0.0015	..	0.12	0.0319	0.0081	..	0.648
W. R.—	Melancholia, acute:	690	1010	6.2	0.0037	0.0059	0.0001	..	0.25	0.0407	0.0069	..	..
	6 p.m.—midnight	240	1030	5.6	0.015	0.0237	0.005	..	0.05	0.042	0.0009	..	0.045
	Midnight—8 a.m.	420	1014	6.3	0.0062	0.0007	0.0012	..	0.05	0.0044	0.0075	..	0.315
	8 a.m.—noon	180	1034	6.4	..	0.0185	0.005	0.0025	0.25	0.033	0.0009	0.0045	0.45
A. B.—	General paresis:	1040	1016	6.6	..	..	..	0.0002	0.05	..	..	0.0026	0.52
	Noon—6 p.m.	480	1022	5.7	..	0.012	0	..	0.0012	0.0432	0	0.0042	0.43
	6 p.m.—midnight	100	1030	6.4	..	0.0185	0.0012	..	0.0044	0.027	0.0018	0.0066	0.37
	Midnight—8 a.m.	120	1040	5.5	..	0.03	0.0087	0	0.0011	..	..	..	..
	8 a.m.—noon	120	1040	5.6	..	0.03	0.007	0	0.0075	..	..	..	..
W. A.—	Acute delirium:	120	1034	5.6	..	0.0117	0.0025	0	0.0025	..	..	..	..
	Night, 2 i. 29	..	..	..	..	0.026	..	..	..	..	..	..	..
	Morning, 3 i. 29	..	..	..	..	0.041	..	..	..	..	..	..	..
	2.15 p.m., 4 i. 29	..	..	..	..	0.041	..	..	..	..	..	..	..
	Faecal culture in tyrosine, 4 i. 29	..	..	..	..	0.005	0.0042	0	0.0005	0	..	..	..
	Faecal culture in tyrosine, 6 i. 29	..	..	..	..	0	0.0007	0	0.0005	0	..	..	..
	Faecal culture in tyrosine, 7 i. 29	..	..	..	..	..	..	..	..	..	..	..	..
	Improving clinically—morning, 9 i. 29	40	1040	5.6	..	0.003	0.0012	0.0001	0	0.018	0.0072	..	..
	8 a.m., 10 i. 29	330	1028	5.9	..	0.0012	0.0001	0	0	0.038	0.0075	0	0.315
W. J.—	Melancholia, chronic:	600	1018	6.3	..	0.0022	0.0012	0.0001	0	0.094	0.0039	0	0.296
	Noon—6 p.m.	630	1014	5.8	..	0.0022	0.0012	0	0	0.056	0.0016	0	0.1539
	6 p.m.—midnight	420	1017	5.8	..	0.0022	0.0012	0.0001	0	0.056	0.0016	0	..
	Midnight—8 a.m.	540	1012	6.5	..	0.0007	0.0002	0.0001	0	0.019	0.0016	0	..
	8 a.m.—noon												

TABLE V.—Urine Analysis.

PSYCHOTICS.

	Quantity, c.c.	Sp. gr.	pH.	Millon, untreated urine.	Millon, hydrolyzed urine.	Phenol, %.	P-hydroxyphenyl-acetic acid, %.	Tyramine, %.	Indican, Jafté.	Indolacetic acid.	Indolacetic acid from lead, %.	Imidazoles, %.	Phenol grm. per 6 hours.	P-hydroxyphenyl-acetic acid, grm. per 6 hours.	Indolacetic acid, grm. per 6 hours.	Imidazoles grm. per 6 hours.	
G. B.—Manic-depressive during same interval; carcinoma of liver. 10 p.m.—6 a.m., 14.i.29	1000	1020	5.6	0.0039	0.0025	0.0058	0.015	0.0001	+	+	0	0.1	0.0435	0.1125	..	0.75	
T. B.—Early mania, recurrent: 12.i.29. 6 p.m.—midnight.	510	1012	5.6	0.025	0.005	0.0012	0.015	..	0	+	0	0.1	0.006	0.076	..	0.51	
13.i.29. Midnight—8 a.m.	330	1020	5.6	0.025	0.005	0.0057	0.02	0.0001	0	+	0.0005	0	0.014	0.049	0.0014	0	
" 8 a.m.—noon	650	1008	5.8	0	0.0006	0.0007	0.0007	0	0	+	0	0.05	0.047	0.0068	..	0.487	
" noon—6 p.m.	320	1012	6.4	0	0.0012	0.0059	0.0012	0	0	+	0.0002	0.11	0.018	0.0038	0.0006	0.352	
Facial culture, tyrosine:																	
14.i.29	0.005
15.i.29	0.011
15.i.29. Midnight—8 a.m.	114	1018	5.6	0	..	0.022	0.0025	..	..	+	0.0006	0.1	0.0018	0.0021	0.0005	0.085
Facial culture, tyrosine:																	
16.i.29	0.022
17.i.29. Midnight—6 a.m.	480	1028	6.0	0.002	..	0.0268	0.0025	..	0	+	..	0.5	0.1286	0.012	..	2.4	
" 6 p.m.—midnight	1200	1012	5.5	0.0002	..	0.0003
18.i.29. Midnight—6 a.m.	300	1016	5.6	0.0005	..	0.047

Note to Tables III-V.—The figures in columns 5-12 are multiplied by 5/4 to correct for dilution by reagents. Where the periods dealt with are 8 or 4 hours, the figures in columns 13-16 are multiplied by 3/4 or 3/2 to bring them to the correct values for 6-hour periods.

dilutions are put up, and to each tube of one series a drop of 10% acetic acid is added, and to each tube of the other a drop of 10% sodium hydroxide, so that the one series is acid and the other alkaline to litmus, and the test is then carried out, the change still occurs at the same point in each, *vis.*, at 0.01%. The same holds good for the urinary filtrate.

The Tables II, III, IV and V give examples of analyses worked out by these methods. No deductions can, of course, be made from the small number of cases dealt with. Table III suggests the following normal limits for excretion per six hours: Phenol 0.0086 gm., p-hydroxyphenylacetic acid 0.0054, indoleacetic acid 0, imidazoles 0.5. Tables IV and V show that these limits are generally exceeded in psychotics.

Table V, Case G. B—, shows the same general increase in a case of carcinoma of the liver.

Table III, lines 1 and 5, are interesting in the high percentage of imidazoles in the former and p-hydroxyphenylacetic acid in the latter, which suggest a flooding of the system with histamine and tyramine; such flooding would account for waves of mood or malaise in healthy people.

SUMMARY.

Some recent work suggests that the functions of the liver are deranged in mental disease. This results in an alteration in the output of the derivatives of tyrosine, tryptophane and histidine in the urine, and perhaps also in the amount of bacterial fermentation in the intestine. This derangement of the liver may be either a cause or a symptom of the mental disease, and the increased intestinal fermentation may, in the same way, be either a cause or effect of the liver disturbance.

In this paper, methods of quantitative analysis are given by which the intestinal fermentation of tyramine and the excretion of the derivatives of tyrosine, tryptophane and histidine can be estimated.

In conclusion I wish to express my indebtedness to Mr. W. F. Gifford, Senior Assistant in this laboratory, for great help in this investigation.

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THE ARNETH BLOOD-COUNT IN IDIOCY AND
LOW-GRADE IMBECILITY, WITH SPECIAL
REFERENCE TO THE INCIDENCE OF
TUBERCULOSIS AND TUBERCULAR
INFECTIONS.

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It is well known that the mentally defective population suffers much more from the ravages of tuberculosis in its various forms than does the normal population. In the annual returns of various institutions for defectives, and from a study of the causes of death of imbeciles as reported to the Board of Control, it would appear that tuberculosis kills four times as great a proportion of aments as of normal people. Tredgold (1) gives an analysis of 1000 consecutive deaths occurring in the Earlswood Institution, of which 413 were due to tuberculosis.

Arneth (2), in 1904, devised a special variation of the blood-count, which, according to him, showed characteristic changes in patients suffering from tuberculous infections. This work has been elaborated, and to a great extent confirmed by many workers. Cooke (3) has studied the Arneth count in cases of insanity, but the number of his cases is limited. Ponder (4) has made an exhaustive study of the Arneth count in all varieties of insanity.

The present observations have been made possible by our having access to a relatively large number of mental defectives of all grades. They have extended over a period of five years, and it has been possible to correlate the blood results with the subsequent clinical history, and in several cases with the findings of an exhaustive *post-mortem* examination. The cases we investigated consisted of 85 males and 57 females, all either idiots (wet, dirty and inarticulate), or types of very low-grade imbecility. The investigation of the blood was carried on concurrently with the ordinary total and differential blood-counts and the Wassermann reaction. Where there was co-existent epilepsy the acid-base

equilibrium of the body was also investigated by determination of the carbon-dioxide carrying power of the whole blood (using Van Slyke's method). These latter results are being incorporated in a section of a paper to be published later.

It might not be out of place to mention a few points connected with the comparatively simple technique employed. In the examination of bloods for the purpose of the Arneth count, it is of the greatest importance that the blood should be spread evenly and in a thin layer. The leucocytes must not be crowded together by other cells, or the differentiation with accuracy into the various classes will be rendered impossible. Films examined by us were stained by Leishman's method. In the actual count the whole surface of the slide should be covered, as there seems to be a tendency for the multi-lobed leucocytes to gravitate to the edges of the slide, and thus an enumeration of the cells confined to the centre of the slide would give too low a figure.

For the purpose of the blood-count bearing his name, Arneth divides the finely granular oxyphilic cells (F.G.O.) of the blood into five classes, which he labels I-V, according to the number of nuclear lobes contained in them. Nuclear lobes joined by a "bridge" are counted as one lobe, while those joined by a "thread" (*i.e.* relatively discrete) are counted as bi-lobed. Thus the classification of a given cell in a particular category depends to a certain extent on the "personal equation." While the personal factor may affect the final expression of the result, the various observations of any one observer are strictly comparable with one another after a little experience. The final expression of the results of examination of a film is usually a number, the index of the blood, which can be stated in several ways.

(a) Arneth's original method, which is the percentage of cells in Classes I and II. This method of stating the result is useful inasmuch as that in certain infections, notably tuberculosis, the percentage in these classes is increased.

(b) Some investigators add Classes I and II and a half of Class III on the supposition that an overwhelming preponderance of Class III is of definite diagnostic importance.

(c) Probably the most useful method is that of Von Bonsdorff, whose figure indicates the total number of lobes in 100 F.G.Os. For example a blood-cell analysis showing I. II. III. IV. V.

32 41 22 3 2

expressed thus : (a) equals $32 + 41 = 73$.

(b) ,, $32 + 41 + \frac{1}{2}(22) = 84$.

(c) ,, $(32 \times 1) + (41 \times 2) + (22 \times 3) + (3 \times 4) + (2 \times 5) = 202$.

This index (c) is the one we have used throughout this paper.

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(c) Probably the most useful method is that of Von Bonsdorff, whose figure indicates the total number of lobes in 100 F.G.Os. For example a blood-cell analysis showing I. II. III. IV. V.

32 41 22 3 2

expressed thus : (a) equals $32 + 41 = 73$.

(b) ,, $32 + 41 + \frac{1}{2}(22) = 84$.

(c) ,, $(32 \times 1) + (41 \times 2) + (22 \times 3) + (3 \times 4) + (2 \times 5) = 202$.

This index (c) is the one we have used throughout this paper.

As indicating the effect of the personal factor, Arneth gives as his normal count, when expressed by method (c), a figure of 276. Von Bonsdorff gives a figure of 260 for males and 240 for females (extreme limits 220-290). Tredgold (9) gives 210-270 for females and 220-280 for males. Discrepancies are probably due to a difference of opinion as to what constitutes a "sub-division" of nuclear material. As the importance of the Arneth count lies solely in variation from the normal, these differences are of less importance than might be supposed at first sight.

In order to ensure as great a degree of accuracy as possible at each estimate, 300 F.G.Os. were classified. The estimation was repeated on a second slide and the average taken. With increasing facility in the estimation we found that the second slide was not really necessary as the results were practically identical. We cannot emphasize too strongly the inadvisability of placing too much importance on a single test, or on two tests occurring closely together. But the finding of low indices, by method (c), repeatedly over a long period of time, generally coincides with the presence of a tubercular infection, this being especially so if the tendency in subsequent examinations is for the figure to get lower. Thus, in the case of T. H—, a mongolian imbecile :

—	I.	II.	III.	IV.	V.	(a).	(b).	(c).
Estimation 1 . . .	56	32	11	1	..	88	93.5	157
" 2 . . .	56	33	10	..	1	89	94.0	157
" 3 . . .	57	39	4	..	..	96	98.0	147

It should be noticed that the indices in this case, as given by method (c), are lower than the average index for this class of case given further on in this paper. The figures are persistently low, although a period of three months elapsed between each count. Although this imbecile showed no clinical signs of tuberculosis at the time of these counts, he now, after an interval of two and a half years, presents typical signs and symptoms of pulmonary tuberculosis.

In the case of W. Ch— we obtained the following results :

—	I.	II.	III.	IV.	V.	(a).	(b).	(c).
Estimation 1 . . .	27	57	13	3	..	84	90.5	192
" 2 . . .	47	35	16	2	..	82	90.0	173
" 3 . . .	53	38	8	1	..	91	95.0	157
" 4 . . .	73	26	1	..	..	99	99.5	128

In this case the first two counts are not abnormally low, but there is a deterioration, which later becomes progressive and exceedingly marked. Coincident with the fall of the index there was a gradual deterioration of his physical condition, death occurring two days after the final count.

The *post-mortem* findings were as follows: The right lung was immovably fixed to the chest, the apex being completely infiltrated by tubercular disease. The pleura over the base was about three-quarters of an inch thick. There was generalized tuberculous peritonitis, with large masses of caseous material. The abdominal viscera were matted together.

Another typical case, E. B—, had method (c) counts of 211, 176 and 162, dying with the usual signs of phthisis. Care must be exercised not to regard all low indices as diagnostic of tuberculosis, for almost any severe septic condition seems liable to bring this about. Thus A. D— suffering from acute rheumatic infection, with the involvement of numerous joints and cardiac trouble, showed:

—	I.	II.	III.	IV.	V.	(c).	—
In the acute stage .	60	29	8	3	..	154	..
Six months later .	38	38	19	4	I	192	Joint trouble subsided; cardiac irregularity ceased.
Twelve months later	30	40	24	5	I	207	Physical condition almost normal save for a little dyspnœa on exertion.

"A. D—" is still alive, but has had further rheumatic affections. The readings obtained from the blood of W. C— were as follows:

—	I.	II.	III.	IV.	V.	(c).	—
Estimation I .	69	26	5	..	..	136	Suffering from a putrid gingivitis and general debility.
Three months later	56	37	7	..	..	151	After energetic dental and general treatment, noted as ? phthisical.
Eight months later	23	30	33	12	2	240	Much improved in every way.

The improvement in the condition of this boy was so marked, and the rise of the blood-index coinciding so markedly with the disappearance of the sepsis, that the diagnosis of "? phthisis" was considered to be ill-founded. Three years later his death occurred,

and at the *post-mortem* the right pleural cavity was found to be obliterated by adhesions of an extremely dense character, the lungs being apparently normal on section. In this case there were thus apparently two factors responsible for the low index.

The average Arneth count of idiots and imbeciles as revealed by our investigation proves to be very low when compared with those of normal people, and lower than that of the insane members of the community. The average Von Bonsdorff figures of the series is as under :

	Imbeciles.	Idiots.
Boys . . .	192	177
Girls . . .	195	181

This indicates that the dislocation to the left is greater in the case of idiots than of imbeciles, and slightly greater in the male than in the females. By the term, "dislocation to the left," we mean an increase of the numbers in Classes I and II at the expense of those in III, IV and V. It is our considered opinion that the low Arneth count in defectives bears no relation to the degree of amentia, but is an index of relatively poor bodily nutrition and associated low resistance to infective processes. The mentally defective population of a county mental hospital has a physique much below the average. It will be noted that the average reading in the case of the females is greater than in the case of the males, which is the reverse of the generally accepted teaching. In the cases from which we have drawn the material for this paper the females, as a whole, were definitely of better physique than the males. This adds weight to our suggestion that the Arneth count is to be regarded in the nature of what, for want of a better term, we may call the "Index of Vitality."

There has been much discussion in regard to the true meaning of the number of lobes in a cell when compared with the phagocytic activity of that particular cell. The majority of observers regard Class I as the youngest and Class V as the oldest, but there is a sharp division of opinion as to their relative phagocytic powers. Hamilton Black (5) gives the relative phagocytic powers of cells in Classes I-V as 10 : 18 : 22 : 25 : 25, while Taylor (6) finds leucocytes I-V of much the same (and least) phagocytic power, while Class II had the greatest. This latter observation gives added importance to the percentage of cells in Class III and has caused many investigators to utilize method (b) above for the expression of their index. In our series we have gained the impression that, on the whole, the number of 5-lobed cells occurring in tuberculous subjects is fewer than in the non-tuberculous. Notable exceptions have

occurred in which 5-lobed cells have been found in moribund cases of tuberculosis, one of which had a Von Bonsdorff figure as low as 121. The one blood in which a definite 6-lobed nucleus was found came from a woman having a Von Bonsdorff figure no higher than 192. It will be seen that if all the cells of a given blood were in Class II, the Von Bonsdorff figure would be 200, a figure above our average finding for this class. Our conclusion is that subjects whose high Von Bonsdorff figure is due to a large increase in Class II, are in better condition than those whose high Von Bonsdorff figure is the result of numerous IV's and V's. The same applies, though in a less marked degree, to the cells of Class III. The dislocation to the left is exaggerated by the addition of the tuberculous factor. Definite conclusions can only be reached by the correlation of the *ante-mortem* readings with the *post-mortem* findings. The number of deaths and *post-mortems* though limited, have been sufficiently numerous to give rather striking confirmatory evidence to our supposition. Our classification has been into the following categories :

Deaths from tuberculosis	Table 1
Deaths from diseases other than tuberculosis	" 2
Deaths not accountable to tuberculosis, but in which a tubercular lesion was found	" 3
Deaths from tuberculosis (with very low final counts)	" 4

Clinical arrest and cure of a tuberculous infection are found in all cases to be accompanied or preceded by a "shift to the right." This shift to the right has for its maximum the average of the class of mental defect in question. It has not been found possible in all the cases to assign a reason for a low count, a remarkable figure in our series being R. D—, whose counts were :

I.	II.	III.	IV.	V.	(a).	(b).	(c).
61·5	33·0	5·0	0	0·5	94·5	97·0	145·0
53·0	38·0	8·0	I	..	91·0	95·0	157·0
59·0	31·0	9·0	I	..	90·0	94·5	152·0

(taken at approximately 12-monthly intervals). So far as can be judged there has not been the slightest change in this youth, who still appears quite healthy after the lapse of years. Counts under 130 are usually confined to persons who are moribund, but one case, E. M—, whose count was 79:18:3:0:0 (Von Bonsdorff 124), has survived three years. She is, however, a very advanced case of pulmonary tuberculosis, spitting large numbers of tubercle bacilli constantly. Counts in cases clinically suspected of being tuberculous

TABLE I.—Deaths from Tuberculosis.

S.L. = Small lymphocytes. F.G.O. = Finely granular oxyphils. L.L. = Large lymphocytes. L.H. = Large hyalines. C.G.O. = Coarsely granular oxyphils. M.C. = Myelocytes.

Case.	Differential cell-count.						Percentage of polymorphs in groups—					Index by method—			Cause of death.
	F.G.O.	S.L.	L.L.	L.H.	C.G.O.	M.C.	I.	II.	III.	IV.	V.	(c).	(a).	(b).	
T. H—	72	..	27	..	1	..	25	35	34	5	1	222	60	77	Pulmonary and intestinal tuberculosis.
	55	28	10	3	3	1	35	42	21	2	..	190	77	87.5	
	48	32	7	7	6	..	44	36	17	3	..	179	80	88.5	
B. P. F—	63	1	27	2	6	1	41	44	12	3	..	177	85	91	Disseminated tuberculosis.
	71	20	8	1	..	..	55	30	13	2	..	162	85	9.15	
K. F—	46	10	42	1	1	..	43	36	16	5	..	183	79	87	Tuberculosis of bone (spine).
	58	33	1	..	8	..	40	43	16	1	..	178	83	91	
	..	..	..	..	..	..	65	26	6	3	..	147	91	94	
E. H—	75	4	17	2	1	1	51	36	10	3	..	165	87	92	Pulmonary, laryngeal and intestinal tuberculosis.
	41	36	1	3	19	..	27	57	13	3	..	192	84	90.5	
W. Ch—	54	22	13	6	4	1	47	35	16	2	..	173	82	90.0	Pulmonary and peritoneal tuberculosis.
	..	..	..	..	..	..	53	38	8	1	..	157	91	95.0	
	..	..	..	..	..	..	73	26	1	..	..	128	99	99.5	
S. R—	49	28	19	1	2	1	47	41	11	1	..	166	88	93.5	Pulmonary tuberculosis.
	55	44	..	1	..	..	47	43	9	1	..	164	90	94.5	
	62	15	14	8	1	..	77	20	2	1	..	127	97	98	
W. Cy—	67	20	10	2	..	1	53	38	9	..	..	156	91	95.5	Rectal tuberculosis.
L. D—	57	10	32	1	..	..	61	31	7	1	..	148	92	95.5	Pulmonary and intestinal tuberculosis.
	70	19	9	1	1	..	41	41	15	2	1	181	82	89.5	Tuberculous empyema and pericarditis.
J. G—	48	33	12	6	1	..	24	45	20	11	..	218	69	79	Pulmonary tuberculosis.
E. B—	58	30	8	4	..	..	41	40	18	1	..	179	81	90	
	70	24	..	3	..	3	44	51	5	..	..	161	95	97.5	
H. M—	68	27	4	1	..	..	49	35	15	1	..	168	84	91.5	Pott's disease.
	72	17	7	1	3	..	59	30	8	3	..	155	89	93	
B. B—	91	3	5	1	..	..	75	23	2	..	..	127	98	99	Pulmonary tuberculosis.
S. K—	82	7	10	1	..	..	62	32	6	..	..	144	94	97	" "

Diagnosis verified by post-mortem examination in 11 instances.

TABLE 2.—Deaths from Diseases other than Tuberculosis.

Case.	Differential cell-count.				Percentage of polymorphs in groups—					Index by method—			Cause of death.		
	F.G.O.	S.L.	L.L.	L.H.	C.G.O.	M.C.	I.	II.	III.	IV.	V.	(c).		(e).	(b).
J. T—	68	1	25	1	3	2	27	48	22	3	..	201	75	86	Perforation of intestine (traumatic) and peritonitis.
M. J. R—	50	40	6	1	2	1	40	39	17	3	1	186	79	87.5	Epilepsy.
R. F—	61	33	3	..	3	..	29	36	25	9	1	217	65	77.5	Pericarditis.
C. E. P—	64.7	28.7	1.3	3.3	1.3	0.7	34	42	20	4	..	194	76	86	Pyo-pneumothorax.
G. S—	60	32	..	..	8.0	..	34	43	23	..	..	189	76	87.5	Epilepsy.
A. C—	60	34	5	..	1	..	27	43	25	5	..	208	70	82.5	Pericarditis.
J. G. H—	61.6	28.8	5.6	0.8	3.2	..	20	45	28	7	..	222	65	79	Pericarditis.
T. H—	75	21	3	1	..	..	27	42	25	5	1	211	69	81.5	Pyo-pneumothorax.
W. H. G—	83	8	6	1	2	..	19	36	26	13	6	251	55	68	Epilepsy.
L. E—	59	36	1	2	2	..	28	53	18	1	..	192	81	90	Epilepsy.
	35	43	2	..	..	..	34	45	18	3	..	190	79	87	Enteric fever.
	42	43.5	2.5	1.5	10.5	..	25	50	22	3	..	203	75	86	Enteric fever.
	40	46	11.0	..	2.0	1	32	41	22	3	2	202	73	84	Enteric fever.
	..	..	..	..	..	..	39	41	20	..	..	181	80	90	Enteric fever.
	60	36	2	1	..	1	49	37	11	3	..	168	86	91.5	Epilepsy.
	40	56.8	1.6	1.0	1.6	..	33	43	23	1	..	192	76	87.5	Epilepsy.
	74	11	10.5	3	0.5	1	30	42.7	20	7.3	..	205	72.7	82.7	Epilepsy.
	68	22	7	2	..	1	47	34	16	2	1	176	81	89	Epilepsy.
	84	10	5	1	..	..	42	40	15	3	..	179	82	89.5	Epilepsy.
	86	9	4	1	..	..	37	45	13	4	1	179	82	88.5	Epilepsy.
	70.4	21.6	7.2	1	0.8	..	39	43	15	3	..	182	82	89.5	Epilepsy.
	56	39	4	1	..	..	42	34	20	3	1	187	76	86	Influenza.

Diagnosis verified by post-mortem examination in 7 instances.

TABLE 3.—Deaths not accountable to Tuberculosis, but in which some Tubercular Lesion was Found.

Case.	Differential cell-count.					Percentage of polymorphs in groups—					Index by method—			Cause of death.		
	F.G.O.	S.L.	L.L.	L.H.	C.G.O.	M.C.	I.	II.	III.	IV.	V.	(c).	(a).		(b).	
													(a).			(b).
B. Ht—	68	2	30	42	44	14	172	86	93	Mitral stenosis. Pyo-nephrosis: pneumonia. Idiocy and marasmus.	
	71	18	8	..	3	..	35	36	26	3	..	197	71	84		
J. D. F—	68	27.2	4.0	..	0.8	..	44	43	11	2	..	171	87	92.5		
	47	36	10	I	6.0	..	38	41	20	I	..	184	79	89		
W. C—	72.8	24.8	0.8	0.8	0.8	..	69	26	5	..	..	136	95	97.5
	66	20	13	I	..	..	56	37	7	..	..	151	93	96.5
	..	..	..	..	..	..	23	30	33	12	2	240	53	69.5

Diagnosis verified in all instances by *post-mortem* examination.

TABLE 4.—Deaths from Tuberculosis, associated with very low final counts.

Case.	Differential cell-count.					Percentage of polymorphs in groups—					Index by method—			Cause of death.	Time between count and death.		
	F.G.O.	S.L.	L.L.	L.H.	C.G.O.	M.C.	I.	II.	III.	IV.	V.	(c).	(a).			(b).	
													(a).				(b).
B. B—	91	3	5	I	..	..	75	23	2	..	..	127	98	99	Pulmonary tuberculosis Do. Pulmonary and abdominal tuberculosis Do. Pulmonary tuberculosis Disseminated tuberculosis Pulmonary tuberculosis	8 weeks.
S. K—	82	7	10	I	..	..	62	32	6	..	..	144	94	97		6 months
S. A. C—	77	10	11	2	..	..	83	14	3	..	..	117	97	98.5		10 days.
C. H—	69	4	26	I	..	..	85	12	I	I	I	121	97	97.5	Pulmonary tuberculosis Disseminated tuberculosis Pulmonary tuberculosis	16 "
M. A. S—	86	2	11	..	..	..	77	19	4	..	..	127	96	98		10 weeks.
W. Ch—	..	..	..	..	..	..	73	26	I	..	..	128	99	99.5	2 days.	
S. R—	..	..	..	..	..	..	77	20	2	I	..	127	97	98	3 years.	

Diagnosis verified by *post-mortem* examination in 5 instances. Of the cases in this table, 3 occurred in insane patients. It is noteworthy that in this series the lower the Von Bonsdorff figure the less is the expectation of life, although Case 7, is an apparent exception to this rule.

were 154, 168, 188, 193, 191, 170. Unfortunately, their transfer to other institutions has broken up our sources of material so that we have not for some time past made any blood examinations.

At the present moment one of us has 16 of these cases still remaining under his care. It is of interest to note that the average Von Bonsdorff figure in these cases when last taken was 198·5, which is above the average of any of the previous groups. It would thus appear from the evidence afforded by these few remaining cases that there is a greater expectation of life when the Von Bonsdorff figure is high than when it is low.

As a matter of interest the following short series of readings in insane people, with the various bodily ailments stated, is appended :

Diagnosis.	Von Bonsdorff.
Congenital syphilis	196
Tubercular hip (quiescent)	198
Phthisis pulmonalis (active)	184
" " " " " " " " " " " " " " " "	213
Chronic bronchitis	208
" " 	210
" " 	235
Suppurative parotitis	175
Erysipelas	153
" 	145
Extensive chronic eczema	156
Lupus facialis	189
Fibroid tuberculosis	189
Puerperal mania	147
Tubercular sinus of chest (long-standing)	200

Our findings are therefore in accord with those of Ponder (4), whose 34 congenital cases showed a marked lowering of the index, even more marked when associated with tuberculosis. In a recent paper, McFarland (7) investigating the value of certain tests in the prognosis of tuberculosis, finds a gradual return of the index as the lesion becomes quiescent. All our figures are low in comparison with his, possibly as the result of the personal equation. Yet our results are substantially in agreement with his. The marked lowering of the index is definitely linked with a high incidence of tuberculosis, for of the 26 deaths recorded, no fewer than 13 (or 50%) were from tuberculosis, and 3 (or 11·5%) were associated with the disease.

It may be observed that the average original count for the series of cases ultimately dying of tuberculosis is 173, whereas the average

count for the cases associated with a non-tuberculous death was 196·13.

The Arneth count has thus proved itself to be an aid to diagnosis in many cases. In several cases where physical examination has been either impossible or unsatisfactory, a low Arneth count has rendered probable a diagnosis of tuberculosis before physical signs have been discoverable by other means.

To those engaged in the work of a mental hospital, any method of assessing the progress of a tuberculous patient is very valuable. Its value is the more apparent when the measure is easy of application. We have in the Arneth count, a test which enables us to segregate at an early date our infected patients, and to lessen the incidence of a disease which finds so favourable a soil in the mentally defective population.

(We have to express our thanks to the Medical Superintendent, Dr. R. P. Sephton, for his permission to publish our results in the foregoing paper.)

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ON THE EXAMINATION OF THE FÆCES IN THE DIAGNOSIS OF PHTHISIS PULMONALIS.

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MANY methods have been devised as adjuncts to clinical observation in the diagnosis of pulmonary tuberculosis. Leaving aside the use of the Röntgen rays and the method of cyto-diagnosis which at one time had vogue in France, the procedures may be divided into two groups: (1) those which depend on the observation of the effects of various extracts of the tubercle bacillus upon the patient; and (2) those which depend on laboratory observations upon various materials (sputum, blood, fæces, etc.). Among those in the former group are the tuberculin test, the Von Pirquet, Moro's cutaneous and Calmette's ophthalmic reactions. Their uses are limited. It is the methods in the latter group that lend themselves more readily to general use.

In pulmonary tuberculosis the materials on which observations may be made are (a) sputum, (b) blood, (c) urine, (d) fæces.

Sputum.—It is universally recognized that the microscopical examination of stained films of the patient's sputum is of paramount importance, because of the high percentage of cases of active phthisis in which the bacilli are demonstrable in the sputum, the simplicity of the technique, and the facility with which the material may be collected and dealt with.

Rivalta's reaction in sputum, which depends on the coagulation of albumen in the presence of very dilute solutions of sodium carbonate and acetic acid, is said by Casali (1) to be a reliable diagnostic test for pulmonary tuberculosis.

Blood.—Lipmann (2) describes the treatment of blood with anti-formin and centrifugalization. By this method he demonstrated tubercle bacilli in the blood in 53% of advanced cases and in 33% of second stage cases, but he was unable to discover the bacillus in the blood of early cases.

Rosenberger (3) claims to demonstrate tubercle bacilli in even the early stages of phthisis. Hunt, Ravenal and Smith have obtained similar results, but the examination of the blood for tubercle bacilli

is a tedious process, and the results obtained do not seem to justify the labour involved. The same may be said of the method whereby the opsonic index of the blood-serum of the patient is estimated, of the agglutination method, where the patient's blood-serum is put up against an emulsion of tubercle bacilli, of Emery's and Bordet and Gengou's methods of fixation of complement as in the Wassermann reaction for syphilis, and of the Arneht count.

Urine.—Tubercle bacilli are not found in the urine in cases of pulmonary tuberculosis unless there is infection of the genito-urinary tract. Ehrlich's diazo-reaction is not invariably given by the urine in tuberculosis. As it occurs in several other diseases it is not of diagnostic importance.

Fæces.—Tubercle bacilli are present in the fæces in all cases of pulmonary tuberculosis in which a tubercle-infected sputum is present. This dogmatic statement may be made on theoretical considerations alone; but the practical point is: Of what value are the fæces as a material for examination for the tubercle bacillus in pulmonary tuberculosis, especially when sputa are unobtainable?

Perusal of the literature on the subject reveals a wide divergence of opinion.

Sergent and Durand (4), in their investigations of the stools for tubercle bacilli, established the important fact that in non-tuberculous patients no acid-fast bacilli were found in the fæces.

Bigger (5) states that it is practically useless to examine the fæces for tubercle bacilli by staining films, and asserts that the only reliable method of demonstrating their presence is to treat the fæcal material with 4% caustic soda and to inject the centrifuged deposit into a guinea-pig.

On the other hand, Todd and Sanford (6), discussing the stools as a material for examination in tuberculosis, write: "Success in the search (for the tubercle bacillus) will depend largely upon careful selection of the portion examined. A random search will almost surely fail. Whitish or greyish flakes of mucus or blood-stained or purulent particles should be spread upon slides or covers and stained by the method of Ziehl-Neelsen. . . . With young children, who swallow all their sputum, an examination of the stool for tubercle bacilli may be the means of diagnosing tuberculosis of the lung."

In mental hospital practice the majority of cases suspected of pulmonary tuberculosis cannot be taught to expectorate. This fact precludes the most valuable of all the laboratory investigations in pulmonary tuberculosis, *viz.*, examination of sputum for tubercle bacilli. The uncertainty of blood examinations, the uselessness of urine examinations, and the lack of unanimity regarding the value

of examination of the fæces, suggested that useful information might be obtained by examining the fæces (and the sputum when available) in all cases of suspected pulmonary tuberculosis at Leavesden Mental Hospital.

Various methods of examining the stools for *B. tuberculosis* came under review, and it was decided to examine specimens in two ways, employing in one a method of concentration and in the other the method of the direct smear.

Technique.—(a) Examination of direct smear from stool: A loopful of fæces is spread on a slide (emulsifying with a loopful of normal saline in the case of constipated stools), allowed to dry and fixed by heat.

(b) Examination by ligroin method: The fæces are emulsified with normal saline solution, filtered through gauze into a centrifuge tube, and 2 c.c. of a mixture of equal parts of acetic ether and ligroin added. The tube is then thoroughly agitated, and centrifuged for five minutes. The deposit is spread on a slide, allowed to dry and fixed by heat. This is a modification of the method introduced by Lange and Nitsche.⁽⁷⁾ The slides are stained with warm carbol-fuchsin solution for 10 minutes, washed, decolorized in 25% sulphuric acid solution for 10 minutes (longer if required), washed, decolorized by washing in absolute alcohol, washed in water and lightly counterstained with an aqueous solution of methylene blue.

The material selected for examination was taken from 53 cases, in whom the clinical features suggested the advisability of excluding a possible diagnosis of tuberculosis. Positive findings were obtained in 22 of these cases, the remaining 31 giving negative results.

Low-grade imbeciles and idiots often present febrile symptoms lasting some days or weeks, and in such cases an exact diagnosis cannot at the time be made. In some the symptoms rapidly subside; in others unequivocal signs of pulmonary disease develop in the course of a few weeks, and the fact that in this series examination of the fæces gave negative results in 31 cases cannot be interpreted as indicating failure of the test to confirm the presence of a tuberculous infection.

It would probably be safe to conclude that a considerable proportion of the 31 negatives were from patients who did not suffer from tuberculosis, and that in certain others the pulmonary infection was so slight that destruction of lung-tissue with consequent liberation of tubercle bacilli had not begun.

In the remaining 22 cases tubercle bacilli were present in the sputum, the fæces, or both.

Table of Positive Results.

No.	Site of suspected lesion,*	Sputum.*	Fæces.		Remarks,*
			Direct.	Ligroin.	
1	L.	+	+	+	D.C.P.M.
2	L.	O	+	+	D.C.P.M.
3	L.	O	+	+	D.C.P.M.
4	L. & I.	+	+	+	D.C.P.M.
5	L.	+	+	+	Died. No P.M.
6	L.	O	+	+	Died. No P.M.
7	L.	+	+	+	
8	L.	+	+	+	
9	L.	+	+	+	
10	L.	O	+	+	
11	L.	O	+	+	
12	L.	+	+	+	
13	L.	+	+	+	
14	L. & I.	O	+	+	
15	L.	+	—	—	
16	L.	+	+	+	
17	L.	+	+	+	
18	L.	O	+	+	
19	L.	+	+	+	
20	L.	+	+	+	
21	L.	+	+	+	
22	L.	O	—	+	

* L. = Lungs. I. = Intestines. O. = None obtainable.
D.C.P.M. = Diagnosis confirmed at *post-mortem*.

The cases with positive sputa numbered 14, and in 13 of these the bacillus was found in the fæces. In the remaining case, with tubercle bacilli in the sputum, examination of the fæces proved negative. On the other hand, no cases were obtained with a negative sputum and positive fæces.

In eight cases no sputum was available, and it was here that the examination of the fæces showed its value, for in each case tubercle bacilli were found in the fæces.

In one case no bacilli were detected, but at autopsy open pulmonary lesions were found.

Of 21 cases in which bacilli were found, using the ligroin method, 20 showed them on direct smear. The ligroin method seems, therefore, to have little advantage over the method of the direct smear. By comparing many fields it has been found that concentration by the ligroin-acetic ether method increases the frequency of the bacilli in the preparation as compared with the direct smear in the proportion 19 to 15.

From these considerations one may conclude, therefore, that it is of value to proceed at once with the examination of the fæces

by the method of the direct smear. In the event of a negative result the ligroin method should be tried. Positive results with either method are conclusive, and if tuberculosis of the gut can be excluded on clinical grounds, the finding of the tubercle bacillus in the fæces is an important factor in confirming a clinical diagnosis of pulmonary tuberculosis.

In conclusion I must acknowledge my indebtedness to staff nurse W. Ashworth for his painstaking preparation of many films and slides.

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THE SEDIMENTATION VELOCITY OF ERYTHROCYTES IN THE PSYCHOSES: A STUDY OF SEVENTY-THREE CASES.*

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At the outset it may be desirable to give a brief outline of the phenomena upon which this work is based.

A complete historical survey takes us back to very early times, to the days of Hippocrates and in more recent times to the humoral pathologists, when the formation of the "crust phlogistica" or "buffy coat" was practically the only blood symptom known. Until the old humoral theories were discarded, that is until the rise of the doctrines of cellular pathology, the problem loomed large, but after this period interest in it declined, until the whole matter was revived about ten years ago by R. Fahraeus, of Stockholm, who published a series of researches into what he termed the "suspension stability" of the blood. By this term is meant the power which the plasma has of holding the erythrocytes in suspension. When the stability is lowered, the corpuscles sink with increased rapidity. This author found that a lowered suspension stability occurred in a large number of morbid conditions, and also in one physiological condition, namely pregnancy. Since the publication of this work the phenomenon in question has been made the basis of a test which has found considerable application in certain departments of medicine, notably in gynæcology and tuberculosis.

Practically all workers are agreed that an increased sedimentation velocity is characteristic of active tuberculosis. For example, Westergren considers that the test has a diagnostic value, and states that in the presence of a normal suspension stability, active phthisis can most probably be excluded. He considers further that valuable inferences as to prognosis may be drawn from this test, which he considers to be "decidedly more valuable than measurement of the temperature" as a gauge of the activity of the process.

* An abstract of a thesis accepted by the University of Edinburgh for the degree of M.D.

As to its use in gynæcology, Friedländer states that the test has definite value in those cases of adnexal disease where there is a latent infection with normal temperature and blood-count. He considers that rapid sedimentation is a sign of infection, and has come to place considerable reliance on the test as an indicator of the safe time for operation, a normal value indicating a sterile field, when operation can be safely undertaken. He places enough reliance in the test to state that no surgical interference should be attempted until the S.V. has been ascertained. His findings have been confirmed by a number of other gynæcologists.

As might be expected, of course, a good deal of divergence of opinion as to its value in these two specialties is noted in a survey of the literature of the test. It is, however, unnecessary to review the literature further in these two fields in this paper, as the two instances given are quite sufficient to demonstrate the way in which the test is used.

It was proposed to ascertain if it had any such application in psychiatry.

A few foreign papers had appeared dealing with its use in this specialty, but the results were variable and no unequivocal deduction could be drawn from them. Thus Fahraeus investigated eighteen cases of various forms of mental disorder. He found an increased rate in two out of nine cases of dementia præcox, a normal rate in three cases of imbecility and in one each of epilepsy and hysteria; and in general paralysis an increased rate in three out of four cases. He employed, however, a micro-method in these cases, and his results are thus not directly comparable with those he obtained in other conditions where he employed his macro-method.

Plaut in 1920 reported on a series of 220 cases. His conclusions are that in males the majority of cases of syphilis, paralysis and arterio-sclerosis are distinguished from the majority of cases of psychopathy, dementia præcox, melancholia and epilepsy by an accelerated sedimentation velocity.

Runge examined 86 cases of psychoses and confirmed Plaut's results in the organic cases, but found also an increased S.V. in a considerable proportion of his cases of dementia præcox. He found here and there positive results in melancholia, hysteria and psychopathy. He holds that the test can never be an aid to differential diagnosis. In epidemic encephalitis he found the rate slightly increased.

Glaus in 1924 reported contradictory results in dementia præcox. He found in katatonia, especially in the acute stages, a relatively high acceleration, but in paranoid cases almost none. He found

no acceleration in manic-depressive cases (almost exclusively melancholia), and similar results were found in psychopathy, neurasthenia and hysteria. He confirmed the findings of Plaut and Runge in the organic cases. He quotes Wuth as being substantially in agreement with Plaut in his findings.

Jacobowsky examined 112 male cases of dementia præcox. These showed a normal or accelerated rate, the increase being most marked in cases of greatest organic deterioration. He finds the test of no value in psychiatric diagnosis.

Paulian and Tomovici examined cases of nervous disease. They found an increased rate in tabes and in general paralysis. In paraplegia they found the test useful for distinguishing between specific and non-specific cases, for where syphilis was an ætiological factor the rate was increased. They found an increased rate in paralysis agitans, but in post-encephalitic Parkinsonianism the rate was slow. They consider the test of importance in neurology.

Popper and Kreindler found a normal S.V. in tabes, general paralysis and post-encephalitic Parkinsonianism.

Alexander found the rate increased in 6 cases of general paralysis.

Bochner and Wassing state that the S.V. is increased in post-encephalitic Parkinsonianism.

Siwinski found the S.V. increased in cases of progressive paralysis, imbecility and amentia, as well as in dementia præcox, chiefly katatonic, and in the manic phase of manic-depressive insanity.

Stern-Piper found the S.V. increased in the majority of his cases of morphinism, the rate undergoing a progressive retardation after the drug was withdrawn. He considers the test might be of value in the diagnosis of this condition.

TECHNIQUE.

Different methods of performing this test have been suggested since Fahraeus first published his account of it. The author has employed the technique of Cooper, as he considers it, with all its shortcomings, the best. Ordinary 15 c.c. graduated centrifuge tubes are used. Blood is drawn into a beaker in which three drops of a 20% solution of potassium oxalate have been allowed to dry. The blood is poured in to the 5 c.c. mark, and the height of the red cells is measured at 5, 10, 15, 30, 45 and 60-minute intervals. The hourly reading is taken. The result can be charted, if desired, the ordinates representing the height of the column of cells, the abscissa the time in minutes. A modification of Linzenmeier's technique used by Bochner and Wassing was also tried.

Small tubes like centrifuge tubes of 6 mm. internal diameter and holding a little more than 1 c.c. are used. Each tube is graduated downwards from the 1 c.c. level by lines 3 mm. apart (linear) for 18 mm. To a tube is added 0.2 c.c. of a 2% sodium citrate solution. One c.c. of blood is drawn into a dry or citrate-rinsed syringe and placed forthwith in the tube, the contents being mixed by inversion or by drawing them up several times in a fine pipette. The authors recommend this latter procedure, as it insures thorough mixing without loss of contents. The tube is now placed in a rack, and the time taken for the red-cell level to reach line 12 is noted, *i.e.*, plasma column equal to 12 mm. These authors state that the normal time for this to occur is over 130 minutes. Graphic representation can also be used if desired. These tubes are unobtainable in this country, but similar tubes strictly according to the above specification were made by Messrs. Baird & Tatlock, London.

Of the two methods described, Cooper's is unquestionably the simpler. It also possesses the following advantages—the whole test can be completed in one hour, the liability to clotting of the blood is minimal, and thirdly, as pointed out by Cooper, the blood is not diluted. This last is not a serious objection, however, as in methods where the blood is diluted the dilution is a constant factor. Its disadvantages are—that a relatively large quantity of blood is required, often difficult to obtain in children and in many psychotics. And lastly, the method is rather dirty. On the other hand, in Linzenmeier's technique these last two disadvantages are absent. Linzenmeier's technique, however, demands constant watching of the tubes (a time-consuming procedure), and the tendency to clotting in this method is a serious drawback. Again, in this last group of methods the critical line is often passed in the twinkling of an eye, and exact observation is difficult in consequence. At first sight it would seem that this method has the one great advantage that the result can be expressed in relation to a well-established figure. Bochner and Wassing, however, do not say how many controls they examined, and do not stress sexual differences (S.V. is more rapid in females than in males).

Again, Friedländer's figures for line 18, using tubes 5 mm. in diameter, are 1,200 minutes in healthy males and 600 to 1,000 minutes in healthy females. He investigated 300 normal individuals.

Bochner and Wassing's figures for line 18 are 600 minutes or over in healthy individuals. Now sedimentation is slower the narrower the internal diameter of the tube employed. Therefore Bochner and Wassing's figures would be expected to be slightly

lower than Friedländer's, but not to this marked extent, and again in Linzenmeier's method, using tubes of 3 to 4 mm. in diameter, the figures given are 250 to 300 minutes to line 18 in the normal subject (Beaumont and Dodds). Of course, the difference in concentration of the anti-coagulant used in these different methods (2% sodium citrate in Bochner and Wassing's method, 5% in Friedländer's and Linzenmeier's) may have some influence. Be that as it may, a consideration of the foregoing tends to shake one's faith in the hard-and-fast figures given by these authors. Further, the very crudity of methods like Cooper's is an added advantage, in view of what has been said above concerning the speed with which the critical line is sometimes passed in the other methods. Comparison of the S.V. of the same specimen of blood often revealed wide discrepancies when the two different methods were employed, S.V. being often very rapid in Bochner and Wassing's method, and much slower in Cooper's. The following points emerge in regard to Cooper's test :

(1) A very large number of healthy controls must be investigated by this method, and the average normal arrived at.

(2) It is only when the fall of the cells is sudden that any definite conclusions can be drawn from observations of the S.V., the intermediate readings between very slow and very rapid being negligible. This is one of the great limitations of the test.

Differences in calibre of centrifuge tubes need not be taken seriously into account, as the difference in height of the red-cells for the same specimen of blood put up in two different tubes is often less than 1 mm. It is, perhaps, hardly necessary to add that blood which is partially clotted is valueless for the test.

The test should be performed at once, as the rate slows the longer the blood is kept. In regard to the temperature at which the test is performed, Alexander states that S.V. is fastest at body temperature; at room temperature (20° C.) S.V. was 80% of that at 37° C. At 45° C. no sedimentation occurred at all, and at 0° C. it was very slight. The temperature at which the following investigations were carried out was maintained fairly evenly throughout the period of investigation.

The H-ion concentration of the blood appears to have relatively little influence on the rate (Alexander). De Courcy thinks that a deviation of the tubes from the vertical position of even less than 10° modifies the rate.

To conclude this section, if this test has any value in practical medicine it is highly desirable that some standard method of performing it should be adopted, and it seems to the author that Cooper's method has a strong claim to this distinction.

RESULTS.

Seventy-three male cases of mental disorder, patients at the City of London Mental Hospital, were selected. One-half of these were diagnosed as dementia præcox.

The blood in each case was withdrawn (as described under "Technique") three hours after the mid-day meal, to obtain as nearly as possible standard conditions, and the S.V. was estimated immediately. The amount of previous exercise could not be controlled so satisfactorily, but in no case was it severe, and in all the cases examined its influence was probably negligible, the patients, for the most part, sitting about the ward from the time of the meal up to that of venipuncture. In addition, the blood of 21 healthy males (male nurses with one exception) was examined under similar conditions. It was unfortunate that a much larger number of healthy males was not obtainable, but the small number examined represented the total of volunteers from a comparatively small staff. The results of the controls were as follows (the hourly reading in c.c.'s): (1) 4·1; (2) 4·7; (3) 4·5; (4) 4·2; (5) 4·3; (6) 4·5; (7) 4·1; (8) 4·1; (9) 4·3; (10) 4·4; (11) 4·5; (12) 3·7; (13) 4·6; (14) 3·7; (15) 4·1; (16) 4·1; (17) 4·6; (18) 4·1; (19) 4·0; (20) 4·1; (21) 4·0.

The first 20 of these men were in excellent health; the twenty-first suffered from chronic asthma and had had encephalitis lethargica about two years previously. It should be stated that the blood of the last three was withdrawn less than three hours after the mid-day meal (about one and a half to two hours). No. 19 left the staff shortly after and a second estimation was not possible; No. 20 objected, and in taking No. 21's blood a small clot formed, rendering the sample useless, and another attempt was not made on account of extreme difficulty in entering his veins. The rather low figure obtained in No. 14 is possibly due to the fact that the subject underwent a resection of septum operation three weeks previously. No. 12 had had coryza not long before. Using the first 18 figures, then, the average hourly reading is seen to be 4·25, and omitting Nos. 12 and 14 about 4·3. The average of the last three is a little over 4·0.

With regard to the influence of digestion on the S.V., it is somewhat surprising that so little mention of this is made in the literature. Fahraeus alludes to the possibility of digestion having an influence on the S.V. De Courcy made observations on some of his patients at different times of the day, before and after meals, but noted no marked change in the S.V. Unfortunately the difficulty of persuading patients and staff to submit to frequent venipuncture

No. of case.	Mental disorder.	Age.	Date of test.	Physical state.	Mental state.	Hourly reading in c.c.'s.	Result.
1	General paralysis	39	20.8.26	Pupils reacted briskly to light and convergence. Speech slurring. Deep reflexes ++++. Gait unsteady. Inoculated with malaria; did not take Do.	Dull, fatuous, memory poor	3.8	?
2	"	44	21.9.26	Malarial symptoms. Died 3.11.26	Do.	4.1	-
			30.10.26	Pupils reacted to light and convergence. Speech slurring. Deep reflexes ++++. Slight Rombergism. Malaria 12.10.26	Very depressed, memory defective, habits faulty	3.3	? + after malaria.
3	"	29	24.8.26	Condition as above. Died 1.11.27	Do.	3.7	-
			29.9.26	Pupils negative to light, and slight to convergence. Deep reflexes ++++. Tongue, fine tremor	Childish and morbidly submissive	3.5	? +
4	"	46	21.8.26	Convergence. Deep reflexes ++++. Tongue, fine tremor	Childish and morbidly submissive	4.0	-
			29.10.26	Suffering from malaria	Do.	2.9	+ during malaria.
			5.11.26	Do.	Do.	2.8	+ during malaria.
			10.11.26	Do.	Do.	2.5	+
			16.11.26	Do.	Do.	2.0	Quinine commenced.
			23.11.26	Do.	Do.	2.2	+
			26.11.26	Do.	Do.	2.4	+
			30.11.26	Do.	Do.	2.4	+
			10.12.26	Do.	Do.	2.8	+
			17.12.26	Do.	Do.	3.0	? +
			28.12.26	Do.	Do.	3.5	? -
			25.1.27	Do.	Do.	4.1	? -
29.9.26	Do.	Do.	3.9	?			
5	"	56	4.12.26	Pupils react to light; reflexes of arm exaggerated; knee-jerks absent. (Taboparesis.) (Duration of disease 5 years)	Dull and apathetic	3.3	? +
			28.12.26	Do.	Do.	3.5	? +
			4.1.27	Emaciated. Pin-point pupils. No reaction to light or convergence. (Duration of disease 4 years)	Childish, faulty habits	3.1	? +
6	Senile dementia	..	15.10.26	Arterio-sclerosis. Pyorrhœa	Demented	3.0	? +
			24.12.26	Do.	Do.	3.1	+

7	" "	75	22.10.26	Heart enlarged to left; loud blowing presystolic and systolic murmur in mitral area, not propagated; sounds at base muffled. Well-marked arteriosclerosis. Senile tremor of head and hands	Cheerful and placid demeanor. Defect of recent memory, etc.	2.7	+
8	Insanity with gross brain lesion	47	24.12.26 2.10.26	Slight fine tremor of tongue; slight paresis left hand. Abd. reflexes ++. Plantars flexor. Left knee-jerk ++. No clonus. Spasticity of muscles of left leg. Pes cavus	Do. Dull and depressed	2.5 4.2	+ -
9	Post-encephalitic psychoses	30	31.12.26 18.2.27	Do. Shows post-enceph. Parkinsonianism	" "	3.6 3.7	? ?
10	Do.	22	11.9.26 17.11.26 17.9.26	" " " " Deep reflexes ++++. Coarse tremor of tongue. Tic-like movements of face. Definite history of encephalitis lethargica	Dull, hypochondriacal " " Never speaks; sits about the ward all day	3.9 4.3 4.6	? ? -
11	Idiopathic epilepsy (<i>petit mal</i>)	47	16.11.26 4.12.26 4.1.27 1.2.27	Do. " " "	Do. " " "	3.8 4.2 4.3 4.7	? - - -
12	Idiopathic epilepsy (<i>grand mal</i>)	50	2.10.26 28.12.26 28.9.26	Old healed tub. lesion, right apex. Right pupil fixed, left reacts very sluggishly to light Do. Slight thickening of radial arteries	Imbecility " " " " " "	3.8 3.7 4.6	? - -
13	Jacksonian epilepsy	48	26.2.27 15.1.27	Extensive fracture of left parietal and frontal bones. Complete hemiplegia and hemanesthesia on R. side. Blood taken while in dazed and confused condition following a fit	Do. Mental confusion. Irritable, quarrelsome and impulsive after fits	3.9 3.3	? ? +
			26.2.27	Patient in his usual condition	..	3.7	? -

Arm in water 37° C.
for 15 min.

No. of case.	Mental disorder.	Age.	Date of test.	Physical state.	Mental state.	Hourly reading in c.c.'s.	Result.
14	Acute confusional insanity	26	7.9.26	Pupils unequal. Right fixed. Left reacts to light sluggishly, and both very sluggishly to convergence. Knee-jerks + + +. Bl. W.R. — Do.	Confused, restless, aud. hall. Mood labile	3.7	? —
			1.10.26	Do.	Slightly improved	4.1	—
			9.10.26	"	Maintained	3.9	? —
			3.12.26	Suffering from a "cold"	Quiet and orderly	3.4	? +
			29.12.26	Discharged recovered 5.2.27	Mental symptoms nil	3.9	? —
15	Alcoholic psychoses	73	5.10.26	Radials thickened. Pyorrhea. Deep reflexes + + +. Slight tremor of tongue. Sugar in urine on admission Do.	Confused, aud. hall., persecuted. Instability of temper	3.1	? —
			2.3.27	Do.	Mental symptoms nil	2.8	? +
16	"	54	11.2.27	Undesc. testic. R. Coarse tremors of fingers. Deep reflexes + + +. Slight inco-ordination (finger-nose test) Do.	Anxious, apprehensive. Aud. and visual hall.	3.8	? —
			1.3.27	Do.	Do.	3.5	? —
17	"	68	12.1.27	Radials thick. Coarse tremor of tongue Do.	Confused. Amnesic	4.3	—
			9.2.27	Do.	Do.	4.2	—
18	Dementia præcox	37	25.8.26	Normal	Stuporose	3.8	—
19	"	24	28.8.26	Emaciated, failing rapidly. Lungs—no definite evidence of T.B.	Negativistic, displays mannerisms, impulsive, occasionally faulty habits Do.	2.2	+ —
			17.9.26	Temperature 102.6° F. No cough or sputum. Auscultation normal. Died 20.9.26. P.M., see below.	Do.	2.2	+ —
20	"	33	31.8.26	History of malaria. Cyanosis of lips. Heart normal. No evidence of tuberculosis. Going downhill Cachexia more marked. Comatose. 1 Malarial cachexia. Died 11.11.26. P.M. refused	Confused, disorientated, impulsive, occasionally faulty habits Do.	2.5	+ —
			9.11.26	Do.	Do.	3.2	? +
21	"	24	17.9.26	Normal	Mute, flex. cerea.	4.5	—
			23.10.26	"	Do.	4.3	—

22	"	"	6.1.26	"	"	3'6	?	Arm in water 37° C.
	"	"	22.2.27	"	Stuporose. Aud. hall.	3'9	—	
	"	"	10.9.26	Marked cyanosis of both hands	Do.	4'0	—	
	"	"	5.11.26	Do.	"	4'4	—	
	"	"	3.12.26	"	"	4'3	—	
	"	"	18.12.26	"	"	4'2	—	
	"	"	6.1.26	"	"	4'2	—	Arm in water 37° C.
23	"	"	14.9.26	Normal	Mute. Habits faulty	4'1	—	
	"	"	31.12.26	"	Do.	3'1	?	+
24	"	"	15.9.26	"	Mute. Apathetic	4'2	—	
	"	"	8.2.27	"	Do.	4'5	—	
25	"	"	28.9.26	"	Stuporose	3'5	?	Arm in water 37° C.
	"	"	21.1.27	"	Do.	3'6	?	—
26	"	"	15.10.26	"	"	4'6	—	
	"	"	10.11.26	"	"	4'7	—	
	"	"	11.12.26	"	"	4'7	—	
	"	"	14.1.27	"	"	4'6	—	Arm in water 37° C.
27	"	"	14.12.26	"	Dull. Rarely speaks	3'2	?	+
	"	"	26.2.27	"	"	3'5	?	+
28	"	"	31.12.26	"	Dull, faulty habits	4'3	—	
	"	"	1.3.27	"	"	4'4	—	
29	"	"	22.12.26	"	"Resistive," abusive, faulty habits	3'0	?	+
	"	"	21.1.27	"	Do.	3'2	?	+
30	"	"	2.10.26	Arterio-sclerosis	Dementia. (Duration 36 years)	4'2	—	
31	"	"	27.10.26	Normal	Do.	4'1	—	
	"	"	28.12.26	"	Dull, aud. hall.	3'2	?	+
	"	"	8.2.27	"	Do.	3'2	?	+
32	"	"	14.9.26	"	Dull, incoherent	4'2	—	
	"	"	29.12.26	"	Do.	4'4	—	
	"	"	25.1.27	"	"	4'4	—	
33	"	"	14.9.26	"	Dull, laughs to himself	4'7	—	Arm in water 37° C.
	"	"	26.11.26	"	Do.	4'6	—	

No. of case.	Mental disorder.	Age.	Date of test.	Physical state.	Mental state.	Hourly reading in c.c.'s.	Result.
33 (cont.)	Dementia præcox		18.12.26 1.2.27	Normal	Dull, laughs to himself Do.	4.6 4.6	— — Arm in water 37°C.
34	"	26	15.9.26	"	Imbecility + dem. præc.	4.3	—
35	"	25	1.12.26	"	Do.	3.8	? —
36	"	45	1.10.26 28.8.26	" Both testes removed. ? Tuberculosis age 20. In weak health	Aloof, negativistic Dull, mannerisms	4.1 3.3	— ? +
37	"	38	30.11.26 8.9.26	Do. Slight thickening of radial arteries. Cardiac sounds muffled at base	Do. Aud. hall. Verbigeration, stereotypy Recurring confusion	3.2 2.2	? + +
38	"	34	19.10.26	Heart irregular. Sounds muffled but closed. Ankle-jerks nil		4.7	—
39	"	20	7.12.26 3.9.26	Do. Reflexes + +	Confused Restless, impulsive	4.8 4.4	— —
40	"	38	11.2.27 22.9.26	" Some arterio-sclerosis	Do. Dull, aud. hall.	2.8 3.7	+ —
41	"	49	17.11.26 18.12.26	" Pyorrhœa. Tremor of hands	Do. Hostile and incoherent	3.8 3.1	— ? +
42	"	32	7.10.26 19.11.26 10.9.26	Arteries hardened, heart sounds poor in quality. Tremor of tongue	Do. Hypochondriacal, detached	2.7 2.6	+ +
43	"	35	27.11.26 21.9.26	Do. Normal	Do. Aud. hall.	4.5 4.4	— — Arm in water 37°C.
44	"	46	31.12.26 22.12.26	" "	Hypochondriacal. Aud. hall., persecuted	4.4 4.3 3.0	— — ? +
45	"	44	15.3.27 17.12.26	" "	Do. Dull. Probably aud. hall.	3.7 4.5	? — —
46	"	31	22.2.27 21.12.26	" "	Do. Dull. Hostile at times	4.2 3.9	— —

47	"	"	46	59.9.26	Varicose eczema on right leg; occasional ulcer. Some arterio-sclerosis. General health poor	High-grade imbecility + dom. prac. Persecuted	4:1	-
48	"	"	48	16.11.26 21.12.26	Suffering from "cold"	Do.	3:0	? +
49	"	"	30	1.2.27	Normal	Weak-minded	4:3	-
50	"	"	28	22.9.26	"	Do.	4:4	-
51	"	"	26	..	"	Dull. Some dementia	..	..
	"	"		22.9.26	In weak health. Recurring corneal ulcer	Aud. hall. Verbigeration, stereotypy	3:3	?
	"	"		23.11.26	Do.	Dull. Considerable dementia	3:0	? +
	"	"		11.12.26	"	Do.	2:4	+ +
	"	"		18.2.27	Pale, but no cough or temperature. Losing weight slightly recently. Next day temperature between 103° and 104° F. Nothing found on physical examination.	"	2:1	+ +
	"	"		20.2.27	Signs in left lung. Tubercle bacilli were later found. Has remained more or less unchanged from this date to date of last test recorded. Since 5.3.27: ½ c.c. injections of "Colloso" antimony intramuscularly	"		
52	"	"	33	22.2.27 1.3.27 8.3.27 15.3.27	Normal. Patient quiet at first test	Recurring attacks of confusion	2:2	+ +
53	"	"	21	7.9.26 1.10.26 5.10.26	Normal	Excited	4:2	-
54	Paraphrenia		36	24.9.26 2.11.26 22.12.26	"	Recurring aud. hall. Test immediately after an attack. Delusions	4:1	-
					"	Aud. visual hall. Persecuted	3:8	? -
					"	Do.	4:6	-
					"	"	3:9	? -

No. of case.	Mental disorder.	Age.	Date of test.	Physical state.	Mental state.	Hourly reading in c.c.'s.	Result.
55	Paraphrenia	52	26.10.26	Normal	Aud. hall. Persecuted	3.8	? -
56	"	56	21.12.26	"	Do.	3.9	? -
	"		21.1.27	"	"	4.0	-
57	"	54	9.11.26	Deteriorating rapidly. No signs of tubercle. Died 18.12.26. <i>P.-M.</i> , see below	"	2.6	+
58	"	48	4.1.27	Normal	Aud. hall. Deluded	3.8	? -
59	Paranoia	44	7.10.26	Fine tremor of tongue and hands	Persecuted. Hall. nil.	3.6	? -
60	"	38	21.12.26	Tabes. Knee-jerks absent. Pupils pin-point. React neither to light nor to convergence	Do.	4.6	-
61	Manic-depressive psychosis; mania (3rd attack)	55	10.11.26	Radials thickened	Elated	4.6	-
62	Manic-depressive psychosis; mania	62	1.12.26 4.1.27	Do. Radials slightly thickened. Cardiac sounds muffled. Pyorrhoea	Much quieter Elated, restless	4.5 3.3	? +
63	Do.	64	18.1.27 15.3.27 10.12.26	Do. Patient practically recovered Chronic mania with exacerbations. In bed with an itching skin rash	Do. ..	3.4 3.3 2.7	? + ? + +
64	Melancholia	50	17.12.26 29.12.26 15.1.27 11.2.27 11.9.26	Skin condition improving Skin rash almost cleared up Skin quite cleared .. Heavy feeling in upper abdomen. Abdomen scaphoid. No signs of disease. Condition poor. Died 23.10.26. <i>P.-M.</i> , see below	Unchanged .. Unchanged .. Intensely depressed. Unworthy. Latterly requiring tube-feeding	2.6 2.4 2.7 2.9 4.3	+ + + ? + -
65	"	39	24.9.26	Radials slightly thickened. Pyorrhoea. Tremor of hands and tongue.	Extremely depressed.	4.4	-
66	"	42	5.10.26	Radials thickened. Second cardiac sound accentuated at base	Slight amnesia Extreme depression.	4.4	-
67	"	40	27.11.26 2.3.27 13.10.26	Do. .. Radials slightly thickened. Psychosis cleared up	Suicidal No change Do. Extremely depressed; suicidal at one time	3.7 4.4 4.4	? - - -

68	"	60	19.10.26	Slight cyanosis of face. High tension pulse. Heart enlarged to left. Numerous extrasystoles. Second aortic sound snapping and high-pitched. Trace of albumen in the urine. Emphysema. Heart-sounds muffled	Depressed and hypochondriacal	3.1	? +
69	"	56	9.11.26	Cyanosis of feet and ankles. Heart-sounds inaudible at base	Depressed and agitated	3.2	? +
70	"	61	18.1.27	Do.	Slightly improved	4.0	-
			17.11.26	Some arterio-sclerosis. Heart slightly enlarged to left.* Pyorrhoea Bl. W.R. very weak positive	Dull and depressed. Retarded	4.5	-
71	"	61	25.1.27	Do.	Do.	4.6	-
			14.12.26	Urine showed a trace of albumen	Depressed, poverty in ideation. Retarded	3.0	? +
72	"	60	29.12.26	Cyanosis of face and lips. Pulse irregular in rate and volume, heart slightly enlarged to left. Loud, rough presystolic and systolic murmurs, loudest in mitral area, propagated to axilla	Do.	2.6	+ -
			12.1.27	Do.	Depressed, unworthy; aud. hall. at onset	4.3	-
73	"	69	2.3.27	Do.	Do.	4.0	-
			28.12.26	Do.	Recurrent attacks of depression with aud. hall. Not so suffering when blood examined 28.12.26	3.7	-
			9.2.27	Do.	Do.	3.4	? +

Arm in water 37° C.

Post-Mortem Findings.

Case 19.—Permission for thorax only. Broncho-pneumonia, both bases. Old calcareous tubercle at right apex. No other evidence of tuberculosis in lungs.

Case 57.—Lungs—both bases congested; fine chronic fibrosis throughout lungs. Heart—myocardium showed no obvious pathological change. Some nodular thickening along line of closure of mitral valve. Liver—nothing abnormal to note. Spleen—enlarged; pulp diffident. Kidneys—slightly granular; capsules stripped with some difficulty, leaving a finely granular surface.

Case 64.—Lungs—broncho-pneumonia at base of left lung. Heart—myocardium normal; extensive atheroma of coronary arteries, with calcareous patches in their intima. Patchy atheroma of aorta. Liver—enlarged, pale and hard; on section showed fine fibrosis. Spleen—small and fibrotic, capsule wrinkled. Kidneys—each organ enlarged and firm; capsule stripped with readiness in each case. Renal arteries markedly thickened and rigid. Brain—pia-arachnoid thickened, but not adherent. Cortex atrophied; oedema of cut surface of cerebral hemispheres; superficial area of softening (liquefactive necrosis) upper part of left ascending parietal convolution. Cerebellum, pons and medulla, nothing abnormal found

* Previous history.—Syphilis 34-35 years before. One testicle removed 7 years ago for "tuberculosis" (? gumma). Old plastic gonococcal synovitis of left elbow-joint, which is ankylosed in flexion.

provided an obstacle. It was therefore decided, in view of the possible influence of digestion to the investigation of this point, to carry out the test at a fixed time after the mid-day meal in each case. On the whole it would appear doubtful if digestion has any marked influence on the S.V. Zeckwer and Goodell state that "for any one person, repeated determinations over a long period of time indicate that the rate is nearly a constant quantity, altered only slightly under physiological conditions. . . ."

Cooper investigated the S.V. of 58 normal subjects, using his own technique. An examination of his results shows hourly readings to vary from 2.5 c.c. to 4.5 c.c. He does not, however, furnish the percentage number of cases giving the former reading, nor indeed does he give any particulars concerning the health of these controls. It may be objected that more information can be derived from a study of the curve, charted as described above, than from the hourly reading; but against this it may be said that in no case of the author's series, save one, had sedimentation gone its furthest at the end of one hour, or at any time prior to one hour—a fact determined by subsequent centrifuging, or an observation of the 24 hours' level. The hourly reading, then, seems to give just as valuable information as the curve, for in order that an hourly figure of 2.5 c.c. be obtained the fall of the cells must have been sharp. All cases of the author's showing this reading were regarded as pathological. On the whole, then, the hourly reading is a satisfactory method of recording the results, as it is the shortest and most convenient.

Reverting to the question of the normal figures by this method, it is clear that, as Zeckwer and Goodell have stated, no hard-and-fast line can be drawn between the normal and the pathological, and until one given method is made universal and a very large number of healthy controls grouped according to age and sex investigated by this method, the dividing line must remain nebulous.

The results obtained are set out in tabular form (pp. 86–93).

DISCUSSION.

Unfortunately only 5 cases of general paralysis were available at the time. These were, however, clinically at least, at different stages of the disease, ranging from early to late. It will be remembered from the survey of the literature that the majority of observers found a markedly increased S.V. in this disease. Now bearing in mind that with Cooper's method only the grosser degrees of increased S.V. are taken account of, this marked

increase is not observable in any of the 5 cases examined, except after infection by malaria. One, indeed, gave a figure within normal limits prior to the commencement of malaria. This was the case showing least mental or physical impairment. No. 1, a well-marked case, gave on one occasion a normal figure, and on another a figure approximating thereto. No. 2 gave doubtful figures prior to malaria. No. 4, an old-standing case, a year or two ago treated with malaria, also gave doubtful figures, whilst the last case, greatly deteriorated mentally and physically, gave a result probably positive, but not unequivocally so. From a consideration of these cases, then, it is impossible to draw any definite conclusions as to the constancy of an increased S.V. in this disease. Three of the above cases were treated by malaria (mosquito infection) during the period of investigation. It was decided to see if the S.V. would determine the degree of improvement following this mode of treatment, since serological improvement following malaria is hardly ever noted.

Three cases were available for this purpose, but unfortunately two of them died during the treatment, and only in the third case (No. 3) was it possible to carry out the test before, during and after treatment as desired. In this case a marked increase in S.V. occurred after the infection, the rate returning only slowly to normal after the exhibition of quinine. As the hourly reading in this case prior to malaria may be regarded as within normal limits, this series of results gives no information as to any improvement which may have been obtained. Further work in hospitals admitting a large number of paretics seems desirable. It is of course obvious that the test has no value in the diagnosis of the condition, as more specific laboratory tests are available and reliable. Similarly, in regard to prognosis its use is superfluous.

In the two cases of senile dementia one series of results is positive and the other doubtful, but as the test is obviously of no diagnostic or prognostic value in these conditions no further cases were investigated. Only one case of "insanity with gross brain lesion" was available, but the results do not merit discussion, as they were either negative or doubtful.

Only two cases of post-encephalitic psychoses were available. The results obtained are similar to those of Paulian and Tomovici and Popper and Kreindler, a slow S.V. being noted.

In the cases of epilepsy examined normal or doubtful figures were found. In one of them (No. 13) it is perhaps of interest to note that there is a slight rise in the hourly figure on the second occasion, the first figure having been obtained when the patient was in a confused and dazed condition following a fit, but at the

risk of repetition it must be pointed out that no undue importance must be attached to this.

As the fits in one of the cases (No. 12) are well controlled by drugs, it was not found possible to examine the blood following one. The author was thus unable to verify Glaus's assertion that an increased S.V. followed a fit, unless in the doubtful instance given.

Some hopes were entertained that in acute confusional psychoses the test might prove a valuable guide to the progress of the case. Unfortunately during these investigations only one such case was admitted to the male side. The results were not encouraging. The figures cannot be regarded as definitely abnormal, and although this patient made a complete recovery, the degree of clinical improvement was not reflected in the S.V. For instance, the figure 4.1 c.c. (1.10.26) was obtained when the patient, although improved, was still displaying marked mental symptoms. As an instance in which a comparatively trifling infection—in this instance a common cold—seems to be able to modify the S.V., the figure 3.4 c.c. (3.12.26) may be cited. A fall of 0.5 c.c. from the previous reading is noticeable. Of course this reading itself is not definitely abnormal, and the difference is slight, but it is well to bear in mind the possibility of such variations in the S.V., apparently due to minor influences of this type. With regard to the value of the test in this psychosis further work is required, but it seems doubtful whether any result of value will be obtained.

Three cases of alcoholic psychosis were examined. There is some doubt whether the third case should be placed in this category, as no satisfactory history was forthcoming, but alcohol was suspected. The results in these cases give no information of value. In the first case (No. 15) the first reading—a doubtful one—was obtained when the acute symptoms were at their height. The second, taken five months later, when the symptoms had entirely cleared up, shows a slight drop. The influence of other factors, *e.g.*, the pyorrhœa, may be taken into account to explain these rather low readings, but it is doubtful if this chronic infection is of importance in this connection, as some other cases suffering from the same condition gave normal figures.

Normal or doubtful figures were obtained in the second case, although symptoms were present on each occasion, and in the third case normal figures were obtained.

We turn now to the cases of dementia præcox. These have been roughly classified according to mental symptoms. The first 21 are those exhibiting the greatest degree of mental impairment, and include all the cases of katatonic stupor examined. Of the whole series, 16 gave on all occasions the blood was examined results

definitely within normal limits. A seventeenth case (No. 50) gave a reading well within normal limits by Bochner and Wassing's method, taking six hours to reach line 12. It was impossible to obtain more blood in this case.

Two others (No. 18 and No. 46) gave results closely approaching the normal, and these are probably to be regarded as such.

The remainder defy exact classification, as the readings range from 3 to 4 c.c. and over at different periods in each case. Six cases, however, constantly or occasionally gave definitely pathological results. The low readings obtained could be accounted for in three of these by the presence of gross physical disease; in the other three no such basis could be determined. The outcome of the above analysis, then, is that in only 3 cases did dementia præcox *per se* give definitely abnormal hourly readings, and of these, one (No. 39) gave a normal reading the first time the blood was examined. This patient refused a third sample.

One of the 3 cases suffering from gross physical disease gave a reading on the second occasion higher than the first, and not definitely abnormal on this occasion—an occurrence surprising in view of the fact that clinically his physical condition was worse at this time. It is to be remarked that many cases of stupor in the above series gave consistently normal, even high figures on repeated examination. On the assumption that venous stasis in the limbs of many of these cases might possibly influence the result, the arm to be bled was immersed for fifteen minutes in water at a temperature of 37° C. prior to venipuncture. This was without influence on the result in any case except one (No. 21), where a fall of 0.7 c.c. was noted. The above procedure was also tried in one of the manic-depressive cases showing a high reading, and in one of the post-encephalitic cases, here also without influence on the result. In this latter instance the reading was higher than on any previous occasion. Among the cases showing definite physical disease one (51) must be specially mentioned, for it is in such cases that the sedimentation test would appear to be of some utility in mental hospital practice.

As is well known, the diagnosis of pulmonary tuberculosis in the insane is very difficult, largely on account of the patient's lack of co-operation. At the outset in this case the hourly reading, 3.3 c.c., although rather low, excited no suspicion. It may be mentioned that tuberculosis had been suspected in this patient for some time previously, but in frequent examinations nothing definitely abnormal was found. The second reading showed a slight drop, and a progressive drop to the fourth reading followed. The patient was now noticed to be extremely pale and slight

loss of weight was reported. There was no rise of temperature, however, and no cough. He was put to bed, and examination then revealed a focus in the left lung. His temperature rose and showed the usual features. Bacilli were later found in the sputum. The S.V. thereafter remained constant. On 5.3.27 half c.c. daily injections, intramuscularly, of antimony in "collosol" form, as recommended by Moxey, were commenced, but no alteration in the S.V. was observed following this treatment.

It would seem, therefore, that the sedimentation test has a distinct value from the standpoint of diagnosis in this class of case in mental hospitals. The test, of course, is not specific, but together with symptoms such as loss of weight, pallor, etc., it might perhaps assist towards an earlier diagnosis of tuberculosis, when no more definite signs are evident.

The cases of paraphrenia gave similar results. No. 57 gave an abnormal figure, and was going downhill physically at the time of the test, but no definite organic cause for the rapid S.V. was discoverable at the time.

These cases should properly be grouped amongst those of dementia præcox, but the older Kraepelin nomenclature has been adhered to in this paper.

The two cases of paranoia gave, one a negative, and the other a doubtful result. Second examinations were not possible. The case with tabes is interesting in view of the findings of Paulian and Tomovici in this condition. The fact, however, that the case is a stationary one may have influenced the result.

In the thirteen cases of manic-depressive psychosis examined the general findings of Plaut, Runge and Glaus have been confirmed, no increase of rate being observed save in a few instances, but it is clear from the character of the results that no definite conclusions can be drawn. One of these cases (No. 64) is interesting from a general standpoint in regard to the sedimentation test. This patient showed, as will be observed, a result well within normal limits. No second estimation was possible, as he died soon after. Autopsy revealed extensive calcareous degeneration of the coronary arteries together with a fine cirrhosis of the liver, yet despite this the S.V. was slow and did not reflect the pathological change in the organism. This case appears to suggest that it is only in the presence of acute processes that the S.V. is materially, if at all, increased. This is shown when cases like that of general paralysis, No. 3, and that of No. 51 suffering from pulmonary tuberculosis are considered. In the first case, although the patient was the victim of a chronic infection, the S.V. was within normal limits, and only on the advent of an acute infection was it accelerated.

Similarly with the latter case the indefinite figures obtained prior to the onset of the tuberculosis were succeeded by definitely abnormal figures after the onset of the disease. At the same time, although the above is doubtless the rule, an increased S.V. is sometimes found in cases in which no acute process is manifest, as, for instance, in one of the cases of senile dementia (No. 7) cited above.

When a markedly accelerated S.V. occurred in the series it was thought that perhaps the age of the subject might play a part. This may to some extent be the case, but it must be pointed out that many of the subjects examined, notably several in the manic-depressive group (70, 72, 73 for instance), were all past middle life, and these gave normal figures.

On the other hand, 71, with a definite history of syphilis, gave a pathological figure on at least one occasion. In Case 63 the abnormal figures are perhaps to be accounted for by the presence of a septic skin lesion, which, however, cleared up prior to the performance of the last test.

Lastly, the figures obtained in Case 62 are interesting. The three readings are practically identical, yet at the third test the patient's mental symptoms, which had persisted over the period covered by the first two tests, had almost entirely cleared up. No indication of this clinical improvement is given by the S.V.

Having completed the analysis and discussion of the results obtained, the conclusions may be summarized.

Before doing so, however, the writer wishes to thank Dr. W. Robinson, Medical Superintendent of the Hospital, for his kind permission to make use of the clinical material.

CONCLUSIONS.

1. Cooper's technique is superior to that of Bochner and Wassing and similar methods.
2. The sedimentation test is of no value in the differential diagnosis between various psychoses.
3. The test has no value in estimating the degree of mental improvement or deterioration.
4. The existence of a constant and marked acceleration of sedimentation velocity in general paralysis has not been confirmed.
5. The sedimentation test is of value in mental hospital practice in assisting towards an earlier diagnosis of pulmonary tuberculosis than is usually obtained in those cases where, owing to mental impairment, the patient is unable to give the necessary intelligent co-operation in the physical examination.

6. It appears probable that chronic processes do not materially influence the sedimentation velocity of the erythrocytes.

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SOME REMARKS ON THE TREATMENT OF EPILEPSY.*

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THE fact that seizures indistinguishable from those of "idiopathic" epilepsy occur in a considerable number of nervous and other physical disorders has compelled us to regard this discharge of psycho-physical energy as a symptom only, and the treatment should therefore vary from case to case in accordance with the particular pathological causation. The majority of cases that one has to treat in a mental hospital are of the idiopathic type, and the treatment is often unfortunately of a uniform empirical nature. Within recent years, however, there has been a tendency to develop some definite conception of the perverted physiology of the disease and to exhibit treatment accordingly.

I propose in this short paper to review briefly several treatments of epilepsy, prefacing each by an account of the theory upon which it is based. The many finer points in the treatment of incipient epilepsy will not be considered, as practically all our cases have reached an advanced stage of the disease.

THE VASOMOTOR THEORY.

That sudden cessation of the circulation through the brain will cause epileptiform convulsions is well known. As examples we might quote the fits seen in association with cerebral embolism, Stokes-Adams disease, compression of the carotids, and severe hæmorrhage. Vasomotor spasm might also produce fits through cortical anæmia. Direct observation of the brain is rarely feasible, but sudden whitening of the cortex has actually been noted at the onset of a fit (Foster Kennedy).

Clinical Application.

In accordance with this hypothesis treatment with belladonna, nitro-glycerin and amyl nitrite has been tried. Excellent results

* A paper read at a meeting of the South-Western Division held at Fareham, October 19, 1928.

have been claimed for the latter by Popea and Eustatziou. Three to five minims of amyl nitrite were administered as early as possible in the development of a fit. Sixteen chronic cases are quoted, all of which had been at least two or three years in a hospital. The effect was beneficial in every case. If given early (during the aura, cry, or at the moment of falling), the convulsions were suppressed and the patient rapidly recovered. If given later the convulsions ceased, and the after-effects (*e. g.*, confusion) were much reduced.

We are at present giving amyl nitrite a trial at this hospital. I cannot say that our results are as happy, but an obvious improvement occurred in eight of the first twelve cases (chosen at random). This consisted of easier respiration, quicker recovery and suppression of subsequent myoclonic movements. To take one example: 5 minims were administered just at the beginning of the clonic stage; the clonic movements ceased and the patient was able to resume his work in eighteen minutes. Under usual conditions he only regains his normal self after 1½ hours at least. The authors quoted regard such beneficial results as strongly supporting the sympathetic theory of the crisis.

Even if the vasomotor theory prove correct, it still leaves a number of problems unanswered. It does not account for the variability of the fits, even in the same individual, nor for their sudden spasmodic occurrence. It has also been argued that the vaso-constriction may be a consequence rather than a cause. The question also arises as to what actually causes the constriction, and here the toxic or allergic theories are brought up as possible factors. These I will now briefly consider.

THE ALLERGIC THEORY.

This theory regards epilepsy as a manifestation of sensitization. This idea was suggested by the recorded temporary disappearance of fits in cases which had been treated with serum for some other disease, such as diphtheria or rabies. It is recognized, moreover, that occasionally fits seem to be brought on by certain foods, and that they cease when the offending item in the diet is withheld. Skin tests give equivocal results, but protein therapy has yielded success in the hands of some authors.

Clinical Application.

Either horse-serum or peptone may be used. From the favourable results obtained with tuberculin, it must be regarded as acting in a similar manner.

THE METABOLIC THEORY.

This theory has been recently outlined by Collier. The occurrence of fits in various diseases of the endocrine glands, of the renal and hepatic systems, in eclampsia and in lead, bismuth or alcohol poisoning, and the tendency for fits to be spaced periodically, are all brought forward as suggestive facts. The failure of bromides to act in some cases would also receive an explanation, since they are now regarded as being effective in virtue of their influence on metabolic processes, rather than having a direct action on the central nervous system; and as the metabolic disturbance is variable, it is not surprising that the results should prove inconstant. The actual metabolic toxin involved is not, however, agreed upon; it is sufficient to mention such suggestions as ammonia, choline, bile sulphates, uric acid, to realize the indefinite character of the evidence.

Clinical Application.

Our trial of potassium boro-tartrate is based upon the theory that the metabolic dyscrasia is a disturbed acid-base equilibrium of the blood. We were induced to try this drug after reading a contribution on the subject by Pierre Marie (he had already suggested the treatment eight years previously). Marie rejects the notion of heredity completely, and refers the seizures to a failure in the neutralizing powers of the blood, resulting in a fall of the H-ion concentration—an alkalosis in fact. Tartaric acid is liberated in the stomach from the boro-potassium tartrate, and acts on the blood slowly because it is but slowly metabolized and only gradually excreted by the kidney. Incidentally Marie deprecates the use of potassium bromide because he does not believe that it affects the faulty metabolism, but simple acts as a nervous depressant. The dose of potassium boro-tartrate recommended is 3-5 grm. per day; his 14 cases showed a diminution of fits from 285 to 122 per month.

In our experiment we exhibited gr. v. of potassium boro-tartrate *t.i.d.* in 12 male and 12 female cases, and recorded the number of fits for three months before and three months after treatment, Previously they had been on either potassium bromide, gr. xx *b.d.* or on gardenal, gr. $\frac{1}{2}$ *t.i.d.*

We were unable to confirm Marie's results. The total fits before treatment averaged 302 per month, after the treatment 399 per month, among the female patients. The corresponding figures for the male patients were 60 and 65 (they were milder cases). These figures include *grand* and *petit* attacks. A negative result is disappointing, but is as valuable as a positive from the scientific point

of view. In our opinion it illustrates the variability of the epilepsies; they cannot all be included in one formula; some will respond to one form of treatment, some to another. One must remember that the cases here are of an advanced type, and that the epileptic habit has become well established. Marie's cases were possibly of an earlier, milder type.

THE PSYCHOGENIC THEORY.

It is well known that a mental shock may sometimes bring on epilepsy. Here we encounter the borderline of hysteria and epilepsy, and in some cases the nomenclature is only an academic question; hence that hybrid "hystero-epilepsy." There is, however, much evidence in favour of the psychogenic conception. A fit often "clears the air," as if it were the abreaction of some repressed psychic tension. Patients who are irritable and unwell before the fit often describe a sense of well-being and ease after it. Indeed it would appear undesirable to suppress all the seizures in some cases. In this connection I would like to mention the experience we had when exhibiting luminal in several cases. The fits were certainly diminished in frequency, but when they did occur they were more severe, and the nursing staff remarked that the patients were much more restless and difficult to manage in the intervals. Further evidence is suggested by the peculiar mental "make-up" of the average epileptic. He is egoistic, hypochondriacal, morbidly religious and quarrelsome, all of which points to some fundamental psychic fault. The extraordinary variability of the seizures, from *grand* or *petit mal* to a host of epileptic equivalents, such as vertigo, irritability, or hallucinatory confusion, is rather difficult to account for on any but psychogenic grounds. It has been suggested that the causal emotional factors act through the autonomic nervous system in producing the "seizures."

TREATMENT GENERALLY.

Before concluding I should like to add some additional remarks on treatment.

Whatever the ultimate conditioning factor of the epilepsy, there is no question that there are many secondary causal factors, some of them of an apparently trivial nature, but attention to which minimizes the frequency of the seizures. The organism has developed a habit of certain motor discharges, and is apt to exhibit it under a variety of circumstances. Amongst these, emotional changes play an important part, and this is even true of cases in

which the epilepsy is of obvious organic origin. Some of the insane when thwarted in a request that they make will thrust a fist through a window-pane; an epileptic will have a fit under similar circumstances. Thus one notes an increase in the number of fits when a new nurse comes on duty in an epileptic ward, which illustrates the great importance of managing the cases; there is no doubt that a thorough knowledge of the patient's temperament will help to lessen the frequency of the seizures.

Without believing in intestinal toxæmia as the *causa causans* of epilepsy, we all recognize that constipation is undesirable in an epileptic, and better obviated by a rational diet than by indiscriminate purging.

Among other factors that increase fits are dyspepsia, fatigue, excessive physical exertion and atmospheric changes. Hence the importance of general hygienic measures. Fresh air, sunlight, moderate exercise, all tend to diminish the fits, and the patient should be given as much freedom as possible. At this hospital the patients, if sufficiently intelligent, are allowed out on parole in pairs.

In prescribing bromide several details are worth noting. The actual dosage required can, of course, only be discovered by trial. We do not give more than gr. xl daily as a rule, though cases are recorded where over gr. ccc *per diem* has been given for a period without any apparent harm resulting. In most cases the fits exhibit a periodic tendency, occurring more frequently by day or by night, or else the patient has a batch every month or so, with only occasional seizures in between. The dosage should be regulated accordingly. Thus in one case there is a marked tendency for the fits to come on at the menstrual flow; she is therefore given bromide only at the commencement of the period and not in the intervals. In this manner one avoids the danger of unduly depressing the nervous system. Owing to the moderation with which we use bromide here, we have not experienced any of the more serious symptoms of bromism, such as intestinal disturbances, mental apathy or ataxic disorders of the nervous system. Acne occurred in several cases, but we have not tried doubling the dose in order to cure it.

I have already made some reference to luminal. It certainly has the disadvantage of allowing compensatory irritative symptoms to develop—a feature which is absent with bromides—but we have found it useful in several established cases where bromides were not well tolerated.

In conclusion I would like to stress the desirability of giving various drugs a trial, since each case of epilepsy is unique, and it

would be interesting to hear of results obtained with amyl nitrite, potassium boro-tartrate or any other therapeutic procedure.

I wish to express my thanks to the Superintendent, Dr. Jackson, for his kind permission to carry out the investigations; I am also indebted to my colleague, Dr. Kameneff, for drawing my attention to the French references.

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ROUTINE TREATMENT OF EPILEPSY.*

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IN this hospital we have a routine differential diagnosis which is applied in all cases of suspected epilepsy and which is as follows :

- (a) High blood-pressure.
- (b) Trauma of vessels and angiospasm.
- (c) Nephritis, subacute and chronic.
- (d) Diabetes.
- (e) Tabes dorsalis, tabo-paresis, neuro-syphilis and general paralysis.
- (f) Hysteria.
- (g) Epilepsy.

The elimination of most of these causal factors of epileptiform seizures is readily obtained by the ordinary examination made in every case for blood-pressure alteration and the presence of abnormalities in the urine. Nothing but careful observation will decide whether hysteria or actual epilepsy is present.

Where all except post-syphilitic forms and the epilepsies are negatived the case is further simplified, for our practice is to obtain the Wassermann reaction of the blood of all new admissions and, on the slightest indication, to follow this up by a full examination of the cerebro-spinal fluid.

This routine is justified by the number of patients who are found to be suffering from the effects of syphilis on the nervous system, in the form of seizures readily comparable to the epilepsies.

When syphilis has been entirely negatived and the other points of the differential diagnosis cleared up, one feels able to give a diagnosis of true epilepsy.

Having decided on the disease, there are two further duties to perform before full treatment can be applied, viz. :

- (a) To look for the cause.
- (b) To classify the epilepsy.

Our working classification seems to answer fairly well ; it is by

* A paper read at a meeting of the Northern and Midland Division held at St. Luke's Hospital, Middlesbrough, on October 25, 1928.

no means hard and fast, but it is useful for the early treatment of admitted cases. We divide the major epileptic cases into—

- (1) Traumatic.
- (2) Toxic.
- (3) Habit, or psychological.
- (4) Physiological.
- (5) Idiopathic.

At the best this is a rudimentary method of labelling the case, for it is obvious that the psychological factor may enter into every case, just as the toxic and idiopathic factors may be one and the same, and may be found in the same case. Accepting the classification as being useful, however, the division gives some indication for the lines of treatment.

Where possible treatment is undertaken from two aspects, the general and the specific.

GENERAL TREATMENT.

General treatment is applied to all cases, and consists of thorough investigation of the bodily functions, always with the endeavour to restore the various systems to correct functioning. Particular attention is paid to the eliminatory organs; focal sepsis is remedied as far as possible, and the mouth is kept clean by extractions and dental toilet. Crowned teeth are a frequent source of septic entry and are a positive danger to the epileptic.

Errors of refraction are corrected where possible, and an attempt is made to clear up sinus trouble.

Our first care is to restore the alimentary tract to a clean condition, regular elimination is encouraged and constipation avoided. It is no uncommon thing to find a diarrhoea due to constipation prior to an increased fit incidence. Colon lavage has been attended with some temporary betterment, but is most difficult to carry out with some epileptics.

Purges are used somewhat freely, but by no means in an indiscriminate fashion; they are selected with care, for many epileptic patients react in remarkable fashion to a suitable aperient. Castor oil in generous dose cuts short cyclic fits in a considerable number of cases, and if the consequent evacuation is of constipated appearance an olive-oil enema is given.

Calomel in doses of gr. v, followed by a saline, is very efficacious where there is superimposed "habit" epilepsy.

We avoid wherever possible the standard "white mixture," because it has a tendency to cause dehydration and the ultimate retention of chlorides, with an increased susceptibility to attack.

Diet plays a large part in the treatment of almost all our patients, and it is obvious that where constant heavy meals are permitted the fit incidence is increased. It seems better to keep epileptics on a generous diet of easily assimilated food and to reduce the meat ration, replacing it to some extent by milk. A well-fed epileptic is amenable, but an over-fed epileptic is readily truculent, or has more fits than usual.

In any condition of recurrent fits of a severe nature, the diet is reduced to milk for a short period to allow the alimentary tract a fair opportunity to re-assert its excretory function.

Examination of the urine is carried out frequently, and where there is a great excess of chlorides it seems reasonable to reduce the salt intake, which can readily be done.

One factor emerges from the examination of the urine and fæces and is common to both : after a series of fits it is quite common to obtain *B. coli* in large numbers.

SPECIFIC TREATMENT.

Actually there is no specific treatment for the epilepsies ; those labelled "specific" are often "shots in the dark." Working on the foregoing classification, however, one bases treatment on the label put upon the cause of the disease.

Traumatic epilepsy.—This is, perhaps, the only condition which has anything in the nature of a specific treatment. If the causal factor is early recognized there is quite a good chance of radical surgical cure. Immediate attention is essential in traumatic cases ; usually the causal depression needs interference long before seizures appear ; when epileptiform attacks are found it is an indication that some organic damage has been done. One is forced to the conclusion that some cases showing negative X-ray results have really some bone lesion, not macroscopic, yet large enough to cause either degeneration or congestion favouring epilepsy. Possibly the cortical cells in the area of the depression undergo minor degenerations and liberate cell toxins, which remain in the lymphatics until the congestion and subsequent deflation of a fit is sufficient to release them.

Lumbar puncture has been practised elsewhere in such cases, but the result has been only a temporary relief ; examination of the fluid has revealed an excess of globulin.

Luminal by the mouth helps to control the fits, but has no curative action on the causal condition.

Toxic epilepsy.—When the offending cause has been removed some improvement is looked for, but vigilance is the price of safety

in the toxic class of case. Nothing seems to destroy the circulating toxin, and only constant attention to the usual and unusual foci of infection, together with frequent and judicious purging, keeps the accumulation of toxins below the level required for cyclic fits.

Habit, or psychological epilepsy.—Everyone knows the patient liable to have fits at any time, and from no apparent cause. Such a case, were insanity not present, could readily be regarded as hysteria with epilepsy, and treated along the Weir-Mitchell lines. As it is, the breach of conduct is so serious as to require certification, and the fit habit is a permanency. Medicine tending to reduce the fit incidence for a time, but none give lasting benefit. Except for the mental degeneration, the case seems an ideal one for psychotherapeutics.

Patient firmness, suitable doses of castor oil and minor reductions in diet are of some help.

Physiological epilepsy.—Under this label are those cases showing gross endocrine lesions, chiefly of the ovaries, thyroid and pituitary; it is only possible to indicate the symptoms which make endocrine dysfunction to be suspected. The existence of headaches prior to fits is evidently of the nature of an aura, and such a complaint on the part of some patients may lead to a diagnosis of pituitary lesion; again, some cases show goitre, and small doses of thyroid afford relief.

In the female, irregularities of menstruation associated with cyclic fits may suggest a need for ovarian medication.

Where there is evidence that the endocrines are at fault and no real indication of one offending gland, thyroid in $\frac{1}{10}$ -gr. doses has been resorted to with fair results.

Idiopathic epilepsy.—Just where the toxic, the "habit" and the idiopathic epilepsies separate in the insane it is difficult to say. Into the idiopathic class are put, perforce, all cases to which a more definite label cannot be attached; perhaps all epilepsies should be so labelled.

When all the observable causes have been treated, and when all the available sites of infection have been cleared, one is driven back to the "permanent" drugs. (I do not suggest that drugs are withheld from any patient, but they are regarded as tentative measures until all possible indications have been obtained as to the causal condition.)

It would seem that epileptics, more than any other class, have idiosyncrasies for drugs; some cannot tolerate bromides, others react badly to luminal, and some react for a time to anything.

Sedatives are avoided, *per se*, as actual treatment; only in the case of nocturnal fits do we resort to sedatives as a standard practice after the ordinary drugs have been tried. Some success has been

obtained by the giving of one or more dial tablets just before bed-time—the fits have been warded off at night, and have not occurred in the daytime to any marked extent.

Bromide and borax, with or without arsenic, are given in a few cases, but only where luminal is not well tolerated; the mixture has to be discontinued at times because of the dermic reaction.

Luminal has been successful up to a point, but there seems to be a saturation factor in each patient, and when this is reached the fits tend to revert slowly to their former number, in spite of increase, or decrease, in the amount of luminal given.

Complications with this drug are not frequent, but are at times rather startling; one patient relapses into stupor three days after the commencement of the drug in any form, or dose, whilst another promptly develops an urticarial rash.

PEPTONE TREATMENT.

In spite of treatment by diet, purges, the endocrines, bromides and luminal, the fit incidence remains at a high figure, and latterly one has felt the necessity of treating in some other way. Carmalt Jones and Edgeworth have mentioned the possibility that benefit might ensue from the use of protein therapy. The latter gave in the *British Medical Journal* (November, 1920, p. 780) results obtained in twenty cases, arrest of fits being obtained in nine.

Auld stated that non-specific protein desensitization could be induced. That is, if an animal is sensitized to multiple proteins (*e.g.*, egg-white, horse-serum and grass pollen) and then is desensitized to one (*e.g.*, egg-white), it becomes, *ipso facto*, desensitized simultaneously to the other two; that is non-specific desensitization.

Further, the bronchi of a sensitized guinea-pig, given additional protein, go into asthmatic spasm. Peptone will induce asthmatic spasm in animals, therefore possibly peptone could be used as a universal desensitizer. On this hypothesis Auld, assuming that asthma in human subjects was a manifestation of protein sensitization, used peptone for it and claimed good results.

If the asthmatic spasm is of this character, why should one not regard the other spasmodic disorders, of which the two outstanding conditions are epilepsy and migraine, in a similar light?

Skin-reactions were done some time ago, and the multiple sensitization referred to by Auld was found. For this reason, in an attempt to treat epileptics by desensitization a peptone solution is used. Thirty cases, male and female, have been or are being treated by injections of a 5% hypodermic solution of peptone (Armour), Auld's No. 2. There has been no selection of cases, and

no application of our labelling system has been made. In the desire for results we have picked the worst cases.

There is little technique to quote beyond strict asepsis. The commencing dose has been m v , and this is increased for each weekly dose, rising to m vij the first week. The third dose is m x , the fourth m xv , and the fifth m xx . After this a rest is given.

The intravenous route gives rise at times to slight malaise and rigor, and is difficult to use with some patients; with either the intra-muscular or subcuticular route no deviation of temperature is found as a rule.

In only two cases has any real complication arisen, and this has taken the form of a skin-eruption closely simulating the bullæ found in scabies, but much more widespread. It appeared within twenty-four hours of the first three injections, and subsided within three days.

An increase of fits just after the injection is by no means uncommon, but may be due to the excitement of the injection.

Results are inconclusive; certainly no cures have been noted. It is a fact, however, that the excitable epileptic is, in some cases, less prone to excitement; in others, markedly in one case who has had an extensive decompression, fits are much fewer. Some patients are having no minor fits at all, where there used to be a number, and no increases of major fits has been noticed. One or two particularly stuporose patients are more amenable to discipline and get about well.

A fair summary would be that about half the patients treated have a somewhat reduced fit-incidence, in spite of the fact that their standard drug (luminal or bromide) has been cut down. In giving this opinion one is not unmindful of the fact that some patients do better on small doses of luminal than on large, and all have been carefully watched in this respect.

A point of particular interest has been that the young epileptics have reacted more fully to the peptone treatment.

In view of the existence of *B. coli* infection of the alimentary tract and of the urine points to a further method of treatment on these lines, it would be of interest to carry out treatment by a detoxicated strain of *B. coli* on the lines of the peptone treatment, except that the intravenous route might be used and a temperature reaction sought for and used to control of the dose.

FURTHER TREATMENT.

Within the last few months an analogy has been drawn between asthma, angina pectoris and epilepsy, and the Vienna school is

treating the two latter diseases as a hyper-excitability of the nerve-endings. It is claimed that some relief has been obtained by the use of the opium derivative papaverine sulphate.

This is also being used here and is given three times a day in solution, 1 gr. being the dose. It has not been in use for a sufficiently long time for one to form an estimate of its value, although it has reduced the fit-incidence in one or two cases.

It is said that the result is both immediate and lasting, and that the drug is not a "habit-former." We hope for good results from its use, more especially as luminal is readily "forgotten by the body" when discontinued.

I am indebted to Dr. H. G. Drake-Brockman, the Medical Superintendent, for permission to quote work done in the hospital.

THE CLINICAL INVESTIGATION OF THE AUTONOMIC NERVOUS SYSTEM IN FIFTY CASES OF SCHIZOPHRENIA.

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THE scope of this work is to show the variations in blood-pressure and pulse, together with the secretory and vaso-motor changes, resulting from injections of adrenaline and pilocarpine. The response of certain reflexes is also recorded.

The response of different types of patients to injections of adrenaline and of pilocarpine has been a matter of interest for some years. In 1914 Schmidt (1), as the result of subcutaneous injections of adrenaline in 34 cases of dementia præcox and 36 normal individuals, pointed out that non-sensitiveness to adrenaline was characteristic of dementia præcox. This statement was corroborated by Schultz(2) and by various other workers who were investigating the physical signs present in dementia præcox. Biller (3), however, in an examination of 100 cases, of which 50 were dementia præcox, was unable to find any absence of sensitiveness to adrenaline in the dementia præcox patients, and he pointed out that no definite conclusion could be drawn from such subcutaneous injections. This statement has been upheld by other workers, amongst them Severin (4) and Newcomer (5), though Dawson (6) supports the original observation.

As regards pilocarpine, various workers, including Goldstein and Reichmann (7), Raphael and Parsons (8), and Dawson (6), found a great hypersensitiveness to pilocarpine in cases of dementia præcox, especially in katatonia.

Eppinger and Hess (9) applied pharmacological tests to the study of the autonomic system and formed the hypothesis that two clinical types of individual could be distinguished, *vis.*, vagotonic and sympathicotonic, these conditions being due to unstable equilibrium between the sympathetic and parasympathetic systems. They further considered that the reaction of the individual to

adrenaline and pilocarpine could be taken as an indication of the state of balance of the autonomic system, the assumption being that adrenaline and pilocarpine act specifically on the sympathetic and parasympathetic systems respectively.

Various workers have criticized this argument, on the ground that the complexity of the endocrine system makes it impossible to select one component without considering the inter-relationship of the other members of the system (McWilliam (10) and others). This criticism applies not only to the action of drugs, but also to certain reflexes, which have been said to be diagnostic of the state of balance in the autonomic system.

Langfeldt (11), as the result of a comprehensive investigation of the somatic and physiological conditions present in dementia præcox, found that some patients were hypersensitive to both adrenaline and pilocarpine. He also states that pharmacological tests on the human subject disprove the theory of the selective affinity of these drugs. He considers, however, that in view of the alleged connection between dementia præcox, the endocrine organs and the autonomic system—Dawson (6), Specht (12), Platz (13), Goldstein and Reichmann (7), Raphael and Parsons (8) and various other workers—an investigation of certain reactions in different types of cases should be of value.

PROCEDURE.

In all important respects this has been based on that of Langfeldt, in order that a fair comparison of results could be made.

1. The cases chosen were male and female patients diagnosed as schizophrenia, the essential criterion of diagnosis being a lack of affect, or a disharmony between affect and the content of thought.

The ages varied from 20–35, with the exception of seven, whose age-limit was 43.

2. The injections were given mid-way between breakfast and dinner, the patients being on a fixed diet and resting for half an hour before the injections, which were given on two consecutive days.

3. The first 14 patients were given .01 mgrm. adrenaline and 7.5 mgrm. pilocarpine each made up with 1 c.c. distilled water. These doses were afterwards halved, on account of excessive lowering of blood-pressure after pilocarpine in one or two cases. Each dose was made up freshly on each occasion.

4. The intravenous route was chosen, in order to eliminate variation in the rate of absorption.

OBSERVATIONS.

1. *Circulation*.—Blood-pressure and pulse-rate every minute for ten minutes after an injection of (a) adrenaline and (b) pilocarpine. (A period of twenty minutes was first taken, but it was found that the actual response occurred in the first few minutes, and that an analysis of the curve over the longer period unduly complicated the end-result.)

2. *Reflex reactions*.—(a) *Mannkopff's*: The skin of the upper arm is pinched. According to Peritz (14), an increase of pulse-rate is a definite indication of hypersensitiveness of the sympathetic system.

(b) *Oculo-cardiac*: The eyeball is firmly pressed backwards and slightly outwards, the pulse being counted beforehand and during the test for sixty seconds. According to Aschner (15), a reflex irritation of the vagus is brought about through the sensory endings of the fifth nerve, a decrease of the pulse-rate of over 12 beats a minute being suggestive of vagotonia.

(c) *Cilio-spinal*: The skin of the side of the neck is pinched. Normal tone in the sympathetic system is shown by dilatation of the pupil, whereas a lack of response is said to be typical of the katatonic state of dementia præcox (Bumke (16)).

3. *Clinical, viz.*, normal pulse-rate, size of pupils, condition of skin, and mood of patient.

RESULTS.

Variations of blood-pressure and pulse were represented graphically in each case.

A summary of these results is seen below, and may be compared with those of Platz (13) and of Langfeldt (11) who both used the larger of the two doses used in this series.

Platz groups his results as follows :

- | | | |
|--------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------|
| 1. Normal | (a) Adrenaline | A moderate rise of blood-pressure, averaging 10 mm. Hg. A moderate increase of pulse-rate, up to 30 a minute. |
| | (b) Pilocarpine | A momentary increase of pulse-rate, up to 30 beats, with moderate flushing, sweating and salivation. |
| 2. Sympathicotonic | (a) Adrenaline | Sharp rise of blood-pressure and pulse, of more than 20 mm. and 30 beats respectively, with pallor and tremor. |
| | (b) Pilocarpine | Inconsiderable reaction. |
| 3. Vagotonic | (a) Adrenaline | A small rise of blood-pressure and pulse, or even a decrease of pulse-rate. |
| | (b) Pilocarpine | Increase of pulse-rate of over 30 a minute, with marked flushing, sweating, salivation, lachrymation and nasal secretion. |

*Langfeldt's Cases, summarized according to a Rise or Fall.**A. Forty Cases of Dementia Præcox.*

	Adrenaline.			Pilocarpine.		
	Rise.	Fall.	Anomalous.	Rise.	Fall.	Anomalous.
Blood-pressure	22; average 13 mm.	9; average 13 mm.	9	25; average 13 mm.	5; average 32 mm.	10
Pulse	26; average 15 beats	7; average 15 beats	7	40; average 38 beats	0	0

B. Seven Normal Controls.

Blood-pressure	7; average 13 mm.	0	0	7; average 22 mm.	0	0
Pulse	7; average 10 beats	0	0	7; average 38 beats	0	0

Summary of Results of Fifty Cases of Schizophrenia Investigated at the Cardiff City Mental Hospital.

	Adrenaline. Number of cases.	Pilocarpine. Number of cases.
Rise of blood-pressure	32 (average rise 18 mm.)	24 (average rise 12 mm.)
Fall of blood-pressure	18 (average fall 12 mm.)	24 (average fall 18 mm.)
Anomalous	0	2
Rise of pulse	37 (average rise 19 beats)	44 (average rise 22 beats)
Fall of pulse	10 (average fall 17 beats)	5 (average fall 22 beats)
Anomalous	3	1
Rise of blood-pressure <i>and</i> pulse	23	24
Fall of blood-pressure <i>and</i> pulse	4	5
Pallor	19	2
Tremor	10	8
Flushing . . . . .	..	28
Sweating . . . . .	..	14
Salivation . . . . .	..	19
Lachrymation . . . . .	..	5

Mannkoppf's reflex: In 10 cases the pulse increased 4 beats a minute; in 5 cases it decreased 4 beats.

Oculo-cardiac reflex: In 13 cases the pulse decreased up to 6 beats a minute; in 6 cases it increased up to 4 beats.

Cilio-spinal reflex: Four cases showed definite dilatation of pupil; 15 cases dilated very slightly.

Adrenaline had the effect of raising the blood-pressure in 32 cases and quickening the pulse in 37, whereas pilocarpine raised and lowered the blood-pressure in an equal number of cases (24 of each) and quickened the pulse in 44 cases. In no case was the reaction to adrenaline very marked, the average rise of blood-pressure being greater, however, than in Langfeldt's dementia præcox cases and the average fall being less.

Although the average fall of blood-pressure with pilocarpine was 18 mm., 4 cases, which reacted excessively, showed a drop of 34-42 mm., accompanied by a marked slowing and weakening of the pulse with cold sweat and sighing respiration, these cases approximating more closely to Langfeldt's average reaction to pilocarpine.

The autonomic reflexes gave indefinite results, the variation in pulse-rate being within the limit of experimental error.

The attempt to correlate different types of reaction with any clinical types or symptoms was unsuccessful.

The four patients who reacted excessively to pilocarpine were as follows :

1. G. E—, a man, æt. 21, of good physique. Complexion pale and clear. Skin cold and moist; no cyanosis of extremities; pupils large. An early case, showing no deterioration of personality and no intellectual impairment, but apathetic and mildly stuporose.

Blood-pressure 130; dropped to 94.

Pulse 72; dropped to 56, with marked pallor, cold sweat and sighing respiration.

Mannkoppf's and oculo-cardiac reflexes: Increase of 4 beats a minute.

Cilio-spinal: Slight dilatation.

2. A. S—, a woman, æt. 33, of good physique and general condition. Complexion fair and clear, skin moist and moderately warm; pupils small. Contented and apathetic.

Blood-pressure 112; dropped to 76.

Pulse 75; fell to 48, with marked flushing, sweating, lachrymation and nasal discharge.

Mannkoppf's and oculo-cardiac reflexes: No change in pulse-rate, but a marked weakening of pulse.

Cilio-spinal: Negative.

3. R. P—, a man, æt. 28, in good general condition. Complexion pale. Skin dry and warm; pupils small; mute and resistive.

Blood-pressure 140; fell to 98.

Pulse 108; fell to 76. There was definite pallor, following a transient flush, but no other general signs. No reaction to the sympathetic reflexes.

4. E. P—, a woman, æt. 29, of good physique, with very thick dark hair and a bright complexion. Skin dry and moderately warm. Pupils moderate in size. No impairment of intellect. Apathetic and somewhat stuporose, with stereotyped utterances.

Blood-pressure 122; fell to 80.

Pulse 88; fell to 64, becoming almost imperceptible, with marked pallor, salivation and lachrymation.

Mannkopf's reflex gave an increase of 4 beats a minute.

Oculo-cardiac, negative.

Cilio-spinal: Slight dilatation.

SUMMARY.

(1) The clinical methods of investigation of the autonomic nervous system are reviewed.

(2) These methods are applied to 50 schizophrenic patients.

(3) Results are stated in such a way as to be comparable with those of Langfeldt, Platz and others.

CONCLUSIONS.

(1) As the action of adrenaline and pilocarpine on the human subject is influenced by other factors than the state of the autonomic nervous system, the specific pharmacological action of these drugs cannot be tested.

(2) There is nothing characteristic in the mode of reaction of cases of schizophrenia to adrenaline and pilocarpine.

(3) There is no definite correlation between types of reaction to these drugs and clinical types.

(4) No reliance can be placed upon the reflexes used as tests of the activity of the autonomic nervous system.

These conclusions are in agreement with those of Gillespie (17), McWilliam (10) and other workers.

I wish to express my indebtedness to Dr. Edwin Goodall, Medical Superintendent of the Cardiff City Mental Hospital, at whose instigation this work was done, and to Mr. A. Dignam, Pathological Assistant, for his cooperation.

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CONSIDERATIONS ON DEMENTIA PRÆCOX AS A PHYSICAL DISEASE.

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It is a matter of common observation that dementia præcox, in common with many other forms of dementia, pursues a very chronic course. In fact, the slow progress of the process is one of its outstanding features. In most cases of dementia præcox, no matter how sudden and acute the onset may be, the tendency is for this to subside after a varying period of time.

Nevertheless, undoubted cases of dementia præcox are encountered which, so far from taking on the usual chronic form, run a rapid and acute course, ending in comparatively early death and at no time showing any tendency to remission. It is probable that this type of case, which, for descriptive purposes, may well be called acute, malignant or fulminating dementia præcox, is only recognized as such in those mental hospitals which have a high admission-rate, and even in such hospitals the incidence must be low.

During the past two years I have had eight of these cases of acute dementia præcox under my care at Rainhill Mental Hospital, and the rarity of the condition will be easily gauged from the fact that these cases constitute only 5% of the total admissions—or eight out of over sixteen hundred cases.

What are the special features of this type ?

These may be illustrated by the following three cases :

CASE 1.—T. L., æt. 21, admitted June 30, 1927. He was resistive, very restless, noisy, excited, incoherent, and wet and dirty in his habits. Although rather poorly nourished—weight being 7 st. 10 lb.—there were no signs of any physical disease. Duration of his mental illness, a few days. There were no special ætiological factors and no history of insanity in the family. He had spent an inordinate amount of time on the solution of crossword puzzles.

His restlessness continued, and he became too resistive and unmanageable to be nursed in a dormitory, and had to be kept in a side room. At the end of two months his condition showed no improvement. He had lost ground physically and was now very thin and emaciated, but there were no signs of any definite physical disease. He was very puffy under the eyes, but apart from this there were no other signs of "renal" inefficiency. Only a few days before his death he impulsively broke a pane of glass, and this despite his feebleness. He gradually sank and died on September 14, 1927, ten weeks after admission.

His death was certified as (1) Arterio-sclerosis, duration unknown, (2) Dementia præcox.

At the autopsy, the prominent pathological features presently to be described in detail were found. There was no evidence of any arterio-sclerosis.

CASE 2.—N. W.—, æt. 20, admitted May 8, 1928, in a state of profound stupor, refusing to speak at all, resistive, wet and dirty in his habits. He was rather thin—his weight being 7 st. 1 lb.—but there were no signs of physical disease.

Duration, six months prior to admission, when it was noted that his memory was getting weak. After this he gradually became morose, melancholy and weak, and was confined to bed until April, and then removed to hospital.

After a month his stupor was still unchanged. He had never spoken; he had to be spoon-fed and was very faulty in his habits. A little later the mental picture began to change slightly. He now became restless, frequently getting out of bed and wandering, interfered with other patients, and often exposed himself. From this time onwards, owing to his restlessness and depraved habits, he became unmanageable in the dormitory. He now began to go downhill physically, and his bodily weight steadily fell. About the beginning of October septic eruptions appeared on his skin. First, a large septic patch appeared around the left knee, but this cleared up remarkably well, despite the resistiveness of the patient to treatment. Shortly afterwards a fresh focus appeared under his chin, which rapidly developed into a spreading cellulitis of the face and neck. This condition probably accelerated his death, which occurred on October 16, 1928, following circulatory collapse—five months after admission.

The cause of death was registered thus: (1) Arterio-sclerosis, duration unknown; (2) Cellulitis of the face and neck—two days.

The autopsy revealed no arterio-sclerosis, but the special pathological features of the condition, although slightly modified by the terminal cellulitis, were much in evidence.

The principal features of this case are:

- (1) Resistive stupor, accompanied by persistent and unmanageable restlessness, and—
- (2) A rapidly progressive bodily deterioration.

The disease ran an acute course, lasting in all eleven months.

CASE 3.—W. T. M.—, æt. 18, admitted September 14, 1927. He was confused, incoherent, restless, excited, resistive, and wet and dirty in his habits. Although of poor physique—weight 6 st. 3 lb.—he presented no sign of physical disease.

The attack commenced suddenly. The patient, an apprentice boat-builder, had gone to work as usual, but later in the day was found wandering by the police. There was complete loss of memory, and he was taken to hospital. His mother stated that six months previously he had had a very bad attack of influenza, from which he had never fully recovered. For three months this state of intense restlessness continued unabated. He was often acutely excited, shouting out loudly and banging violently at the door of his side-room. Nothing could be done with him, and as his bodily condition was perceptibly declining the prognosis was regarded as hopeless. He was so emaciated and he looked so desperately ill that it was remarkable how he maintained his restlessness. About the beginning of January, 1928, a wonderful change manifested itself. He began to settle down and become quieter; his restlessness diminished gradually. In a month's time the improvement had been so well maintained that he was practically rational again. His bodily condition had improved, too, out of all recognition, and his weight had increased to 8 st. He was discharged from the hospital on March 24, 1928, and an inquiry made as recently as December 13, 1928, has elicited the information that he is doing very well at his work, which he resumed two months after his discharge; his bodily health is very good, and his weight 8 st. 3 lb.

It is very difficult to explain the sudden and dramatic arrest of the degenerative processes in this case. It is certain that this patient appeared almost from the time of his admission to hospital to be heading for mental and physical dissolution. Recovery at such an advanced stage must be as rare as it is remarkable. Yet such has been noted in this hospital in a few cases of dementia præcox which had assumed this very acute form.

In all cases, whether stupor or excitement predominates, the rapid and profound physical wasting constitutes a very prominent

feature of the disease. Unless this be attributed to severe metabolic disturbances of endocrine origin, it is difficult to find a satisfactory cause. Throughout the course of the illness one looks in vain for symptoms and physical signs of any associated bodily disease to account for the emaciation. On the other hand, it is indeed surprising how these cases succeed in escaping acute infections, considering their greatly impaired vitality. As has been shown in Case 2, occasionally septic conditions, such as bed-sores, carbuncles, etc., arise, and perhaps play their part to a small extent in effecting the final dissolution. So far, to our knowledge, no means have been devised of arresting the acute progress of this disease, or even of modifying it. Every attempt proved unsuccessful in our cases. No drug would allay the restlessness and promote sleep for any length of time, and no form of special treatment or nursing has proved of any avail. Whereas the duration of ordinary dementia præcox is measured in years, in this acute variety it is a matter of a few months. The acute mental symptoms persist almost to the end, and with them there is coupled an intense progressive bodily wasting.

Now let us turn to the pathological side of the condition. Fortunately we have been able to obtain *post-mortem* examinations in all but two of the eight cases.

It is proposed to confine this account to the macroscopic appearance. The microscopic investigation will form the subject of another publication.

In general, the gross pathological changes in acute dementia præcox are practically the same as those found in cases of ordinary types of dementia præcox, due allowance being made for any co-existing organic disease.

These changes are so uniform and constant that anyone who is acquainted with the syndrome is quite capable of recognizing it *post mortem*, without knowing anything at all of the clinical history.

The most prominent features are as follows :

1. A large macrocephalic type of brain, apparently well developed and usually with a highly complex convolitional pattern.

In our series of six cases (all males) the average weight was 1,500 grm., which is more than the weight of the average normal brain (as given by F. Marchand's statistics, founded on 1,213 cases), and certainly much greater than that of the average of the mental hospital population.

2. All the bodily organs show a well-marked fibrosis. This toughness is evident when such a solid organ as the liver or kidney is cut into. One experiences this by sound and feel, as though a turnip were being laid open. The tissues appear to resist the

passage of the knife, and the accompanying grinding sound is quite characteristic.

In common with the large viscera, such glands as the thyroid and adrenals exhibit this feature. The lungs participate in this process, in addition, and show a generalized emphysema. The latter change is usually more severe along the anterior mesial edges of the lungs, in some instances giving the appearance of large blebs. In no other morbid condition is this degree of emphysema of the lung so constantly found along the anterior margins. The ribs show an abnormal toughness, but this does not necessarily apply to the bones in general. The heart is usually smaller than normal, and the muscle very dense to the feel.

3. Although these cases have from time to time been certified as arterial sclerosis, there is very little real evidence *post-mortem* of this, but there is a definite cardio-vascular infantilism: the heart, as already stated, is small, the lumen of the aorta is much smaller than normal, especially narrower in the abdominal portion, and the walls of both the thoracic and abdominal aorta are much thinner than those of the normal vessel.

There is little or no naked-eye change to be observed in the rest of the vascular system.

4. With regard to the endocrine glands, in which Mott demonstrated microscopically well-marked atrophic changes in dementia præcox, very little gross macroscopic change has been observed by us beyond the general density and toughness common to all the organs.

CONCLUSIONS.

1. That dementia præcox (like so many other chronic disorders) occasionally runs a very acute course.

2. That it should be considered in the light of a physical disease.

3. That the disease exhibits a constant and characteristic pathology, which may be summed up thus:

(a) Infantilism of the cardio-vascular system.

(b) General fibrosis of the organs, including the endocrine glands.

(c) A large complex type of cerebrum.

I am indebted to Dr. E. F. Reeve, Medical Superintendent, for permission to publish these cases, and also for his very valuable advice and helpful suggestions.

Medico-Legal Notes.

REX v. CLIFFORD HULME.

THIS case was tried at Perth, Western Australia, on August 7 and 8, 1928.

The accused was a farm labourer, æt. 29. He had been employed for about four months by a farmer named Harold Eaton Smith, who lived, with his wife and three small children, in a somewhat lonely part of the country. Hulme was described by some of the witnesses for the prosecution as "an every-day man" and as a "quiet, ordinary sort of man." He appears to have given satisfaction as a worker, to have been on good terms with Smith and his wife, and never to have made any improper advances to the latter (this point is of importance, in view of subsequent occurrences).

On June 22 Smith and Hulme were engaged on the farm, working a tractor. About 5 p.m. Hulme returned to the house, carrying a rifle, and informed Mrs. Smith that her husband had turned the tractor over on his body, and was dead (his words were, "He's as dead as a door, and his head is as flat as a board"). He said he would go to the house of a neighbour for assistance. He returned half an hour later, saying that there was no one at the house. Having had some tea, he proceeded to strike Mrs. Smith in the face, telling her that he had shot her husband. He struck the children with a heavy block of wood; he tied Mrs. Smith to the bed, cut off her clothes with scissors, undressed himself, and raped her. He threw the bedclothes over her, saying, "You had better not catch cold. I won't kill you. The madness has passed. I will go and give myself up." One of the children had a fractured skull and a fractured jaw. Another child, an infant, also had a fractured skull. The third child was severely bruised, as was Mrs. Smith. The body of Smith was found, near the tractor, covered with cut-down scrub. There was a bullet wound in the temple, and another in the back, the latter bullet having passed through the heart. There was also a wound, inflicted after death, on the forehead. A blood-stained axe was found near the body.

After leaving the house Hulme went to a neighbour named Nelson, and said that Smith had met with an accident and that

help was needed. The two men started off together, but Hulme made some excuse, and left Nelson. Next morning Hulme gave himself up to a constable, saying, "I have shot Smithy. I did it deliberately." He later made a written statement, in which, after stating that there had been no ill-feeling between him and the Smiths, he said, "About 5 p.m. something seemed to go wrong in my head. I picked up the gun and pulled the trigger. Smith had his back to me at the time. He fell off the tractor. I went to him, and he was unconscious. The tractor stopped itself. I changed my clothes, and went away." It will be noted that the statement said nothing about the happenings at the farm after the shooting. He refused to go to the farm, but informed the constable where the rifle would be found.

The facts, as outlined above, were not disputed, and the defence was that of insanity.

Hulme gave evidence on his own behalf. He said that, while working with Smith, "A light flashed in my eyes. I dropped the axe, grabbed the rifle, and pulled the trigger. The rifle was pointed to Smith, but I don't know why. The next thing I remember was sitting on the roadside, drinking water out of a wheel-rut. I tried to reason things out, and heard a voice saying, 'You've shot Smithy.' I then went to the police-station and told Constable Rowbottom." He further stated that he did not remember seeing Mrs. Smith after the shooting, but knew that he must have returned to the house, because, after he "came to," he found that he was wearing his best clothes. He stated that he was subject to "turns," and that, while working at Smith's, he had once wandered away into the bush. A relative on his mother's side had died in an asylum. He had suffered from blackwater fever, and had tried to shoot himself, when on active service in Egypt. He further said, "I don't know why I killed Smith, and I don't know now that I was doing any harm." In cross-examination, he admitted that before coming to Australia, as an assisted emigrant, he had been given a certificate by a doctor who had known him for fifteen years, and that this certificate described him as being normal in all respects.

Dr. James Bentley, Inspector-General of Insane, stated that he had examined Hulme on three occasions, and was convinced of his insanity at the time of the crime, although not satisfied that he was now insane (*i.e.*, at the trial). He arrived at his conclusion because (1) there was no motive for the crime, (2) an unnecessary amount of violence was employed, in that an axe was used after death, (3) unnecessary violence was used to the children, more especially to the baby. Blackwater fever was a severe form of malaria, and periods of loss of memory frequently followed malarial affections.

He was not prepared to state from what form of insanity Hulme suffered.

Dr. C. D. Kerr, Medical Officer of Fremantle Prison, was called in rebuttal. He had examined Hulme immediately after admission to the prison, when he had no delusions. Since his admission Hulme had complained of hearing voices. Hulme was capable of feigning insanity, but it was difficult to say whether the loss of memory in his case was genuine or feigned. When the period of alleged loss of memory was sharply defined it was generally feigned. He did not think that anyone could affirm the state of the accused's mind at the time of the crime.

The Chief Justice, in his summing-up, told the jury that they should ask themselves if the crime seemed like that of a sane man. If it was, then Hulme must have been a devil incarnate. Hulme was well-respected in the district, and yet it seemed that he had suddenly developed into a monster. The absence of motive did not necessarily indicate insanity, because many murderers had been hanged for crimes for which no motive could be found. If it could be proved that there was a motive, that would go a long way towards disproving the plea of insanity. In this case it did not seem that the desire for immoral relations with Mrs. Smith was a motive for the crime, but rather that the crime was the result of a sudden unpremeditated temptation. If they believed that Hulme was insane at the time, they should return a verdict of not guilty on the ground of insanity.

The jury, after deliberating for an hour, returned a verdict of guilty. Sentence of death was passed, and we understand that the prisoner has been hanged.

The case is of much interest. There is, perhaps, no more difficult problem than that of deciding upon the "responsibility" of a person for a particular criminal act, when the main evidence of the existence of "insanity at the time of the act" rests upon an alleged amnesia, the genuineness of which has to be determined. Authorities differ upon the question as to whether clearly defined limits to such an amnesia constitute a proof of feigning. That the limits assigned to the alleged amnesia should be constant is, probably, a point of much greater importance, and the reports in this particular case give very little guidance upon this matter. It is evident that there was a strong *primâ facie* case for the defence of insanity. It is not for us to criticize those who decided to ignore that defence. But we may, perhaps, express regret that there was not a more prolonged period of observation prior to the trial. Not quite seven weeks elapsed between the crime and the trial, and part of this time must have been occupied by the coroner's and the

magistrate's investigations. There was no opportunity of obtaining what might have been most essential information, regarding accused man's medical history before he went to Australia, and his alleged experiences during his military service. A longer interval would have had the advantage of mitigating the natural horror which the brutal details of the crime must have occasioned, and which could not have been devoid of influence upon all concerned in the case.

REX *v.* ALBERT SPENCER BANKS.

THIS case was tried at the Somerset Assizes on October 26, 1928, before Mr. Justice Shearman.

The accused, a labour exchange manager, *æt.* 51, was charged with the murder of his wife and daughter by shooting them in their beds on July 28. The facts were not disputed, and the defence was that the crime was committed under the influence of a delusion.

The accused, an *ex-quartermaster-sergeant* of the Royal Artillery, had served twenty years in India. There was evidence that he had always lived on the most affectionate terms with his wife and daughter. In 1913 he had been in hospital for nineteen days, suffering from "delusional insanity," and in 1926 he was under observation for thirty days, on account of "mental disease." He appears to have been worried by some difficulties arising out of his duties. On July 28 he sent for a constable, and stated that he had killed his wife and daughter. At the police-station he made a statement to the following effect: "I believe I did kill her, but I cannot remember properly. When I woke up, it came across me in a flash that I had shot them in the night." Later, when asked if he would have legal assistance, he said, "No, no, he would only try to get me out of it. I don't want that. I want to be hanged."

Dr. J. M. Rutherford, of Brislington House, Bristol, said that Banks had a constitutional weakness, which rendered him liable to break down under any undue worry or strain. He had delusions of impending disaster. He got it into his head that the end of all things was coming, and that he must kill his wife and daughter for the sake of their happiness.

The learned judge instructed the jury that there was ample evidence upon which a verdict of insanity could be found. Immediately after the summing-up Banks asked that a statement, which he had given to counsel, should be read. This request was granted, and the statement was as follows: "Next morning, on waking after a good night's sleep, fully conscious of what had

happened, I realized at once that the statement which I had made to the police was false, and I was horribly ashamed, because I deliberately killed my wife and daughter. But for the words 'malice' and 'aforethought' I would gladly plead guilty. There was no malice or forethought." The judge advised the jury that they need not be troubled with the words "malice aforethought."

A verdict of "Guilty but insane" was returned, and the accused was ordered to be detained during His Majesty's pleasure.

REX v. CHARLIE BENSON.

THIS case was tried at the Central Criminal Court on October 15, 1928, before Mr. Justice Finlay.

The accused, a motor-body builder, aged 25 years, was charged with the murder of Charlotte Alice Harber. The deceased woman had been married for six years, and had two children, the younger being an infant of about twelve months. In February, 1925, the accused came to lodge with the woman and her husband, although they only occupied one room. In August, 1926, the husband discovered that his wife and the accused were having improper relations, and ordered the latter to leave. After two days, however, the accused was allowed to return, but to a different room in the house. About October, 1927, the husband again ordered him to leave.

In April, 1928, the deceased woman, in the name of Mrs. Benson, engaged a room in Bayswater, and occupied this room with the accused. On September 5 they stayed at a boarding-house in the Euston Road. Next day the accused went to a constable at Coulsdon, Surrey, and said, "I want an ambulance; I have just killed my girl; I did it to prevent her going back to her husband." He then took the constable to a place where the body of the deceased was found, with a wound in the breast.

The defence was that of insanity. Counsel urged that passion had rendered the accused insane, in the legal sense of that word, at the time of the act. The accused's mother gave evidence of the existence of insanity in the family.

Dr. Watson, medical officer of Brixton Prison, was called, and stated that he had found no signs of insanity in the accused. He is further reported as saying that he "agreed that the accused might not have been able to distinguish, at the time, between right and wrong, because of his passion." (The newspaper report of Dr. Watson's evidence is, unfortunately, very scanty. It is probable that many details have been omitted.)

The judge, in his summing-up, described the crime as one of "passion." He said that the jury might think that to prevent a woman with whom he was passionately in love from going back to her husband was a motive which might well operate upon the mind of a man, and make him commit a crime.

The prisoner was found "guilty," and was sentenced to death.

It has been proposed that the existence of "irresistible impulse" should be recognized as a criterion of "criminal irresponsibility." Had this been accepted as law, the point would have given rise to much dispute in this case.

REX *v.* HARRY BAGGULEY.

This case was tried at Lancaster Assizes on October 29, 1928, before Mr. Justice Humphreys.

The accused, a chauffeur, aged 49 years, was indicted for the murder of his wife. The couple were living apart, owing to domestic differences. Bagguley visited his wife at Longton, Lancashire, and after she had threatened to send for the police he shot her. Three bullets had entered the body, and two were lodged in the clothing. The facts were not disputed, and the defence was that of epileptic automatism.

Dr. Lowndes, of Longton, gave evidence for the prosecution. When seen on the night of the affair Bagguley appeared to understand what had happened and to be quite normal. Dr. Lowndes, in cross-examination, said that epilepsy might produce a condition of automatism with loss of memory. Asked by the judge how long such a condition lasted, Dr. Lowndes said "A few seconds"; he had never met a case in which it had lasted for hours.

A police-constable gave evidence that Bagguley had said to him, "I have done the job with the intention I came for."

Major Oswald Duke Jarvis, of Edinburgh, produced a medical certificate of Bagguley's discharge from the army, in which it was stated that he had suffered from epilepsy and loss of memory. Major Jarvis further said that in post-epileptic automatism a man might do certain things of which he had no knowledge, and his mind would be a complete blank while in such a state. When asked by the judge how he could reconcile the clear statements made by Bagguley at the time of the offence with a condition of automatism, the witness replied that he had known such cases.

Dr. Alastair Robertson Grant, of the County Mental Hospital, Preston, said that he considered it possible for Bagguley to have acted as he did, while in the condition described, and still know

nothing of what had happened. Dr. Grant cited the case of a man who threw his baby into the sea at Blackpool, in the presence of twenty witnesses, and then went up to one of them and said, "I have thrown my baby over the pier." That man had been found guilty but insane.

The judge, in his summing-up, said that there could be no doubt that Bagguley was an epileptic. It might be difficult to understand how a man in that condition gave rational answers to questions. But if the jury could reconcile Bagguley's conduct with the theory of post-epileptic automatism, they must return a verdict of insanity. The judge added that the public were very much indebted to men who devoted their lives to the scientific investigation of such a difficult problem as that of disease of the brain.

The jury found the accused "guilty but insane," and the usual order for his detention was made.

The newspaper report is, unfortunately, not at all clear as to whether the accused actually remembered what he had done (a sufficiently rare occurrence after post-epileptic automatism), or had only realized what he had done when the facts were placed before him.

Her Royal Highness Princess Mary and Mental Nursing.



The Royal MEDICO-PSYCHOLOGICAL ASSOCIATION

FOUNDED:
July 27th, 1844.

ROYAL CHARTER:
March 13th, 1926.

This is to **C**ertify that the **R**oyal
Medico-**P**sychological **A**ssociation
 in **G**eneral Meeting assembled on the *sixteenth*
 day of *May* in the year **O**ne thousand
 nine hundred and *twenty eight* did **R**esolve
 that the name of
H. R. H. Princess Mary, Viscountess Lascelles, G.C.B.
 be inscribed in the **A**ssociation's **R**egister of
Certificated **M**ental **N**urses.

Signed

Hannah L. Mann President.
Ann L. ... Treasurer.
W. ... General Secretary.
Daniel F. Rambaut Registrar.

Dated *November 7, 1928.*

N^o *23935.*



H.R.H. Princess Mary and Mental Nursing.

PURSUANT to the Resolution of the Association in General Meeting assembled in London on the 16th day of May, 1928, and Her Royal Highness's pleasure, a deputation composed of the principal Officers of the Association proceeded to Chesterfield House on November 7, 1928, to present to Her Royal Highness Princess Mary, Viscountess Lascelles, the Association's Nursing Medal in Gold and Honorary Certificate of Proficiency in Mental Nursing.

Her Royal Highness was attended by Miss Dorothy York, the Lady-in-Waiting.

The President of the Association, Professor J. Shaw Bolton, D.Sc., M.D., F.R.C.P., read the following address :

May it please your Royal Highness :

The Association over which I have the honour to preside is the oldest psychiatric body of its kind in the World and the immediate parent to the Medico-Psychological Associations of France and America.

During the past century great progress has been made in this country in psychological medicine and in the care and treatment of the mentally afflicted, and towards this the Association has done yeoman service. Shortly before Florence Nightingale founded the first Training School for General Hospital Nurses at St. Thomas's Hospital, London, in 1860, the Association took an active part in a movement which had for its object the better and more humane nursing of the mentally afflicted by the professional education and training of those tending them.

*This movement during its course has received the impress of two hall-marks, the first when the Royal Medico-Psychological Association established its historic **Mental Nursing Certificate** in 1891 together with the course of training, syllabus and examinations necessary for its attainment, and the second when the mental nurse took her place side by side with her sisters in the nursing profession and was admitted on equal terms with them to the **State Registers of Nurses** established by the Nurses' Registration Act of 1919.*

*It has been left to your **Royal Highness** to impress a third hall-mark on the movement by graciously consenting to accept the **Association's Mental Nursing Medal in gold** and the **Honorary Certificate of Proficiency in Mental Nursing** conferred by the Association in General Meeting Assembled on the 19th day of May of this year.*

*In the **Association's Register of Mental Nurses** are recorded the names of those who, in any part of the Empire, have been educated, trained and examined in conformity with the Association's Training Regulations and Syllabus, and have gained the Association's Certificate of Proficiency in Mental Nursing. Some 23,935 names are to be found therein and the 23,935th entry, and the first entry in regard to an honorary bestowal of the Certificate, records, by Gracious Permission, the Name of your **Royal Highness**.*

The presence of that name will not only add lustre to the Register but will be a source of pride and satisfaction to psychiatrists and an inspiration and encouragement to mental nurses generally in the pursuit of their high calling.

*This is not the first occasion on which your **Royal Highness** has been identified with the nursing profession, for your **Royal Highness's** devotion to the nursing of the sick and wounded heroes of the **Great War** is within the grateful recollection of everyone.*

*Your **Royal Highness's** acceptance of this **Gold Medal and Honorary Certificate in Mental Nursing** is but a further evidence of the great and active interest your **Royal Highness** has ever taken in the welfare of the sick and suffering.*

The President then handed to Her Royal Highness the Gold Medal and Honorary Certificate in Mental Nursing and the Silver-Enamel Nursing Badge of the Association.

Her Royal Highness in accepting read the following reply :

It gives me very great pleasure to accept the Gold Medal which you have presented to me from the Royal Medico-Psychological Association.

I am deeply interested in the splendid work which your Association is doing, and I fully realize how much patience and skill are required from those whose lives are devoted to the nursing of the mentally afflicted.

I am very glad to be connected with the Association and wish it every success in the future.

The President, at the request of Her Royal Highness, then presented the other members of the Deputation, namely :

NATHAN RAW, Esq., C.M.G., M.D., F.R.C.S.E., *The President-Elect.*

HAMILTON MARR, Esq., M.D., F.R.F.P.S., *The Ex-President.*

JAMES CHAMBERS, Esq., M.A., M.D., *The Treasurer.*

REGINALD WORTH, Esq., O.B.E., M.B., *The General Secretary.*

JOHN R. LORD, Esq., C.B.E., M.D., F.R.C.P.E., *Co-Editor of the Journal of Mental Science*, representing the *Registrar*, who was unavoidably prevented from being present.

After some conversation, during which Her Royal Highness evinced great interest in the nursing of the mentally afflicted, in the welfare of the mental nurses, and in the work of the Association, Her Royal Highness withdrew. The Deputation then left, each member being much impressed by the kindness of Her Royal Highness's reception and the charming way she had spoken.

The Association in General Meeting assembled on the 23rd day of November, 1928, received and approved the Report of the Deputation with acclamation.

Occasional Notes.

THE PSYCHOTHERAPY AND PSYCHOPATHOLOGY SUB-COMMITTEE.

THE ultimate object of the Sub-committee is the dissemination of knowledge of psychopathology and psychotherapy. In furtherance of this the Sub-committee promotes the foundation of study groups to put individual workers in touch with one another; initiates and administers schemes of research; sifts and classifies current knowledge and teaching, and makes reports thereon, and does all in its power to stimulate interest in these subjects. To facilitate such studies and researches the Sub-committee (1) keeps an up-to-date list of books in English of psychological and psycho-pathological interest, and (2) prepares every six months a list of original articles, summaries and discussions of similar interest that have appeared in over twenty journals in English. (3) Meets as often as convenient for discussion and the transaction of business.

Study Groups.

The groups are limited to not less than three or more than ten members, except in the case of a research group, when a large number of members is an advantage.

Each group makes its own arrangements for work, correspondence and meetings, and is not required to make detailed reports of its proceedings to the Sub-committee, unless its object is research.

A. *Research groups*.—These are composed of workers who have come together solely for the purpose of a particular research. The work is carried out individually, but along previously agreed lines, and the results collected for joint consideration and possibly publication.

B. *Correspondence groups*.—These groups are for the purpose of discussing by correspondence either (a) any incomplete or immature paper or communication that a member may care to circulate to the other members of the group for comment, criticism or suggestion. In this way a stimulating interchange of ideas ensues, leading in many cases to a recasting of the original matter into a more useful

and publishable form; or (b) any particular topic agreed upon beforehand and which may be changed from time to time.

c. *Local groups*.—The local groups are designed for such workers as can conveniently meet. They are really "student" groups, and quite informal. At such meetings set papers are not as a rule read, but discussions are initiated. Difficulties are freely aired by the "question and answer" method. These discussions thus promote a clarifying of ideas.

Each study group is under an organizer or leader (preferably a member of the Sub-committee to keep the group in touch with others). He co-ordinates the work of the group in accordance with the ideas and wishes of its members. A more definite lead is taken when the object of the group is a special research.

Study Groups and Leaders.

January, 1929.

Research :

- (1) Dr. M. A. Archdale, Ryhope, Sunderland : "The Systematization of Treatment by Suggestion in Single Cases or Groups of Cases."
- (2) Dr. M. Hamblin Smith, Birmingham : "The Association Reactions of Epileptics, including those 'Mentally Normal' and Criminal."
- (3) Dr. L. C. F. Chevens, Macclesfield : "The Psychopathic Factor in the Heredity of Suicidal Cases."

Correspondence :

- (1) Dr. I. Suttie, London.

Local :

- (1) Dr. M. E. Franklin, London.
- (2) Dr. M. Hamblin Smith, Birmingham.
- (3) Dr. Yellowlees, York.
- (4) Dr. J. Ernest Nicole, Warrington.

The list includes groups proposed and those in existence and holding successful meetings.

Members specially interested in psychotherapy or psychopathology—especially junior psychiatrists—are invited to join one or more of these study groups and put themselves in communication with the group leader or leaders.

Members desirous of forming additional groups should communicate with Dr. J. Ernest Nicole, Hon. Secretary of the Psychotherapy and Psychopathology Sub-committee, County Mental Hospital, Winwick, Warrington.

THE PATHOLOGY OF EPIDEMIC ENCEPHALITIS.

THE EPIDEMIC ENCEPHALITIS SUB-COMMITTEE'S SCHEME OF RESEARCH (ENGLAND AND WALES).

THE Epidemic Encephalitis Sub-Committee has formed four centres for investigation of pathological material from cases of epidemic encephalitis. Medical Officers having encephalitic patients under their care are asked to send any available material to one or other of these centres. For such investigations to be properly carried out it is essential that the specimens be collected and preserved in a special manner, and it is therefore advisable that those intending to send such specimens should first communicate with the centre, when full particulars will be given as to what is necessary.

It is earnestly hoped that full advantage will be taken of this opportunity to prevent the avoidable loss of material, which in expert hands will be of the greatest value in investigating the pathology of this important disease.

The four centres to which communications should be addressed and specimens sent are :

Dr. F. L. Golla, The Maudsley Hospital, Denmark Hill, London, S.E. 5.

Dr. T. S. Good, Oxford Mental Hospital, Littlemore, near Oxford.

Dr. F. A. Pickworth, The Research Laboratories, Hollymoor, Northfield, Birmingham.

Dr. G. A. Watson, Rainhill Cottage, Rainhill, near Liverpool.

For the special type of research at the Birmingham Centre freshness of material is essential. *Post-mortem* examination should be made within six hours of death, otherwise specimens are of no value except macroscopically.

Medical officers, on the death of an encephalitic, are therefore requested to telephone or telegraph (Pickworth, Rubery 26) immediately to facilitate preparations, and to telephone a second time whenever a *post-mortem* is about to be held.

All necessary materials for the collection of the specimens will be provided and brought to the place, if not too distant, by Dr. Pickworth.

If delay occurs the *post-mortem* should be conducted as early as possible and the mid-brain and sphenoidal sinus placed in formol-saline or Kaiserling solution, note being made of the exact time that has elapsed since the death of the patient.

Further particulars can be obtained on application to Dr. P. K. McCowan, Hon. Secretary of the Sub-Committee, at West Park Mental Hospital, Epsom, Surrey.

Part II.—Reviews.

A Manual of Individual Mental Tests and Testing. By AUGUSTA BRONNER, WILLIAM HEALY, GLADYS LOWE and MYRA SHINBERG. Boston: Little Brown & Co., 1928. Demy 8vo. Pp. vii + 237. Price \$3.50.

The origin of mental testing is lost in antiquity, tests of skill in various performances being referred to in very early literature. Their formal use in this country dates back some centuries to the evidence that had to be produced before the jury that met to decide the mental capacity of anyone deemed incompetent from an early age to manage his affairs—*idiotia ex nativitate*. On these occasions it would seem that the subject was asked such questions as the number of his brothers and sisters, and told to count a certain number of pence so that it might appear if he were aware what was to his profit and what to his loss! An interesting comment runs: "If he can read from study or information then it would appear he is not an idiot." Even in these early days a range of tests and their applicability to problems of daily life and the opportunities afforded the subject was deemed essential. Performance tests were elaborated in the early years of the last century by Itard and Seguin, partly as tests proper but partly as affording graduated sensory education. By the end of the century a wide range of tests was in use in psychiatric practice, but little had been done to standardize the methods of their presentation or to determine the normal variations arising from the age, sex or past experience of the subject. The attitude towards these features changed rapidly after the publication in *L'Année Psychologique* for 1906 of the memoir by Binet and Simon entitled "Méthodes nouvelles pour le diagnostic du niveau intellectuel des anormaux." Tests have multiplied, but so have the standards and scales based thereon; furthermore, from being a method of segregating defectives they have become recognized as a part of the necessary study of any individual presenting a mental problem. Just, however, as a knowledge of the basic intelligence is important for the evaluation of emotional reactions and personality traits, so it is recognized that affective and conative factors influence the response of the subject to the problems set him by the examiner. Variations in the emotional state either of subject or examiner have a material bearing on the responses elicited; the background of social environment and social experience form a matter for close consideration both in giving and in interpreting tests. There is abundant evidence that rating is influenced not only by special abilities and disabilities; by the

general state of health; by certain illnesses such as chorea, which lead to great irregularities in response, though often overlooked by the lay observer; by defect of vision or hearing, which are more easily noted; but also by all emotional factors, and this without going to the extreme position of believing that repressions may reduce the normal to an apparent level of feebleness of mind. It is necessary to pay some attention to variation in response to tests which are mainly linguistic and to those mainly concrete. In the past the more abstract type of intelligence has attracted more attention and has perhaps been unduly stressed. These considerations show that the routine use and scoring of an age-level scale without interpretation is by no means free from danger. It is essential not only to note a mere pass or fail, but to determine whether a given failure is due to lack of interest, unwillingness to respond, physical conditions, emotional inhibitions, or lack of capacity. Too often in the past it is to be feared the last explanation has been accepted without question. Again, full co-operation is needed, for the responses of the uncooperative subject are often meaningless.

Dr. Healy and his colleagues discuss all the difficulties connected with the choice of tests and the technique of examination; one section of the book deals with practical procedure, another with the interpretation of the tests, individually and as a whole. While it may be uncertain what mental abilities are tapped by any one test, by using several a general conclusion may be reached as to the powers of the subject. The extent of the minimum examination must vary according to the problem involved; for the mentally defective a simple schedule may suffice; for the vocational guidance or placement of the more intelligent far more extensive tests are needed, and if it be argued that this involves an undue expenditure of time and money, it may be pointed out that the consequences of action are so important that it is worth spending the additional hours in obtaining the knowledge requisite for a sound foundation for any recommendations.

For the supposed mentally defective a minimum study involves four fields—mental age, motor control and ability with concrete material, acquirement of school knowledge and common-sense information. The problems met by Dr. Healy with higher-grade children and adolescents include:

- (a) Determination of special abilities and disabilities.
- (b) Indications of psychotic trends.
- (c) Recommendations for "opportunity classes" where there is all-round ability but no special gifts or inclinations.
- (d) Advice on courses of study for those entering high school.
- (e) General vocational guidance.
- (f) Special problems such as a rise in defects in reading or in arithmetic.

Here, besides a broad general estimate, tests of specialized kinds are needed. The authors point out indeed that as time goes on the tendency is to lengthen rather than to shorten the schedule, though not of course to keep the subject under test conditions for

longer at a time. Again and again they point out that it is not merely the results but the method of attack that matters: keen observation of behaviour is essential, and the notes on "psychological observations" are the important part of the record.

It is impossible in the space of a short review to consider in detail the tests and groups of tests which are analysed and discussed. All those that have been found applicable to American conditions receive notice. Naturally the comments and norms given must be considered in the light of these conditions, and it must not be assumed absolutely that they could be used unmodified in the British Isles.

This book is one which should receive the attention of everyone who has to advise on children and young adults, and be a valuable addition to every psychological library. F. C. SHRUBSALL.

Performance Tests of Intelligence. A Series of Non-linguistic Tests for Deaf and Normal Children. By JAMES DREVER, M.A., B.Sc., D.Phil., and MARY COLLINS, M.A., B.Sc.Edin., Ph.D. Edinburgh: Oliver & Boyd, 1928. Demy 8vo. Pp. 52. Price 5s. net.

Mental testing of the deaf, especially if not of an age or degree of intelligence to read and follow directions, is difficult to carry out. Doubt always remains when the results come to be assessed. A similar difficulty arises in examining an alien who cannot speak or understand English when the services of a competent interpreter are not available. Intelligence tests of the Binet pattern imply the apprehension of language so that the deaf or illiterate or the alien are severely handicapped. Even in performance tests careful technique is required to ensure that the directions have "got across." Most of the earlier observations had suggested that the deaf were retarded in intelligence or in response as compared with normal children by anything from two to three or even four years. The authors have devised a special set of performance tests, or in some cases more accurate methods of presenting known performance tests, for the use of the deaf, but they warn would-be users, especially teachers of the deaf, that the directions must be rigidly adhered to, and the observer must be on his guard against unwittingly giving assistance by gesture or expression.

The tests for general use are the block-design, Knox cubes, domino test, size and weight test, manikin and profile test, form board tests, cube construction, and picture completion tests.

For each a special procedure has been elaborated and a special scale for scoring worked out. The results and norms established for deaf and normal children examined by the same procedure are as yet provisional, but those so far obtained go to show that the degree of retardation of the deaf has been somewhat exaggerated in the past, and that when the language factor is entirely eliminated

it is doubtful whether they are retarded at all. In no comparative test were the deaf a year behind.

The procedure described may be recommended to all who have to deal with the deaf and to those who have to examine alien immigrants—as, for example, in colonial ports.

F. C. SHRUBSALL.

Rachithermométrie Humaine ; recherches thermo-électriques. Par PAUL SCHIFF. Paris : Librairie Louis Arnette 1927. 10 × 6½ in. Pp. III.

The author was first led to investigate the temperature of the cerebro-spinal fluid through noticing that in a number of lumbar punctures the temperature of the fluid was appreciably raised although the rectal temperature was normal. On searching the literature he found very few references to the subject and was satisfied that no satisfactory method for estimating the temperature of the cerebro-spinal fluid existed. His first task, therefore, was to construct a suitable instrument, and after many trials he finally constructed a thermo-electric apparatus, which appeared to give reliable results. The cerebro-spinal fluid of 68 patients was examined, the majority suffering from mental, the rest from neurological, diseases. The author came to the conclusion that the temperature of the cerebro-spinal fluid was normally 0.5° higher than that of the rectum, thus being the same as that of the "deep organs" of the body. He found that it was independent of external influences, such as motor excitement, analgesic or antithermic substances, and also apparently of the tension of the fluid. In ten cases the temperature was from 0.9° to 1.5° above the rectal, while in eight it was equal to or lower than the rectal. The author makes some tentative suggestions as to the significance of these temperatures in relation to the mental symptoms exhibited, but it is obvious that no conclusions of value can be drawn from the few cases recorded.

The author suggests that his work lends support to the theory that disturbance of heat regulation may sometimes be due to localized lesions of the nerve centres subserving this function.

The real value of this work would appear to lie in the fact that an instrument has here been devised by which the temperature of the cerebro-spinal fluid can be accurately recorded at the time the fluid is withdrawn, without causing any extra inconvenience to the patient.

P. K. McCOWAN.

Mongolism : A Study of the Physical and Mental Characteristics of Mongolian Imbeciles. By KATE BROUSSEAU and H. G. BRAINERD, M.D. London : Baillière, Tindall & Cox. 9½ × 6 in. Pp. viii + 210. Price 20s. net.

In this interesting monograph the authors bring conveniently together for comparison their personal observations and those from innumerable other sources. In an introductory chapter a short

historical survey is given of the recognition of the disease and of the work done by many of the earlier writers. The frequency of the condition, and its geographical and sex distribution are considered.

Ætiology is carefully discussed in Chapter II. The authors effectually negative as causes such conditions as neuropathic heredity, tuberculosis, alcoholism, syphilis, consanguinity, age of parents, order or frequency of birth and mental strain, and, while refraining from offering any new theory, they favour the view that the important ætiological factor in mongolism is some obscure disturbance of the ductless glands, and point out that in every mongol some endocrine disturbance can be demonstrated. The theories of Jansen and Van der Scheer are mentioned, but no criticism is offered. Crookshank's reversion theory is rejected on two grounds: first because the resemblances between the mongol and racial Mongol are superficial, and secondly because "if mongolism is a recrudescence of a dormant element we might expect to find in this unit character which declares itself a primitive and normal type. This is not the case since mongolism is truly a pathological condition." Dr. Crookshank has dealt effectually with the first objection, and with regard to the second criticism, such an argument should similarly apply to other conditions in man which are generally conceded to be reversions, *e.g.*, to rudimentary tails. The incidence of mongolism in monozygotic and dizygotic twins is carefully considered: as many as 37 cases of mongolism occurring in one or both twins are cited. Halbertsma's deductions are quoted in support of the authors' conclusions that "defects inherent in the germ-plasm can alone explain the existence of mongolism in one twin while the other is altogether normal." It may, however, be held that defect or disease at the placental area would also explain the incidence of mongolism in twins. In some fifty pages information from clinical observations, *post-mortem* findings and Roentgen-ray photography has been collected and most of what is known of the pathology and physical characteristics of the mongol recorded. Occasionally, useful comparison is made with other imbeciles, and tables showing heights, weights and measurements *in vivo* are given. The section devoted to the meagre literature on *post-mortem* findings and on cranial appearances is scarcely adequate—a detailed description of the macerated skull to clear up disputed questions would have been appreciated. A list of the anatomical anomalies and pathological disturbances found in mongols, given on p. 98, shows that by far the larger number of these occur in or about the eyes, and the authors record four cases of exophthalmos.

The nervous and mental characteristics are discussed at length. In Chapter VI, dealing with diagnosis, a complete and useful table summarizes the chief points to be considered in the differential diagnosis of mongolism, cretinism, achondroplasia and rickets. Prognosis is discussed, and valuable hints on therapy and educational training are given. Tables, charts and statistics have been drawn from over 1,000 cases, and the number of references, which fill nearly twenty pages, is a feature of the work. The photographs are good but suffer from want of attention to backgrounds, and some of the

charts would be improved if normal curves were introduced. The book is crammed with interesting facts and is very readable. It supplies a want and cannot fail to help forward the solution of the mongol problem.

R. M. CLARK.

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- (1) *Migraine and Other Common Neuroses: A Psychological Study.*
By F. G. CROOKSHANK, M.D., F.R.C.P.
- (2) *Man not a Machine: A Study of the Finalistic Aspects of Life.*
By EUGENO RIGNANO. With a Foreword by Prof. HAN DRIESCH.
- (3) *Man a Machine.* By JOSEPH NEEDHAM.
- (4) *Types of Mind and Body.* By E. MILLER, M.A., M.B., M.R.C.S., D.P.M.
- Psyche Miniatures. London: Kegan Paul, Trench, Trübner & Co., Ltd., 1926. Demy 18mo. (1) Pp. 101; (2) pp. 77; (3) pp. 111; (4) pp. 132. Price 2s. 6d. each.

A notice of these miniatures has been involuntarily delayed owing apparently to their great popularity, which resulted in their mysterious disappearance shortly after receipt and at the moment when their turn had come to be reviewed. They had been read and appreciated by more than one critic, but further copies were needed before they could be dealt with satisfactorily. In the meantime our review columns became very crowded, and reviews have been delayed.

Though late, our welcome to the advent of these tasteful and handy little books has not lost its heartiness. The size of a book is never an index of its interest or importance, and it is remarkable how some authors can express much meaning in a few words. This is very true of Dr. Crookshank's *Migraine and other Common Neuroses*, in which there is material for a whole course of lectures, though it only comprises two, which have appeared in *Psyche* and *The Medical Press and Circular*.

Dr. Crookshank's professed purpose is to protest against the false antithesis, so long insisted upon by teachers of medicine, between functional and organic conditions. His contention is that "the unprejudiced physician will find some physical defect in every functional case, and some psychical factor in every case of organic disease." He takes "migraine and allied paroxysmal neuroses" as his text and effectively drives his lesson home. At the same time we learn a good deal about psycho-pathology and mental mechanisms. The author writes forcibly and presents his subject in a striking manner, and gives us much to think about, productive, perhaps, of not a little heart-searching as we think of the pitfalls he teaches us to avoid.

Truly psychological medicine has not yet taken its proper place in the medical curriculum. If it had, this book would have been superfluous: as things are it should be read by all practitioners. This book has the distinction of being No. 1 of the Medical Series of these miniatures.

In contrast to this useful addition to medical literature, Prof. Rignano's *Man not a Machine* is more of academic interest. It is No. 3 of the General Series, and has been provocative of a rejoinder by Mr. Joseph Needham, who writes on *Man a Machine* in No. 12 of the same series.

Prof. Rignano sets out to prove that the fundamental characteristic common to all vital phenomena in their most typical manifestations is their purposive, teleological or finalistic nature. Prof. Hans Driesch in his foreword maintains that Rignano demonstrates finalism even in the process of metabolism. He does not, however, agree that the theory of a specific kind of energy, set forth by Rignano, solves the problem.

Rignano argues that assimilation is a "selection" of nutritive matter from a variety of substances for self-reconstruction, which is its "purpose," that ontogenesis aims at a predetermined end, and that growth has "prevision" of future needs. The "occult intelligence" or "entelechy" (not Driesch's "entelechy") directs ontogenesis as the mind of the engineer designs a machine. From the same point of view he deals with pre- and new adaptations, the behaviour of inferior organisms, reflexes and instincts, affective tendencies, mental activity and social manifestations. The expansion of life in general is due to the "passive" absorption of the urge of solar or thermic energy, which stimulates metabolism, but the tendency to expansion and intensification of one's individual life is "active" and due to internal forces, continuous and independent of the exterior: hence "activity" and "spontaneity" in the behaviour of living beings. He gives us leave to hope that "harmony of life" will gradually take the place of the "struggle for existence."

Mr. Needham protests against the rigid boundaries erected by the vitalists to separate organic and inorganic matter. He shows how scientific biology has gradually reclaimed much territory from philosophy and enters on a vigorous defence of mechanism. "The state of exact science where man is a machine is no mean city, even though it be the city of a dream."

Those interested in the philosophical aspect of biology should not fail to read these books; in both are to be found noble thoughts, despite their antagonism. The authors would find, however, much food for reflection if they studied Prof. Spearman's *Abilities of Man*. In so far as scientific methods have been applied to this problem, which, after all, is the old one of "mind and matter," everything points to the hypothesis of "energy, engines and engineer" not being far from correct.

To regard man as either the creature of an outside force or a reflex physico-chemical machine is equally humiliating, but to stand him on his own legs as possessing his own energy (or intelligence), not merely reacting but also "acting back" to his environment, is the higher ideal, and more likely to help him to master the problems of life. Science in time will surely teach us that the idea underlying "mankind" as "sons of God" is not far wrong. Common sense has always taught us so.

Dr. Miller's *Types of Mind and Body* is No. 4 of the Medical Series. The author has had a unique experience of functional nervous disorders and war neurology, and his close study of human nature under these handicapped conditions is revealed in this book. He deals with his subject under the headings of "Morphology," "The Physiological Background," "The Psychological Aspect" and "Cross-Currents." He follows Bleuler and Kraepelin in his conception of two main normal reaction types. He concludes that "the centre of gravity of our norm of human behaviour lies nearer to the cyclothymic reaction than it does to the schizothymic reaction." The demands which have to be met by these fundamental types in psychological development and disease either accentuate or produce "cross-currents" in this demarcation.

Of great interest are his analyses of the physical and mental "make-ups" of certain literary celebrities, especially as regards these "cross-currents." Micheal Angelo and Leonardo da Vinci have definite schizothymic marks and asthenic physiques. Rubens, Peter Brueghel and Frans Hals are syntonic and full-blooded; similarly, Verlaine and Beudelaire. Cross-currents have made their effects felt in the psychological characters of Milton, John Bunyan, Frederick the Great, Byron, Robespierre, Nietzsche, etc.

There is a good deal of original thought in this readable book, particularly in the last two chapters.

J. R. LORD.

Prescribing Occupational Therapy. By WILLIAM RUSH DUNTON, Jr., B.S., A.M., M.D., Springfield, Illinois; Baltimore, Maryland. London: Baillière, Tindall & Cox, 1928. Crown 8vo. Pp. vii + 142. Price, cloth, \$2.10 [10s.]; paper, \$1.35.

Something of a practical nature about occupational therapy from the editor of *Occupational Therapy and Rehabilitation*, the official journal of the American Occupational Therapy Association, is surely deserving of attention. Dr. Dunton is one of the pioneer writers on occupational therapy, his text-book, *Occupational Therapy*, first appearing in 1915. In 1919 it was followed by a work on *Reconstruction Therapy*—a very important outgrowth of the parent subject.

Though modern conceptions of occupations as a form of therapy took root in America before the Great War, occupational therapy received its greatest impetus and entered into a wider area of medical treatment when the great problem arose how best to deal with a host of young men, survivors in that struggle for civic and national liberty, the Great War, who were suffering in various degrees from disabilities of body and mind, which rendered them unfit to return to their previous occupations and civil responsibilities. There was an intermediate stage during the war when, at the war hospitals, considerable bedside occupational work was organized, chiefly by voluntary agencies, and painting, toy-making, basket-making, beadwork, etc., became a feature of the war hospital

wards. It was not, however, until late in 1918 that the Army authorities entered the field officially and launched the Army Education Scheme. One of the stated objects of the scheme is worth mentioning here, it was "To hasten recovery by occupying the minds of patients and reviving interest."

The movement in this country has undoubtedly been handicapped by the want of (1) a manual on the theory and practice of occupational therapy, and (2) educational centres for occupational therapists. Apart from some helpful papers scattered in journals and Mr. Deely's useful practical work (reviewed in this Journal, October, 1927), there was really nothing which aimed at satisfying the demands of the former,* and as for the latter, the development of an important London scheme is still held up for want of the necessary funds.

A work, therefore, of the nature of that before us is particularly opportune, and though decidedly American and written to suit the conditions in that country will, until a comprehensive English text-book on the subject appears, fill the gap referred to above very effectively.

Part I deals with "General Principles." The chapters are headed "Significance," "Prescription" and "Fatigue," respectively.

As regards "Significance," the broad view is taken that occupation all therapy includes a variety of activities and is not limited to craft-work. The author gives reasons for this which are worthy of attention, yet, nevertheless, there is a danger in this conception unless craft-work is the centre of concentration and the others regarded as important auxiliaries and not necessarily an integral part of the duties of the occupational therapist. From a practical point of view it is not to be expected that the occupational therapist can be also expert in gymnastics, calisthenics, and recreations, such as music, games, folk-dancing, etc. It is right, however, that the importance of these as adjuncts to occupations in the patients' re-education and habit-training should be stressed in a work on occupational therapy.

The basis of "Prescribing" is the recognition of (1) nature and stage of the disorder, (2) the constitution of the patient, (3) special psychological and physical difficulties, (4) whether the patient is a visualist, audist or kinæsthetic, (5) age of patient, (6) contra-indications and precautions, both physical and mental.

A knowledge of what is meant by "fatigue," its recognition and how to avoid it, is essential to the successful practice of occupational therapy. These are all dealt with satisfactorily by Dr. Dunton.

Part II is headed "Special Application," and the chapters "Mental Disorders," "General Medical," "Surgical," "Orthopedic," "Cardiacs," "Tuberculosis," "Children" and "Bed Occupations."

The first of these is all too short for the mental occupational

* We might mention also *Industries for the Feeble-minded and Imbecile*, by A. Bickmore. London: Adlard & Son, 1913.

therapist, but as far as it goes the teaching is sound and admirably put. The application of occupational therapy to cases of mania, melancholia, dementia præcox, paranoid dementia, the psychoneuroses, feeble-mindedness is described. It must not be thought, however, that the other chapters are not of interest and importance to the mental occupational therapist. On the contrary, a good practical knowledge of all these special applications is necessary in both hospital and private practice—a matter upon which sufficient stress is not laid. A lack of it accounts for most of the failures of this kind of treatment in mental disorders. We cannot deal with this matter here, but the fact must be patent to anyone who carefully studies this part of the book.

Our general conclusion is that, having regard to what we have previously said, this book can be recommended for use in public and private mental hospitals. A mental occupational therapist equipped with it and with Mr. Deely's *Industries and Occupations for the Mentally Defective* cannot go far wrong if heed is paid to Dr. Dunton's teachings which may be accepted as both sound and authoritative.

J. R. LORD.

The Encyclopedia of Psychology. Editor-in-Chief, ELMER S. PRATHER, Directing Editor, SAMUEL H. MCKEAN, Sen. Brussels: Psychology Foundation S.A., 1928. 8vo. Pp. xiv + 397. Price £2 2s.

This handsome volume is designed to be the means of bringing into every home "the truth, laws and tangible benefits" of modern psychology.

It is mental hygiene in a thoroughly practical sense. It is in the home that the seeds of mental hygiene should be first planted. The reviewer, in another capacity, writing on "Mental Hygiene as an International Movement," said: "Mental hygiene is primarily a matter for the hearth and home. Successfully planted there it spreads to communities and nations and dominates the psychology of multitudes. The reign of peace throughout the world depends upon the cultivation of mental hygiene. Like individuals, nations have adjustments to make."

The articles, written by well-selected exponents of every branch of psychology, present the various subjects in easily understood language without neglecting either length or depth of meaning—a matter of not a little difficulty even to the most experienced of teachers. That they are intended to help individuals in their own personal difficulties, will be seen from such titles as "Originality," "Why Human Beings behave as they do," "Happiness," "Conquest of Fear," "Human Desires," "The Seven Deadly Sins," "Introspection," "Needless Apprehension," "The Achievement of Personality," "Jealousy," "The Practical Aspects of Fear," "Anger, its Use and Abuse," "Help by Hope," "Mental Control," etc. There are 38 articles in all, and interspersed are 22 pages of appropriate mottoes and proverbs.

It is appropriate that articles on the various aspects of "Fear" should have an important place in a work of this kind. Besides the two we have just mentioned there are two others: "An Analysis of the Fear Emotion" and "Various Phases of Fear—the Effects and Cure." A fine article is that by Prof. McKenzie on "The Achievement of Personality." To Prof. Thomas P. Bailey, is entrusted the subject of "Love, Marriage and Parenthood." He remarks: "The impermanence of 'free love,' and the many nervous disturbances traceable to contraceptival agencies, unite in bearing witness to the strength of the evolutionary chain: Sex, love, marriage, parenthood." It is a short chapter but we have never before read anything so well written on the subject.

But space will not allow of us commenting on each article, so we must content ourself with the remark that they are all to be commended for their high but practical ideals—a fine collection of really good literature which is a joy to read and we congratulate both writers and the editors on their achievement.

The Editor-in-Chief, Mr. Prather, who writes the preface, says: "The compilation of the *Encyclopedia of Psychology* has involved years of thought and preparation by a special staff, enormous capital expenditure and widespread research." The book has been published in several languages.

We strongly recommend each of our readers to possess himself of a copy.

The English contributors are: Dr. Malcolm Thomson, Mr. Sidney Balister, Miss Elsie D. Pedley, Dr. Eleanor A. Allen, Dr. Marie C. Stopes, Miss Fanny Lea, Prof. John G. McKenzie, Miss Isabel Burnett, Dr. Alan F. Grimby (a member of our Association, who writes on "The Practical Aspects of Fear"), Miss Lilian Braithwaite, Dr. Bernard Hollander (another member—he writes on "Treatment by Suggestion and Auto-Suggestion)," Mr. P. Horwich, Dr. R. D. Reid, Mr. Gilbert T. Sadler, Prof. F. A. Cavenagh, Prof. Henry Chellew, Mr. A. J. Milling-Jones, Mr. Leo Cayley Robertson, Mr. Jack Hood Phillips (19). Scottish writers are: The Rev. Thomas Cameron, Prof. John Laud, Prof. D. F. Fraser-Harris (3). Other articles are from France (1), Switzerland (1), Austria (1), Russia (1), Sweden (1), and the remainder America (11).

J. R. LORD.

Index Psycho-Analyticus. By JOHN RICKMAN, M.A., M.D. London: International Psycho-Analytical Library, 1928. Medium 8vo. Pp. 276. Price 18s.

Nothing but praise can be extended to this monument of industry, and Dr. Rickman is deserving of the gratitude of all interested in psycho-analysis. Collected together in one handy volume are thousands of references to the subject in English, French, German, Spanish, Portuguese, Italian, Swedish and Polish literature. The titles are printed in a variety of types, thus assisting quick reference, and a good feature is that with each article are included a translation

or reviews in English. It would perhaps have been advantageous if the titles of books and translations had been collected in a separate section.

J. ERNEST NICOLE.

Selected Papers. By KARL ABRAHAM, M.D., with an Introductory Memoir by ERNEST JONES. Translated by G. BRYAN and A. STRACHEY. London: International Psycho-Analytical Library, 1928. Medium 8vo. Pp. 527. Price 30s.

A welcome will be given by all to this collection of papers by Dr. Abraham, who did so much for psycho-analysis, and who would undoubtedly have done more had not an untimely death removed his stimulating influence and balanced and penetrating judgment from psycho-analytical research. Included in this series are papers embodying those formulations that may be considered as peculiarly his own, especially his noteworthy contribution to the theory of *libido* development. Mention must also be made of his studies of manic-depressive insanity, of such earlier attempts at the psycho-analytical interpretation of the psychoses as his discussion of the differences between hysteria and dementia præcox, and of his papers on character formation. His breadth of view and clinical insight account for the general appreciation of his writings by all psycho-analysts. This collection of his works in English will meet a distinct need in this country.

J. ERNEST NICOLE.

Introduction to the Technique of Child Analysis. By ANNA FREUD, Vienna. Authorized translation by L. PIERCE CLARK, M.D. New York: Nervous and Mental Diseases Publishing Company, 1928. Medium 8vo. Pp. 58. Price \$1.50.

In this book are four lectures dealing with such aspects of child analysis as methods of starting analysis, the depth of interpretation necessary, the transference, and the rôle of education in completing the readjustment of the child to its surroundings.

In more than one direction the author departs from orthodox procedures. Whether or not her technique is entirely justified is debatable, but it is certainly provocative of thought and discussion. Contrary to other child analysts—for instance, Melanie Klein, Rivière and Searl—she lays considerable stress on the difference of attitude between the child analysed without either wish for it or understanding of its significance, and that of the adult who seeks relief or cure in a method which he already approves. So she undertakes a long pre-analytic preparation of the child in order to establish some sort of transference relationship with it, but in doing so she finds herself forced to adopt what one might almost describe as hypocritical methods, the good effect of which on the child's ultimate attitude to the analyst might be questioned.

The author criticizes the play interpretations that form such a prominent part of Melanie Klein's technique, but she does this more on *a priori* assumptions than on the firmer ground of experience, and even then after having seriously misrepresented Klein's method. Her analyses would appear to be superficial, and tainted with a more than consciously acquired fear of disturbing the relationship between child and parent. She advocates procedures not far removed from Ferenczi's active therapy, and would have every analyst deliberately usurp the rôle of the child's "super-ego" in order to ensure the future adaptation of the patient.

As we said before, a provocative book, but unfortunately provocative of disagreement rather than agreement.

J. ERNEST NICOLE.

The Varieties of Religious Experience. By WILLIAM JAMES, London: Longmans, Green & Co., 1928. Pp. xii + 534. Price 6s. net.

James delivered his Gifford Lectures in 1901-1902. In the latter year the lectures were published in volume, and the present edition is the thirty-sixth impression. No further words are needed to indicate the eminent position which the book immediately attained, and which it still holds. This volume is announced as a cheap edition, but the adjective only applies to the price; the typography and appearance are worthy of the author, and of his subject.

The book is such a classic that an ordinary review would be superfluous, and almost impertinent. The chapters on the reality of the unseen, on conversion, on saintliness and its value, and on mysticism are well known to all students of religious phenomena, and form the most brilliant analysis of the subjects that we possess. It may not, however, be unprofitable to consider briefly how far recent thought has confirmed or modified the author's conclusions.

Although his views were quite unorthodox, James was insistent upon the seriousness of his subject. He was deeply impressed with what Otto terms the *mysterium tremendum*. All is intensely solemn with him, even when he treats of religious happiness and religious joy. We believe that he, in this respect, anticipated one element in the present position. The contemptuous tolerance which was once an ordinary attitude to religion on the part of scientists has now become a thing of the past. Psychologists, especially, recognize that they cannot study religion too deeply. The influence of religion on the minds of our patients is of immense import.

James lays great stress upon the individual character of religion. He deliberately ignores the institutional aspect. But in so doing he tends to overlook the social aspect. In this attitude we may trace the influence of tradition—an influence which can never be wholly escaped. In spite of all its insistence upon the institutional—the ecclesiastical theory—mediæval orthodox theology attached the greatest weight to the duty of personal salvation; in this it was followed by Puritanism, and the tendency remained marked until

comparatively recent times. But in this respect a great change has occurred recently. Modern religious thought is inclined to lay much greater stress upon the social side of religion. One result of this change has been to accentuate the reduction of religion to terms of morality. This trend is, to-day, quite unmistakable, and with it James, pragmatist as he was, would have had nothing to do. Further, he would have recognized that to reduce God to the sum of values is to lose contact with every considerable religion.

As all his readers know, James was a strong advocate of a pluralistic universe, of a "finite" God. He rallies his hearers to the cause of this God. There is a real fight in progress, with a chance to lose, as well as a chance to win. On this view God is not responsible for the existence of "evil"; he would only be responsible if evil were not finally overcome. Many recent religious writers exhibit an inclination—to use no stronger word—towards this view. The transcendent idea of God seems to be rather out of fashion.

James was, of course, well acquainted with the earlier work of Freud. He will not admit for a moment the sexual origin of religion. But in many other respects his language can be easily translated into psycho-analytic terms. The characteristic fantasies which occur at various stages of life have their representatives in religious feeling. James fully recognizes this, and refers to the sense of satisfaction which is attained by means of fantasy. On the subject of confession he writes with much tolerance and understanding. He finds it difficult to account for the decay of this practice in Protestant communities. The salutary effect which confession has upon certain patients is well known. It is not without interest to note that psycho-therapy, in all its branches, has a greater vogue in Protestant communities than in nations which profess Catholicism, and in which the confessional is an established institution.

Throughout the book there is evident a personal contentment, on the part of the author, with his own spiritual position, combined with a feeling that others should share this position, and a certain intolerance for those who did not do so. The good fruits of religion are those which he himself regards as good. Perhaps the majority of people would agree with James in these particular estimates, but that fact does not give such estimates any absolute validity.

In one well-known passage James poured out all the vials of his wrath upon the heads of systematic theologians. These persons appeared to him to create their doctrines out of "non-subjective facts." But even the most metaphysical constructions cannot be expunged from the domain of subjective facts. Philosophers are more inclined towards a cosmic theology than was the case twenty-five years ago. And in popular thought we may observe the same phenomenon. People desire to know in what they can trust as being eternally true; they will not content themselves with codes of ethics, for they feel that any such code depends, ultimately, upon its metaphysical sanction.

M. HAMBLIN SMITH.

Part III.—Epitome of Current Literature.

1. Neurology.

Ankle-Clonus: The Distinction of the Organic and Functional Varieties. (*Brain, June, 1928.*) Lyman, L. S.

Although sustained ankle-clonus is usually considered to be an indication of a lesion involving the pyramidal tract, a more or less regular clonus can be demonstrated on occasion in the absence of other evidence of anatomical affection. These "organic" and "functional" types of clonus may be distinguished by a simple test, consisting of forcible plantar flexion of the homolateral hallux while ankle-clonus is being maintained. If the clonus is checked, an organic lesion in the central nervous system is postulated.

The article opens with an historical review of ankle-clonus and the above-described procedure is discussed. The method and apparatus devised for obtaining graphic records are also given, together with two records by way of illustration.

WM. McWILLIAM.

The Central Nervous Control of Micturition. (*Brain, June, 1928.*) Barrington, F. J. F.

The author concludes that the reflex contraction of the bladder, which occurs through the pelvic nerves as a result of its own distension, arises in the central nervous system at about the level of a plane through the posterior parts of the inferior colliculi dorsally and the middle of the pons ventrally. The author proceeds to examine the reflexes which make up the act of micturition; of these he discusses five, and he ends his paper with a comparative review of the functions and control of the urinary bladder in various mammals, reptiles and fishes.

WM. McWILLIAM.

The Narcolepsies. (*Brain, March, 1928.*) Wilson, S. A. K.

In a paper of wide scope and detail, Dr. Kinnier Wilson treats of the narcolepsies, defining them—for the purpose of the paper—as the hypersomnic varieties of sleep disorder, whatever their ætiology, among which it is convenient to distinguish a combined type corresponding to that so well differentiated by Gélinau.

He describes five "personal cases," discusses classification and varieties, the clinical symptoms, and the relation of narcolepsy to other syndromes, including those of myoplegia, catalepsy, epilepsy and Oppenheim's *Lachschlag*.

Ætiology, pathology, and the localization of the sleep centres are also dealt with.

The bibliography appended embraces some ninety-six references.

WM. McWILLIAM.

Lipodystrophies: Report of Seven Cases. (*Brain*, June, 1928.)
Ziegler, L. H.

In this paper Dr. Lloyd Ziegler deals more freely with the subject than he did in his article in the *American Journal of Psychiatry* of March, 1928. Clinical details of seven cases are given at length and photographs illustrate the text.

He discusses the chief ætiological factors of the series under the headings of trophic nerve disturbances, endocrine disturbances, disturbances of fat metabolism, infection, heredity and race, and congenital defect.

A brief reference is made to treatment. WM. McWILLIAM.

A Study of Muscle in Contracture; the Permanent Shortening of Muscles caused by Tenotomy and Tetanus Toxin. (*Journ. of Neur. and Psycho-path.*, April, 1928.) Ranson, S. W., and Sams, C. F.

The object of this research was to determine what change, if any, occurs in the function of a muscle in myostatic contracture. Methods of study and their results are given in detail and data are presented in tabular form. The authors conclude that the height of contraction and the rate of relaxation of a muscle in tetanus contracture are the same whether the muscle is stimulated directly or through its nerve.

WM. McWILLIAM.

Localized Cranial Hyperostosis in the Insane. (*Journ. of Neur. and Psycho-path.*, April, 1928.) Stewart, R. M.

Dr. Stewart in this article gives a detailed description of three cases of localized cranial hyperostosis he has seen during the course of the last fifteen years, and of two examples from museum specimens. He provides photographic illustrations of the skull-cap in all five cases, and, in his own three, photomicrographs of the anterior lobe of the pituitary.

The cases are discussed at some length and the author ends with the opinion that the association of hyperostosis with marked obesity in the insane is symptomatological of a hitherto undifferentiated type of dyspituitarism.

WM. McWILLIAM.

Inhibitory Epilepsy. (*Journ. of Neur. and Psycho-path.*, April, 1928.) Wilson, S. A. K.

Dr. Kinnier Wilson here describes, in great detail, a case in which is illustrated restraint or inhibition of motor centres by epileptic sensory discharges. The description of the fits follows them in all their stages and is very full from the neurological aspect. The patient had no appearance of distress, no difficulty in speaking,

and no twitching, and was conscious and coherent the whole time. On the inhibitory side he lost all power in the left arm and leg while numbness appeared on the left side of his body beginning in the fingers and hand.

In concluding his discussion of the case Dr. Wilson states that his chief purpose has been to bring the inhibitory side of epileptic semeiology into line with other recognized clinical states of which akinesia is a prominent feature, such as narcolepsy and cataplexy.

WM. McWILLIAM.

Cerebellar Phenomena in Lesions of the Temporal Lobe. (*Arch. of Neur. and Psychiat.*, June, 1928.) Meyers, I. L.

The author describes three cases of glioma of the temporal lobe, all of which had marked cerebellar symptoms together with mental retardation and symptoms due to general increase in intracranial pressure. After considerable discussion Meyers postulates the view that the temporal lobe is the psychic centre for vestibular stimuli and bears the same relation to the vestibular portion of the labyrinth that it does to the cochlear portion. Lesions of the temporal lobe do not give rise to nystagmus unless they involve the crura cerebri. The mental disturbances are due to failure of appreciation of relation to the environment which result from loss of the proprioceptive stimuli from the labyrinth.

If this loss is combined with loss of vision as shown by hemianopic defects, the patient is deprived of the two major elements that enter into the adjustment of the organism to the outer world.

G. W. T. H. FLEMING.

Studies in Stuttering. (iii) *A Study of Certain Reflexes during Stuttering.* (*Arch. of Neur. and Psychiat.*, June, 1928.) Travis, L. E., and Fagan, L. B.

The patellar and Achilles reflexes were chosen for this study. Records were made of these two reflexes during periods of silence and of speech for the normal speaker, and periods of silence, stuttering and free speech for the stutterer. In normal speakers, these two reflexes showed a greater amplitude during speech than during silent periods. In the case of the stutterers, during stuttering there was an increase in amplitude comparable to the speaking period of normal speakers. When the stutterer is speaking freely, in contrast to the period of free speech of normal speakers, the amplitude of the two reflexes is less than during silent periods.

G. W. T. H. FLEMING.

Neurinoma. (*Arch. of Neur. and Psychiat.*, June, 1928.) Hassin, G. B.

The author describes a case of neurinoma which came to autopsy, and showed a solitary neurinoma of the cauda equina. Neurinomata are formed from the embryonic cells of Schwann, and may be single or multiple. Antoni classifies them into fibrillary and

areolar types. They closely resemble sarcomata, endotheliomata and gliomata. The apparent polymorphism of these tumours is probably due to their age, the younger the tumour, the more nuclei are present. Their site also influences their structure, a neurinoma of the acoustic nerve differing from one of the peripheral nerves. The majority of writers are inclined to look on neurinoma, neuro-fibroma and central neuro-fibromatosis as one disease process—neurinomatosis.

If the neurinomata are solitary, they are accessible to surgical treatment, but they are often mistaken for malignant tumours. A tumour of the cauda equina may show no symptoms for a long time except pain along both sciatic nerves with marked hyperaesthesia. Neurinomata are invariably benign neoplasms.

G. W. T. H. FLEMING.

2. Psychology.

Studies in Affective Psychology: VI. Discrimination of the White Rat for Different Kinds of Grain. VII. Conflict of Movement in Relation to Unpleasant Feeling. (Amer. Journ. of Psychol., July, 1928.) Young, P. T.

Part VI describes experiments with three white rats to ascertain their preference respecting maize, barley, wheat and oats. The experiments appear to be carefully conceived for this purpose, but their bearing on "Affective Psychology" is difficult to see. Part VII gives an account of a series of experiments with four human subjects. They were trained to respond to different light stimuli by certain leg movements. After the connection between a stimulus and the respective leg movement had been well established, two stimuli were given simultaneously. Simultaneous signals to conflicting movements called forth an affective experience which was absent from single signals. With one subject, conflict evoked unpleasant feeling, while with the remaining three subjects amusement, smiling or laughter was evoked.

It is suggested that the latter type of response be considered a release from conflicting and impossible situations. Repetition of conflicting signals led to the dropping out of both affective characters.

A. WOHLGEMUTH.

The Application of the Phi-phenomenon to Beats. (Psychol. Monogr., Univ. of Iowa: Studies in Psychol., No. xi, 1928.) Hauge, Ingvald B.

Wertheimer defines the phi-phenomenon as the experience of movement between two objects, where the movement appears after the presentation of the second figure, but is usually conjoined with the first, and where nothing in the object corresponds to the experience of movement; and Higgins views it as the visual apprehension of movement: it is a form of abstractive perception determined by stimulus, receptor and central organs, the degree

of abstraction depending on the relative contributions of environmental or organic factors. The purpose of the present research was to investigate the possibility of interpreting musical beats in terms of the phi-phenomenon.

On the basis of the description given by some observers the author believes that the phi-phenomenon is not applicable to the perception of beats. There is no direct perception of auditory movement on the part of beats in terms of pitch.

A. WOHLGEMUTH.

Psycho-analysis from the View-point of the Individual Psychologist [*Die Psycho-analyse, gesehen mit den Augen eines Individualpsychologen*]. (*Intern. Zeitschr. f. Indiv. Psych.*, November-December, 1927.) Neuer, A.

The critic of psycho-analysis is in the unfortunate position of not being recognized by the psycho-analyst, unless he be previously psycho-analysed. But even this will avail him little, for his own criticism proves that his analysis has not been deep enough, or that the unresolved complexes appear sublimated in the form of his criticism. Although Neuer is aware of this disadvantage he nevertheless attempts the criticism. This, however, is very short and in large part concerned with priority claims and an exposition of Adler's views.

A. WOHLGEMUTH.

Kleist's Penthesilea. (*Intern. Zeitschr. f. Indiv. Psych.*, November-December, 1927.) Lazarsfeld, S.

This is another of the numerous attempts of the psycho-analytic schools to construe a literary work into support of their respective teachings. These attempts are as futile and unconvincing as they are numerous. To give but one example of many in this paper. Kleist as a student plunges into work and will study physics, philosophy, mathematics, will do all this together and prides himself by saying: "If I am able to do all this, then I can justly say that I have made possible that which was almost impossible." "In this sentence," says Lazarsfeld, "are combined at once three characteristics of the discouraged man: the desire to pile up difficulties in order to be able to say, 'What could I not have done without them?', the desire to distinguish oneself under all circumstances, and the desire to get loud or pompous acclamation." Instead of evidence of an inferiority complex, everyone of these traits could serve as an indication of a superiority complex.

A. WOHLGEMUTH.

Training in the Dream [*Das Training im Traum*]. (*Intern. Zeitschr. f. Indiv. Psych.*, May-June, 1928.) Neuer, A.

This is quite an interesting paper. It criticizes severely the psycho-analytic theory of dreams and touches upon the beginnings of human character, sleep, forgetting of dreams, symbolism and memory, all from Adler's individual-psychological standpoint.

A. WOHLGEMUTH.

Three Dreams [Drei Träume]. (*Intern. Zeitschr. f. Individ. Psych.* May-June, 1928.) Knopf, O.

The Technique of Dream-interpretation [Zur Technik der Traumdeutung]. (*Ibid.*) Sperber, M.

Form and Meaning of Dream [Traumform und Traumsinn]. (*Ibid.*) Lenzberg, K.

Three papers on dreams, description and their interpretation from the standpoint of Adler's individual psychology.

A. WOHLGEMUTH.

Adler's "Absolute Truth" and Künkel's "Infinale" [Adler's "Absolute Wahrheit" und Künkels "Infinale."] (*Intern. Zeitschr. f. Individ. Psych.*, May-June 1928.) Neuer, A.

This is philosophical speculation. Individual psychology is idealism. The ideal has had two sides, a negative and a positive. Negative, for the ideal is not real; positive, although ideal it acts as real. All psychical phenomena are conceived as protective measures or masks for something which lies behind them, and this is the ego. The ego masks itself. The community is an ideal and this ideal Adler calls "the absolute truth." In Künkel's system the "Infinale" plays the rôle of the absolute truth, and so on.

Individual psychology is heir to German speculative idealism. Kant's categorical imperative and Fichte's non-ego, the world of all resistances, are the foundations of the scientific edifice of a rightly understood individual psychology, for which neurosis is the "responsibility of the irresponsible."

A. WOHLGEMUTH.

Individual Psychology as Religion and as Science [Individualpsychologie als Religion und als Wissenschaft]. (*Intern. Zeitschr. f. Individ. Psych.*, May-June, 1928.) Wexberg, E.

A critical dissertation on Fritz Künkel's book *Einführung in die Charakterkunde auf individualpsychologischer Grundlage.*

A. WOHLGEMUTH.

Individual Psychology and Science [Individualpsychologie und Wissenschaft]. (*Intern. Zeitschr. f. Individ. Psych.*, November-December, 1927.) Adler, A.

This paper begins with a criticism of Karl Reininger's *Die Lüge beim Kinde und beim Jugendlichen.* Adler accepts this author's definition of a lie, namely, the lie is a consciously false, or falsifying, presentation of facts which has the purpose of attaining certain ends by the deception thus produced. To Reininger's exposition Adler adds his conception that the lie always has its source in an *inferiority feeling*, and is to be regarded as an evasion from reality into fiction, as the arranging of a fictitious, and easier reality.

A. WOHLGEMUTH.

Recent Discussions on "Time." (John Bale, Sons & Danielsson, London, 1927.) Goldsbrough, G. F.

This paper, so we are informed by a prefatory note, was prepared for the Aristotelian Society as a basis of discussion, but was regarded as unsuitable and therefore is here published separately. It is entirely of philosophical interest.

A. WOHLGEMUTH.

A Study of Fear by Means of the Psycho-galvanic Technique. (Psychol. Monogr., Univ. of Iowa: Studies in Psychol., No. xi, 1928.) Bayley, Nancy.

This is an experimental study of the emotion of fear with the help of the "psycho-galvanic" reflex of the usual type. The question of primary interest to the author was whether there are different forms of fear. She comes to the conclusion that the most intense psycho-galvanic reflex deflections occur in response to stimuli which were described as startles, shocks and alarms. Whatever the physical reaction which occasions the change in skin resistance, it seems to be greater for the most part in response to sudden unexpected stimuli. The gradual change of resistance which occurs during a sitting is affected by the state of apprehension or ease of the observer. Reflexes which are caused by startling stimuli are temporarily more abrupt than those caused by anticipatory fears. Introspectively, startles are differentiated from apprehensive fears in a way which corresponds with the temporal character of the reflex. The final conclusion of our author is that there are two types of fear, namely, startle and apprehension. But surely it is a mistake to enlarge the connotation of the term "fear" so as to include "startle." Fear is not a generic term and startle and apprehension specific ones. Apprehension is a mild form of fear (German *Furcht*), startle or fright is a different sort of emotion (German *Schreck*). This is the more surprising as the author evidently recognizes the difference, for she writes: "Startles appear to be texturally different from apprehensions because they are of very short duration, and because they are reflex rather than perceptual in nature. In startles the perception occurs after the reflex response, and when the sudden stimulus is not accompanied by danger the perception of the situation relieves the mental anguish, leaving only the sensations of the physical reaction. In apprehension the danger usually is perceived more slowly and continues over a comparatively long space of time." There is a good bibliography of the subject.

A. WOHLGEMUTH.

Autokinesis and the Streaming Phenomena. (Amer. Journ. of Psychol., July, 1928.) Guildford, J. P.

This paper gives some introspections of experiments of Aubert's autokinetic movements and concludes that the streaming theory stands the test of observation and of various crucial experiments.

A. WOHLGEMUTH.

The Eidetic Image and the After-image. (*Amer. Journ. of Psychol.*, July, 1928.) Allport, G. W.

It is contended that the hypothesis of a continuum of *Gedächtnisbilder* (after-image, eidetic image, memory-image) is not acceptable, and that its weakness seems to lie chiefly in the relating of the eidetic image to the after-image, whilst these phenomena have only a superficial and accidental resemblance. On the other hand, it is thought, such a close relation obtains between the eidetic image and the memory-image that the former, in all probability, should be considered as merely a limiting case of the latter. The point of the argument is that any memory-image lively and accurate enough to simulate perceptual data tends to acquire the kinæsthetic context which gives it the added attribute of pseudo-spatiality.

A. WOHLGEMUTH.

Eye-movements and Visual After-images. (*Amer. Journ. of Psychol.*, July, 1928.) Rexroad, C. N.

After a small faintly illumined square beside a brightly illumined one has been fixated for a time, the eyes will, when the stimulus lights are removed, turn in the direction of the brightly illumined square. An image is reported as present or drifting in the direction of the eye-movements. When the eyes make some other movement incompatible with that imposed by stimulation, no image is reported. These findings lead to the conclusion either (a) that the visual image and recti tensions are correlated, or (b) that the visual image is in large part due to recti tension. The author favours the latter conclusion, and the reviewer the former.

A. WOHLGEMUTH.

An Interpretation of Æsthetic Experience. (*Amer. Journ. of Psychol.*, July, 1928.) Lund, F. H., and Anastasi, A.

It is stated that objectively there is no similarity between music and architecture, between a gem and a poem, etc.; subjectively, however, they occasion similar feelings which make them classifiable under one head, the æsthetic. What a musician calls tonality, or relatedness of the melodic series, is felt subjectively to be a set of expectations aroused with the occurrence of the leading note, or progressively organized as the melody proceeds. The authors then ask the question whether somewhat similar conditions obtain where visual stimuli gain æsthetic potency, or whether our reactions to spatial elements acquire æsthetic value when they are so related that each leads naturally to, and prepares us for, the next. The experiments consisted in presenting to the subjects simple geometrical figures which it was required to complete, that is to say, to add to them such other elements as would give the completed figure the most æsthetic effect. It is concluded from the experiments that the principles of spatial design are similar to those of musical design as well as of other forms, and the evidence suggests that the conditions providing for the æsthetic experience are fundamentally the same.

A. WOHLGEMUTH.

The Influence of Sex and Age upon the Ability to Report. (*Amer. Journ. of Psychol.*, July, 1928.) McGroch, J. A.

Ability to report in narrative form increases between the ages of 9 and 14. Differences between successive age-levels are, however, small and statistically unreliable. Sex differences in report ability are, in part, a function of the material upon which the report is made. The differences are small, and few of them reliable.

A. WOHLGEMUTH.

3. Clinical Psychiatry.

Detection of Early Symptoms of Psychosis. (*Intern. Zeitschr. f. Individ. Psychol.*, May-June, 1928.) Trentzsch, P.

It has been found by necropsy that there is a type of mental disease of which the pathology is extra-neural and lies in the circulatory system. To detect this defect a test is suggested which depends upon the recoverability of the heart after exercise. On applying this test to known psychotic patients the author "found that it picked out a certain type of psychosis. They were the regressive group, the people who in their endeavour to escape from difficulties had drawn away from reality, and, rather than project themselves, had reverted to a more comfortable level."

A. WOHLGEMUTH.

Internationale Zeitschrift für Individual Psychologie, No. 4, July-August, 1928.

This number contains the following papers :

Short Notes on Common Sense, Intelligence and Feeble-mindedness [*Kurze Bemerkungen über Vernunft, Intelligenz und Schwachsinn*]. Adler, A.

Common sense is the author's own translation of "*Vernunft*," by which term *reason* or *understanding* is generally meant in English. A murderer's reason for killing a man, because he wanted his victim's clothes or other belongings (this is due to an inferiority complex), is an intelligent answer. So is the suicide's: he does away with himself "because then people will notice him, which they did not do before." In the feeble-minded such "intelligent" arguments pointing towards superiority are absent. *Vernunft* is intelligence plus *Gemeinschaftsgefühl*, feeling for the community.

The Problem of the Psychoses [*Zum Problem der Psychosen*]. Seif, L.

The psychoses of manic-depressive insanity, paranoia, schizophrenia and their mixed forms and also those of the narcotomanias, are treated on the lines of Adler's individual psychology, which, according to the author has, both as a theory and as treatment proved more satisfactory than any other method.

Concerning the Psychoses. Relation between Clinical Observation and Psychology [Zur Frage der Psychosen. Beziehung zwischen Klinik und Psychologie]. Wexberg, E.

In this very interesting and able paper the author starts with the maxim that in each case of psychosis there is a twofold approach: The clinical-ætiological and the psychological. This dual method must precede any consideration of the whole, which becomes a third aspect. The category of clinical thought is causality, that of psychological thought finality, that is, the former asks the question, "Whence?" and the latter the question "Whither?" Heredity and constitution and influences of the somatic environment determine the starting-point of his end-ideas. Disease does not change the direction, but only the manner in which the direction is followed; it is a question of tactics, not of strategy. The theme is ably argued on the lines of Adler's individual psychology.

A. WOHLGEMUTH.

Patients' Imaginary Insufficiency of Psychic Partial Faculties as a Foundation for the Classification of Psychiatric Syndromes (the Paranoid, Hysterical, Katatonic and Hypochondriac) [Über die vom Kranken vorgestellte Insuffizienz psychischer Partialvermögen als Grundlegung bei der Systematik psychiatrischer Zustandsbilder (des paranoiden, des hysterischen, des katatonen, endlich des hypochondrischen)]. Weindl, Th.

The author formulates the four conditions as follows: (1) Hysterical: "My reason has come to a standstill." (2) Paranoid: "I am at the end of my forces, I can do no more, I cannot go on any longer, but I have will-power, only it is not sufficient for the situation." (3) Katatonic: Normal human will-power does not (as far as the situation is concerned) arise. (4) Hypochondriac: The insufficiency affects the *anima vegetativa*.

A. WOHLGEMUTH.

A Case of Manic-Depressive Insanity [Über einen Fall von manisch-depressiven Irresein]. Sicher, L.

A detailed case-history considered from an Adlerian point of view.

A. WOHLGEMUTH.

An Extreme Case of Despair-neurosis [Ein extremer Fall von Entmutigungsneurose]. Dietz, P.

A case-history of a man of 29 years of age viewed in the light of Adler's individual psychology.

A. WOHLGEMUTH.

The Reception of Individual Psychology by the Medical Sciences [Die Rezeption der Individualpsychologie durch die medizinische Wissenschaft]. Holub, A.

A short account of some cases which appeared at first to be of organic origin, but yielded to psycho-therapeutic treatment on Adler's lines.

A. WOHLGEMUTH.

Sensitive Paranoia with Ideas of Reference [Über sensitiven Beziehungswahn]. (Intern. Zeitschr. f. Individ. Psych., November–December, 1927.) Müller, A.

Kretschmer describes as "*Sensitive Beziehungswahn*" a syndrome which is characterized by the formation of delusional ideas of reference with conservation of logical reasoning and reflection. Müller examines Kretschmer's exposition and attempts to bring it into line with Adler's individual psychology.

A. WOHLGEMUTH.

Mental Hygiene: The Quintessence of Dynamic Psychology. (Intern. Zeitschr. f. Individ. Psych., November–December, 1927.) House, S. D.

This essay is written in English. House gives the barest outline of the evolution of psychology as a science from psychology as a branch of philosophy, contending that "historically the dilemma of psychology consists in the application of static procedure to dynamic subject-matter." Medicine, he says, which had devoted itself almost exclusively to the physiological aspect of behaviour found itself in an *impasse* (especially in neurology) and made a bold leap into psychological speculation as a means of salvation, while psychology, confronted with the bewilderment of mentalistic hypotheses and interpretations, sought a refuge in physiology. Psychology, arriving at maturity, becomes the lawfully-wedded spouse of psychiatry, a most fruitful marriage, if not a happy one. Scientific method applied to clinical subject-matter promises to raise psychology to a predominant position among the human sciences.

A. WOHLGEMUTH.

Psychoses due to Thyroid Toxæmia with Iodine Deficiency. (Psychiat. Quarterly, April, 1928.) Bellinger, C. H.

The author describes three cases having for their aetiology a disturbance of the thyroid gland. The outstanding physical manifestations are reviewed. Treatment is by means of the administration of iodine in the form of Lugol's solution, and the response to treatment is confirmative of the diagnosis.

WM. McWILLIAM.

Mental Disease among Jews. (Psychiat. Quarterly, April, 1928.) Goldberg, J. A., and Maezberg, B.

In this article the authors resort to the tabular method, summarizing their findings in sixteen tables. They find that it is not possible to compare the relative frequency of mental disease among Jews and non-Jews owing to the absence of fundamental population data concerning these groups. They believe that a continuous growth in the number of Jewish patients may be expected; that the Jews show a higher percentage of functional psychoses and a lower percentage of organic psychoses; that the percentage of general paralysis admissions among Jewish men is rather high; and that

the percentage of alcoholic psychoses among Jewish patients is low but is increasing in both sexes.

It is to be noted that the study consists of an analysis of data secured at Bellevue Hospital, New York, together with similar data compiled from the reports of the New York State Hospital Commission and covers the period 1914-26 inclusive.

WM. McWILLIAM.

Malarial Therapy and the Pre-Paretic. (*Psychiat. Quarterly, April, 1928.*) Lang, H. B.

The author urges the early diagnosis of paresis and stresses the importance of a thorough serological examination in treating all cases of syphilis. He also cites cases in which a diagnosis of "manic-depressive insanity," "psychopathic personality with psychosis due to drugs," and "alcoholic" would have been made but for an examination of the cerebro-spinal fluid. "Incipient" cases of the disease are also described, together with the results of their treatment with malaria.

WM. McWILLIAM.

Encephalitis Lethargica and the Interpretation of Mental Disease. (*Amer. Journ. Psychiat., May, 1928.*) Hendrik, I.

The author sees in encephalitis lethargica a common meeting-ground for those who are convinced that all psychiatric disorders are essentially changes in either the structure or the physico-chemical functions of cellular units, and those who contend that the nature of psychological processes is a unique biological mechanism. The close resemblance of many of the symptoms of encephalitis lethargica to those of schizophrenia is discussed.

The literature has been fully studied and many references discovered, and a wide bibliography is appended.

WM. McWILLIAM.

The Acute Psychiatric Type of Epidemic Encephalitis. (*Amer. Journ. Psychiat., May, 1928.*) Sands, I. J.

The author describes 9 cases of epidemic encephalitis in which the first symptoms of the disease were of a psychotic nature.

The picture is that of an acute organic psychosis, either a delirium or of an occupational type, or else periodic outbreaks of excitement, impulsive acts, delusional or bewildered states, confusion and marked fear. The subsequent appearance of neurological symptoms leads to the establishment of the correct diagnosis.

WM. McWILLIAM.

A Study of 50 Cases of Psychopathic Personality. (*Amer. Journ. Psychiat., May, 1928.*) Partridge, G. E.

The 50 cases of this investigation were composed of 21 males and 29 females and the material of the work was accumulated in the course of the ordinary clinical study of the patients.

The author distinguishes three main types, a delinquent type, an inadequate type, and a general incompatibility type. It appears that the type of reaction which the patient may have developed early in life is very persistent despite all ordinary efforts to change it.

The general conclusion is reached that the "psychopath" is one in whom strong demands are accompanied by feelings of inadequacy, inferiority, or insecurity, and in whom there develops a tendency to resort to one or more typical reaction patterns, all to be included in a general way under the terms tantrums, sulks and running away.

WM. McWILLIAM.

Pellagrous Insanity. (*Amer. Journ. Psychiat.*, May, 1928.) Cooper, M. D.

In this short article the author reviews the ætiology of pellagra and discusses the psychoses associated with it from both mental and physical standpoints.

In dealing with treatment he recommends a well-balanced, full diet, rich in vitamin B; moderate doses of one of the arsenicals, *viz.*, soamin, sodium cacodylate or Fowler's solution; and, in some cases where there is marked confusion and agitation, spinal puncture with the removal of 15 to 20 c.c. of cerebrospinal fluid. The use of thyroid extract as a means of therapy is referred to.

An interesting discussion follows the main article.

WM. McWILLIAM.

Finger-sucking and Accessory Movements in Early Infancy. (*Amer. Journ. Psychiat.*, May, 1928.) Levy, D. M.

This paper is concerned with the ætiology of infantile finger-sucking and of certain other movements in association with it. The investigation is a lengthy one, in the course of which many cases, here recorded, have been examined. The ascertained facts are collated in a series of tables, and there is a full discussion of the possible conclusions which may be drawn.

Among his 26 conclusions the author states that the rational treatment of the phenomena is prophylactic—the use of methods to insure sufficient action of the lips during feeding.

WM. McWILLIAM.

Some Problems of the Functional Psychoses. (*Amer. Journ. Psychiat.*, May, 1928.) Campbell, C. Macfie.

Dr. Macfie Campbell, in a Pasteur lecture delivered before the Institute of Medicine of Chicago in November, 1927, reviews some problems of the so-called "functional" psychoses, discussing the psychiatric point of view in general. He emphasizes the necessity for formulating the symptoms and course of these disorders with

due appreciation of the individual constitution, the cultural background and the concrete life situation. Clinical cases are quoted in illustration of special points raised.

WM. McWILLIAM.

Two Years' Experience with the Malarial Treatment of General Paralysis in a State Institution. (*Journ. Amer. Psychiat.*, March, 1928.) Bahr, M. A., and Bruetsch, W. L.

The authors present clinical, serological and *post-mortem* observations in 100 cases of general paralysis treated with malaria.

In their results of treatment they state that 25 patients were able to leave the hospital; 12 improved to such a degree that they can be trusted in useful occupation in the hospital. Forty patients are placed in the unimproved group, in 8 of whom the disease is in a stationary condition, while with the remaining 32 it is progressing.

Five patients succumbed during the rigors, and 18 died following the malaria. Of the former one patient died of a splenic rupture, one developed pneumonia, and in one instance death was caused by paralytic seizures. A detailed description with photographs is given of the necropsy in the case of splenic rupture.

Serological changes following malarial treatment occurred in both the improved and unimproved groups. While there was no parallelism between the degree of clinical and serological improvement, the percentage showing serological improvement, particularly as far as the colloidal gold curve was concerned, was higher in the improved groups. The gold curve was reduced in intensity, but remained of the paretic type. The conversion of a paretic curve into a true luetic one was an exception in the authors' cases.

WM. McWILLIAM.

The Characteristics of a Psychogenic History. (*Journ. of Neur. and Psycho-path.*, April, 1928.) Ross, T. A.

Dr. Ross in his paper presents a series of 10 cases, the study of which would seem "to demonstrate that there is such a thing as a psychogenic history, that illness does seem to be definitely correlated with mental states, and that these states are of very early origin." Each case is discussed at length, and the author lays down as an absolute rule, "Do not diagnose a neurosis in an obscure case unless a psychogenic history is forthcoming."

WM. McWILLIAM.

Some Considerations of the Significance of Physical Constitution in Relation to Mental Disorder. (*Amer. Journ. Psychiat.*, March, 1928.) Adler, H. M., and Mohr, G. F.

The authors recognize that among normal and psychotic patients there may be recognized various physical forms that correspond to the "types" described by Kretschmer. In the psychiatric categories considered they discover two elements: that of normal distribution of qualities common to all members of the group; and

the characteristics not common to all the group, but only to certain individuals affected by the various causative factors producing these characteristics.

WM. McWILLIAM.

Neuro-psychiatric Aspects of Lipodystrophic Disturbances. (*Amer. Journ. Psychiat.*, March, 1928.) Ziegler, L. H., and Prout, C. T.

The authors deal briefly with the ætiology and review the literature of lipodystrophy, and report two cases.

They find that there seems to be no psychiatric symptom-complex peculiar to the condition, apart from self-consciousness and the tendency to share in the alarm of friends and relatives. Mental symptoms, when present, seemed, on the whole to be psycho-neurotic.

WM. McWILLIAM.

Survey of Retarded Children in Public Schools of Massachusetts. (*Amer. Journ. Psychiat.*, March, 1928.) Dayton, N. A.

In this survey, as recorded in 3553 examinations, heredity study reveals that feeble-mindedness is present in one or both parents in approximately 7%, mental disease in approximately 3%, and epilepsy in 1% of the cases. Approximately 72% of the children examined were feeble-minded.

Dr. Dayton thinks that the results of these examinations suggest that there is a great deal of "legend" in the commonly-accepted views on feeble-mindedness, and states that much work has yet to be done in the study of extra-institutional cases before we can have a complete picture of mental deficiency.

WM. McWILLIAM.

Pupillary Anomalies in Schizophrenia. (*Arch. of Neur. and Psychiat.*, July, 1928.) Menninger, W. C.

Some pupillary anomaly was found in 65% of 400 cases of dementia præcox of long-standing, which at the time of examination presented a hebephrenic type of reaction. Dilatation occurred in 17.7% and contraction in 6.5%. Slight irregularity occurred in 23% and marked irregularity in 6%. The light reflex was disturbed to some degree in 50.9%, 26.7% showing moderate impairment, 18.2% marked impairment, 3.5% fixation to light and retention of convergence reflex and 3.5% fixation to both light and convergence. The convergence reaction was disturbed in 19.5%, and in 4 cases was entirely absent with some degree of retention of the light reflex. In discussing these results, Menninger states that these pupillary anomalies occur much more frequently in dementia præcox cases where deterioration has occurred than in medical and surgical cases, excluding neuro-syphilis in either group. He considers that in præcox cases and also in the cases met with in general practice, these pupillary changes represent stigmata of either regressive or degenerative change, or of inferior constitution.

G. W. T. H. FLEMING.

Electrical Skin Resistance in Normal and in Psychotic Subjects.
(*Arch. of Neur. and Psychiat.*, June, 1928.) *Syz, H. C., and Kinder, E. F.*

The authors studied the electrical skin resistance in 126 persons, of whom 87 were normal, and 39 were of psycho-pathological reaction types, all of whom were subjected to a uniform experimental situation. The skin of the hands, both palm and back, was investigated.

The back-to-back resistance was relatively much higher than the palm-to-palm resistance; the resistance of the right hand was higher than that of the left. A decrease in resistance occurred during the period of the experiment. Depressive and katatonic patients, giving in general few psycho-galvanic responses to experimental stimuli and few spontaneous responses, had a high initial resistance, especially of the backs of the hands, and showed a slight change in palmar resistance during the test. Patients of the paranoid-schizophrenic type, giving relatively frequent psycho-galvanic responses to experimental stimuli and a relatively high percentage of spontaneous fluctuations, had a relatively low resistance for all skin areas and a marked decrease in resistance during the test. The group of normal persons who had given rather frequent responses and a few spontaneous fluctuations differed little in initial resistance from the patients of the schizophrenic group, but they showed much less change in resistance during the experiment. In the behaviour of the skin resistance and in psycho-galvanic responsiveness the normal stands between the paranoid-schizophrenic group on the one hand and the katatonic and depressive groups on the other.

G. W. T. H. FLEMING.

Chronic Paranoid Hallucinoses following Treatment of General Paralysis by Infection [Über chronische paranoide Halluzinosen nach Infektionsbehandlung der Paralytiker]. (*Psych.-Neurol. Woch.*, No. 27, July 7, 1928.) *Kihn, B.*

Hallucinatory states follow malarial treatment in a small proportion of cases. They are not associated with any confusional symptoms, but apart from this the clinical picture may be very varied. Gerstmann, of Vienna, who first described these states, regarded the prognosis as favourable. He accounted for their occurrence by his hypothesis that malaria brought about a transformation in the type of cerebral reaction, the malignant paretic process being changed to a benign menigo-vascular one. The writer combats this hypothesis, which he considers to be quite unsupported by the clinical facts. He himself has observed twenty-eight cases of hallucinosis following malarial treatment, and notes that none were females, nor were any of them cases of juvenile general paralysis. There was no relation between the occurrence of hallucinosis and the clinical type of the disease, but exogenous factors, *e.g.*, alcohol, were noted in a few cases. Contrary to the

findings of the Viennese school, the author has not seen a favourable outcome in any of his cases ; most of them have run a fatal course, while a few have remained stationary.

A. WALK.

Comparative Investigation of the After-results of General Paralysis Treated by Malaria and by Relapsing Fever [Vergleichende Nachuntersuchungen bei Malaria- und Rekurrensbehandelten Paralytikern]. (Psych.-Neurol. Woch., No. 31, August 4, 1928.)
Horn, L.

A series of 66 cases from Wagner-Jauregg's clinic in Vienna was investigated. One half of the patients were treated by malaria and the other half by relapsing fever. After three years the results among those treated by malaria were : 18 complete remissions, 4 incomplete remissions, 6 unchanged or relapsed, 5 deaths ; the corresponding figures for relapsing fever were 5 (plus 2 who had malaria also), 7, 12 and 7. The figures are obviously in favour of malaria. Malarial infection is also safer, and the author lays especial stress on the method of interrupted treatment as suitable for cases in poor physical condition. With recurrent fever, inoculation of blood is safer than the use of cerebro-spinal fluid.

The serological findings were also investigated and these are also in favour of malarial treatment. It is noted that relapses only occur in patients with persistent pathological changes in the cerebro-spinal fluid. If the fluid remains positive after a year, the patient should be given a second course of malaria, which is often found to cause a rapid disappearance of the serological reactions.

A. WALK.

An Analysis of the Psycho-therapeutic Significance of Familial Care [Zur Analyse der psychotherapeutischen Bedeutung der Familienpflege]. (Psych.-Neurol. Woch., No. 30, July 28, 1928.)
Tramer, M.

The boarding-out of patients in family care should not be reserved for chronic cases, whose psychosis has run its course, but should also be used as a definite psycho-therapeutic measure in suitable acute cases. The indications for making the change from institutional to familial care are discussed and illustrated by a detailed description of a case of acute katatonic psychosis in a young girl. In such a case the object in view is to obtain a "mobilization of affect," and, in choosing the family to whose care the patient is to be committed, regard is paid to the probability of satisfactory affective relations being established between the patient and the members of the family. This, again, depends on a review of the psychological factors in the patient's illness. The author has obtained promising results and believes that the course of an acute psychosis may be favourably modified and its duration shortened in this way.

A. WALK.

4. Pathology.

Blood Chemical Changes in the Toxic Psychoses. (*Amer. Journ. Psychiat.*, May, 1928.) *McIntyre, H. D.*

The author deals primarily with the "toxic-infectious" group of psychoses, their aetiology and classification.

Giving an historical reason for his interest in the rôle played by toxic factors in mental disease, he proceeds to detail the work involved in the investigation.

He explains the marked reduction of the CO₂-combining power of the blood, and the usual urea retention in the toxic psychoses, by excitement with fatigue; by impairment of kidney function by the toxin causing the psychosis; and by the possibility that the toxin produced may be an acid and its presence in the blood will thus lower the alkali reserve.

Reports are given of 18 cases, with the following summary:

(1) Chemical examinations of the blood are of great value in the study of the early stages of mental disease, especially those psychoses showing symptoms of hallucinatory confusion.

(2) Evidence is presented that manic-depressive, schizoid and confusional reactions may, in their early stages, be accompanied by signs of toxæmia, *viz.*, leucocytosis, acidosis, fever and nitrogen retention.

(3) Treatment directed towards the elimination of the toxin is frequently effective in bringing about mental recovery.

(4) The toxins, acid or otherwise, so affect the hydrated colloids of the nerve cells as to cause cracking of the emulsion of which the nerve cell is composed.

WM. McWILLIAM.

An Inquiry into the Acid-base Equilibrium in Epileptics. (*Riv. di Neuro.*, February, 1928.) *Gozzano, M.*

The pH of the blood in epileptics behaves in a different manner from that of normal people. Generally the pH remains constant during the day and for several days in succession, and does not change during digestion. In some individuals the value is high, in others it is low; every now and then there are sudden, irregular bounds. In other cases the author did not find a constant pH, but only irregular oscillations, which showed no relation to the seizures or to digestion.

Gozzano was hardly ever able to confirm the increase in pH at the onset of a fit, or the decrease after the fit, which other authors describe. The ammonia quotient (the relation of ammonia nitrogen to total nitrogen) is usually higher than in the normal person; it often presents normal variations in relation to meals, and sometimes shows considerable increases in the period which precedes or accompanies the fit. The constant of Hasselbalch (the product

of the pH and the ammonia quotient), which in normal individuals shows little alteration, undergoes large variations in epileptics. The author concludes that there exists in epileptics, in all probability, a disturbance of the regulation of the acid-base equilibrium which can be shown to exist by the study in the same individual of the alkaline reserve of the blood and of the two mechanisms which regulate this equilibrium, the H-ion concentration of the urine, and the CO₂ tension of the alveolar air.

G. W. T. H. FLEMING.

Metabolism in Epilepsy. IV. The Bicarbonate Content of the Blood.
(*Arch. of Neur. and Psychiat.*, July, 1928.) *Lennox, W. G.*

The author investigated the plasma bicarbonate in 100 patients with epilepsy and found that 3 had below 55% by volume, 46 were above 65%, and 9 were above 70%.

These data indicate that, in general, patients with epilepsy have a normal condition of acid-base equilibrium in the body fluids. Abnormality, when present, is in the direction of increased alkalinity. There may, of course, be changes in the acid-base equilibrium in the central nervous system which do not find expression in coincident changes in the blood.

G. W. T. H. FLEMING.

A New Method of Staining Neuroglia with Mallory's Hæmatoxylin.
(*Riv. di Pat. Nerv. e Ment.*, November, 1927.) *Catalano, A.*

Good results are obtained with this method, which has the merit of being simpler than the original.

1. Fix in 10% formalin for two days.
2. Cut frozen sections of 20 μ and leave in 5% formalin.
3. Wash in distilled water and immerse the sections in equal parts of 10% acetic acid in distilled water and saturated solution of benzoic acid in distilled water. Place in the incubator at 40°–45° C. for 4 to 6 hours, then leave at the temperature of the rooms for 24 hours.
4. Then put the sections into distilled water 30 c.c. with old Mallory's hæmatoxylin 10 drops, leave for 5–10 minutes until the sections are an intense red.
5. Wash thoroughly in distilled water.
6. Dehydrate in alcohol. Clear in pure xylol (carbolic decolorizes the sections) and mount in Canada balsam.

When the staining is excessive :

- (a) Wash the sections.
- (b) Immerse for 1–5 seconds in 30 c.c. of 10% acetic acid plus 1–2 drops of ferric chloride, or of 30 c.c. of 10% acetic acid plus 20 drops of 5% oxalic acid.

(c) Wash thoroughly in several changes of water.

- (d) Dehydrate in alcohol, clear in pure xylol and mount in Canada balsam.

G. W. T. H. FLEMING.

A Study of the Mechanism of Inoculation Malaria on the Histopathologic Changes in Paresis. (Journ. of Nerv. and Ment. Dis., March, 1928.) Bruetsch, W. L., and Bahr, M. A.

The authors first mention the various theories as to the *modus operandi* of malarial treatment, and then discuss briefly the case reported by Sträussler and Koskinas, who died from coronary sclerosis six months after malarial treatment. The microscopical examination showed the cortical layers intact and an almost complete absence of the infiltrating elements in the meninges and about the cortical vessels in all the regions except in the temporal lobes; here there was still a cellular infiltration of the meninges and numerous infiltrating elements in the perivascular spaces of the cortical vessels, with a few rod cells which were absent in the other parts of the brain. Gurewitsch noted a persistence of the infiltrating cells in the basal ganglia.

The case examined by Bruetsch and Bahr showed disappearance of the perivascular infiltrations in all situations with the exception of the temporal lobes. This case died at the height of the seventh malarial attack. The authors describe as due to the acute malaria the following: the larger vessels were markedly dilated, their connective-tissue fibres were loosened and œdematous, and in some of the meningeal vessels there was an extravasation of red blood-corpuscles through diapedesis. The endothelial cells showed signs of proliferation and the lumina of the small veins were packed with monocytes, the direct descendants of the endothelial cells.

The same proliferative activity showed itself in the spleen, the liver and connective-tissue, in fact, throughout the whole reticulo-endothelial system. This was most marked in the liver, accounting for the increase in weight and swelling of that organ. In the brain in some of the pre-capillaries where the young plasmodia were particularly numerous, the vessel-wall consisted of a fine membrane only, the endothelial cells having entered the circulation. Here the plasma-cells and lymphocytes were almost in immediate contact with the content of the vessels. The absence of the perivascular plasma-cell coats in the greater part of the cortex suggested that the cells had re-entered the vessels as phagocytes in defence against the malarial infection. Rubilschung was able to demonstrate plasma-cells in the peripheral blood during the paroxysms.

The authors point out that the best results in the non-specific treatment of paresis are obtained with methods that produce a violent reaction of the reticulo-endothelial system.

G. W. T. H. FLEMING.

Cerebral Circulation. III. The Vasomotor Control of Cerebral Vessels. (Arch. of Neur. and Psychiat., June, 1928.) Forbes, H. S., and Wolff, H. G.

The authors carried out experiments on cats by measurement of pressures and the simultaneous measurement of vessel diameters through a small glass window in the skull. Measurements of the pial arteries were made during control periods, every minute for

half-an-hour or an hour. Sudden anæmia, low oxygen and high carbon dioxide content all cause dilatation of the pial vessels. It was found that although the changes in calibre of the cerebral arteries might passively follow sharp fluctuations in systemic arterial pressure, constriction of arteries also followed direct application of epinephrine or stimulation of the cervical sympathetic nerves, whereas dilatation followed stimulation of the vagus. The authors conclude that the circulation of the mammalian brain is controlled in part by cerebral vasomotor nerves.

G. W. T. H. FLEMING.

Forced Drainage of the Cerebro-spinal Fluid. (Arch. of Neur. and Psychiat., June, 1928.) Kubie, L. S.

The author examined the cells in the first and last fractions of the cerebro-spinal fluid and found that in a wide variety of infections of the nervous system in man, the different types of cells are not homogeneously distributed throughout all fractions. In a number of cases the last fractions of fluid contain a much higher percentage of lymphocytes than the fluid which drains out first. In two cases of meningitis in which the foramina of Magendie and Luschka were occluded, lumbar fluid still showed this increase in lymphocytes in its later fractions, whereas the ventricular fluid contained only polymorphs throughout all its portions.

The administration of hypotonic fluids orally, subcutaneously or intravenously during lumbar puncture causes an abundant additional flow of fluid without subjective distress, respiratory difficulties or evidence of diffuse swelling of the brain-tissues. The author considers that this forcing of fluids, combined with spinal drainage will have important therapeutic effects in infectious diseases of the central nervous system. G. W. T. H. FLEMING.

The Brain in Mongolian Idiocy. (Arch. of Neur. and Psychiat., December, 1928, p. 1229.) Davidoff, Leo M.

The author reports a study of the brains (especially the histological structure) of ten mongols found in the collection of the Staatskrankenanstalt Friedrichsberg in Hamburg. Reviewing the investigations of Wilmarth, Philippe and Oberthur, Bourneville, Reine Mangeret, Comby, Shuttleworth, Vogt, Biach, Weigandt, Gans and Van der Scheer, he finds the reported abnormalities to be numerous and varied, but common to the majority and in agreement with his own findings are the following: Reduction in weight of the brain, relative smallness of the cerebellum, pons, and brainstem, spherical form of cerebrum, simple embryonic convolutional pattern, secondary convolutions largely absent, glia not increased. Davidoff considers perivascular infiltration and meningeal inflammatory changes rare and the result of intercurrent physical disease. A hypoplastic condition of the subthalamic region described by Van der Scheer and used by him to explain many features of mongolism was not confirmed, and Davidoff accounts for the underdevelopment in this region by the close approximation of the

temporal poles caused by brachycephaly. Histological examination showed no atrophy and all the known nuclei in this region could be recognized and appeared normal.

Gans has reported: defective development in cerebrum, cerebellum and pons, fossa Sylvii wide open, defective arcuate nuclei, olives and accessory olives small, absence of striæ acusticæ, and a peculiar formation which he named "tuber flocculi." This consisted of an intermingling of cerebellar elements giving rise to a cerebellar heterotopy which he believes to be a normal feature in the chimpanzee and orang. Gans also found an incompletely differentiated calcarine cortex with corresponding defects in the corpora quadrigemina which led him to speculate whether they had regressed to the state found in mammals whose eyes are placed laterally. Davidoff found many of the anomalies described by Gans, but not regularly. In two cases the striatum and pallidum showed severe calcification. The glia nowhere gave the impression of stimulation and no disturbance of the neuro-fibrils was noted. Microscopic examination of the cortex revealed paucity of ganglion-cells, especially in the third cortical layer, most marked in the temporal lobe and least in the calcarine area. The cerebellum showed well-differentiated Purkinjê cells, normal in appearance, location and number; none were multi-nucleated. In one case a formation similar to the "tuber flocculi" of Gans was found. The changes in the cerebrum, cerebellum and brain-stem must be due to some factor which inhibits development, so that they resemble the pattern found in early life.

R. M. CLARK.

5. Physiology.

The Cold-Receptor. (*Amer. Journ. of Psychol.*, July, 1928.) Pen-
delton, C. R.

The evidence of these studies is against the Golgi-Mazzoni end-bulbs being the cold-receptors. No evidence was found as to the existence of Krause end-bulbs in the dermic papillæ, nor was there any evidence to support Haggqvist's findings of smooth muscle-fibres under the cold spots. All the evidence points to the supposition that the cold-receptors lie in the stratum Malpighii; some near the top, some lower down; and that the difference in the limina is due mainly to the thickness of the overlying tissues. In the stratum Malpighii there are two forms of nerve-endings, the well-known free nerve-endings discovered by Langerhans and the less well-known so-called hederiform nerveendings of Ranvier.

A. WOHLGEMUTH.

The Mode of Vibration of the Vocal Cords. (*Psychol. Monogr.*, Univ.
of Iowa: *Studies in Psychol.*, No. xi, 1928.) Metzger, Wolfgang.

The problem of this paper comprises the following sub-problems: (1) What is the direction of the vibrations of the human vocal cords? Do they vibrate transversely, i.e., in the direction of the

air-blast, or laterally, *i.e.*, perpendicularly to the direction of the air-blast, or in some other direction and curve? (2) What are the relations between the movements of the two cords? There is first an interesting historical review in which the pre-laryngoscopic period, the laryngoscopic period, the earlier stroboscopic period, the recent period and the new models, etc., are discussed. In the experimental investigation models constructed according to the description of previous investigators were used or observed through the stroboscope, and their action critically examined. The thing needed was a frontal view of the living and vibrating vocal cords. This was accomplished by X-ray photography. A specially-adapted slide holding the film was placed, under local anæsthesia, into the sinus piriformis and the upper part of the œsophagus. The first existing frontal view of the vocal cords during voice-production is presented. It is shown that during action the vocal cords have not the shape of bands, but of lips, and it is suggested, therefore, that the term "voice-lips" be substituted. From comparisons of the view of the larynx with acting models it is concluded: (1) That alternate vibrations of the voice-lips are physically impossible, but that there are no mechanical objections to the results of laryngoscopic observations of the last three decades, according to which their vibrations are in phase, and this is true also for the mouth-lips in trumpet-blowing. (2) That the action of the voice-lips is a cushion action, as Ewald asserted in 1897. (3) That the double curves obtained at the point of the "Adam's apple" are very probably caused to some extent by the mechanisms of "open tones," and also by the second partial of bronchial resonance, the maxima of which lie at about 128 and 256 d.v. (4) That no adjustment of the pharynx can change the pitch of the voice to the next higher or the next lower octave. (5) That the sex differences of the voice and the normal or abnormal phenomena of the boy's pubertal change can be reduced to the different relations between the frequency of the vibrating voice-lips and the bronchial resonance.

A. WOHLGEMUTH.

Some Temporal Aspects of Sound Localization. (*Psychol. Monogr., Univ. of Iowa: Studies in Psychol., No. xi, 1928.*) Trimble, Otis C.

Since the three theories of sound-localization, namely, the time-theory, the phase-theory, and the intensity-theory, all claim that the localization is due to their respective factors, the question arises as to the relationship of these factors in binaural localization of sound. As numerous phase- and intensity-aspects are already well established, the author has turned his attention to the temporal aspect and attempts to define the element common to phase, time and intensity that is responsible for binaural sound localization. For the experimental work the open-air method is adopted and as stimulus the electric spark chosen.

The following are some of the results obtained: (1) When the stimuli are presented simultaneously or with an interval ranging

up to 0.06σ , a single fused sound is localized in the median plane. (2) When temporal disjunction is greater than 0.06σ , called the threshold of localization, trained observers generally localized two distinct sounds. One of the sounds is stronger in intensity and lower in pitch, whilst the other is very faint and higher in pitch than that which corresponds to the stimuli. As the temporal disjunction is gradually increased above the localization threshold, the stronger sound describes approximately a 90° arc from the median plane to the aural axis, on the side of the ear that is first stimulated, while the weaker one makes a similar course on the other side of the median plane. The dichotic sounds come to the aural axis when the temporal interval is about 2σ . (3) The relationship between the angular displacements of the two binaural sounds and the temporal differences is approximately linear, as the temporal interval ranges between 0.06σ and 1.2σ . (4) Before the weaker phantom sound was discovered in the course of this investigation, the observers reported a single, the stronger, phantom sound which divided into dichotic sounds when the interval was $2.36 \pm 0.98\sigma$. (5) As the temporal interval is gradually increased from 0.06σ , the stronger binaural sound gradually becomes weaker and higher in pitch until they are equally intense and qualitatively alike, or diotic, when the interval is $9.48 \pm 3.5\sigma$. (6) When the temporal interval ranges above $9.48 \pm 0.98\sigma$, the diotic threshold, double sounds, illusory movements of sounds, and a third phantom sound are perceived.

A. WOHLGEMUTH.

6. Treatment.

Therapeutic Occupations for Mental Cases. (*Occup. Therap. and Rehabil.*, June, 1928.) Malott, B. E.

The author suggests suitable occupations for different types of mental cases, and gives clinical examples in five cases with results of treatment.

WM. McWILLIAM.

Occupational Therapy in the Treatment of those Mentally Disabled. (*Occup. Therap. and Rehabil.*, June, 1928.) Davis, F. A.

This is a short *résumé* of the types of craft suitable for mental patients. It is very wide in scope, reference being made to poultry, animal and bee husbandry, music and gymnastics. Too wide a range of occupational therapy activities in individual institutions should be avoided, otherwise concentration and efficiency may be seriously impaired.

WM. McWILLIAM.

Treatment of Congenital Epilepsy [Zu der Behandlung der angeborenen Epilepsie]. (*Psych.-Neurol. Woch.*, No. 32, August 11, 1928.) Friedländer, A. A.

The author, who was one of the first to introduce luminal in the treatment of epilepsy, gives some of the results of his experience, together

with several practical hints. In a particularly severe case a course of treatment consists of 0.3 grm. (about gr. v) of luminal, given twice on the first day, once on the second, and twice on the third, with a rest on the fourth day; the course is repeated three times, the patient being kept in bed. Suitable prescriptions, containing luminal in combination with either antipyrin, caffeine or belladonna, together with an aperient, are given. In the discussion of accessory forms of treatment, it may be noted that the author regards sun-baths as definitely contra-indicated.

A. WALK.

7. Sociology.

The School Class: a Work and Social Community. [*Die Schulklasse: eine Arbeits- und Lebensgemeinschaft*]. (*Intern. Zeitschr. f. Indiv. Psych., May-June, 1928.*) Spiel, O., and Scharmer, F.

This investigation was carried out by the Viennese teachers of experimental classes for the three years 1924-5, 1925-6, and 1926-7. The present report confines itself to the purely educational part of the problem. It is very interesting reading. The authors come to the conclusion that they have had positive results: through individual psychological measures (encouragement and training), they were able to improve the work of even the weakest children, so that during the three years not one had to be put back into the same class. Children who showed hostility to society were improved by the use of individual psychological treatment, and it was possible to dispense with punishment.

A. WOHLGEMUTH.

Encouragement and Institutions for Encouragement. [*Ermutigung und Ermutigungsanstalten*]. (*Intern. Zeitschr. f. Indiv. Psych., March-April, 1928.*) Schlesinger, E.

With juvenile delinquents, the family and school, the mother and the teacher should be the first to influence or counteract their tendencies. Moral delinquency is but the far-reaching result of discouragement, and punishment leaves the delinquent still more discouraged and disheartened. The means to prevent and to combat juvenile criminality must not be based upon the retribution theory, nor upon the theory of deterrence, nor even upon the reforming theory, but must have their foundation upon a theory of encouragement. We do not want punishment or reformatory institutions, but encouragement and institutions for encouragement.

A. WOHLGEMUTH.

Vocational Instruction and Individual Psychology. [*Arbeitsunterricht und Individual-psychologie*]. (*Intern. Zeitschr. f. Indiv. Psych., March-April, 1928.*) Sulger, K.

The proper relation of the individual to his calling would be attained if he, in the first instance, had solved the question implicit

in each form of work "Why do I work?" in the sense of its usefulness to the community. Other questions which should likewise be answered are "How do I work?" and "What do I work?" This is essentially the thesis which the author endeavours to expound in this paper.

A. WOHLGEMUTH.

Individual Psychology and the Conception of the State. [*Individualpsychologie und Staatsauffassung*]. (*Intern. Zeitschr. f. Individ. Psych.*, March-April, 1928.) Rheinstein, M.

Individual psychology affirms the state as a presupposition of human culture and personality, which can only develop in conjunction with one another. The latter, however, requires constraint since the striving for power, which results from the inferiority-feeling, may become dangerous. The purpose of the state is the protection of the individual against those striving for power, the protection of the weak, the furtherance of cultural values and of the free personality.

A. WOHLGEMUTH.

Individual Psychology and Treatment of the Criminal [*Individualpsychologie und Verbrechenstherapie*]. (*Intern. Zeitschr. f. Individ. Psych.*, March-April, 1928.) Starke, E.

Jugendliche nach der Strafhaft [*Juveniles after Release from Prison*]. (*Ibid.*) Beck, O.

"Th. K."—*The Psychology of a Juvenile Criminal.* [*Th. K.—Zur Psychologie eines jugendlichen Kriminellen*]. (*Ibid.*) Kleist, F.

A Juvenile Delinquent [*Ein jugendlicher Verbrecher*]. (*Ibid.*) Jacoby, H.

The Psycho-pathology of the Juvenile Delinquent. (*Ibid.*) Wolfe, B.

The Neglected Girl [*Das Verwahrloste Mädchen*]. (*Ibid.*) Bellot, E.

All these papers plead for the separate treatment of the juvenile delinquent, deprecating punishment by prison and advocating treatment in reformatory institutions. A great number of case-histories are given and discussed; all from the standpoint of Adler's individual psychology.

A. WOHLGEMUTH.

Judge Ben Lindsey [*Der Richter Ben Lindsey*]. (*Intern. Zeitschr. f. Individ. Psych.*, March-April, 1928.) Rie-Andro, Th.

A Personal Encounter with the Juveniles' Judge, Ben Lindsey. [*Eine Persönliche Begegnung mit dem jugendlicher Richter Lindsey*]. (*Ibid.*) Rau, Ch.

A discussion of the work and an account of a meeting with the American judge, Ben B. Lindsey, of the juvenile and family court of Denver, U.S.A., whose books *The Revolt of Modern Youth* and *The Companionate Marriage* are well known.

A. WOHLGEMUTH.

Two Cases of Ill-treatment of Children [Zwei Fälle von Kindermiss-handlung]. (Intern. Zeitschr. f. Individ. Psych., March-April, 1928.) Credner, L.

Two case-histories, the one of an 11 year old girl, and the other of a woman of 26 who had both been ill-treated by their mothers. Re-education on the principles of Adler's individual psychology produced improvement and promised cure of the neurotic symptoms.

A. WOHLGEMUTH.

8. Mental Hospital Reports.

ENGLAND.

Devon County Mental Hospital.—There was a decrease of 3 males and 1 female in the number of patients in this hospital at the end of the year 1927 compared with the previous year, resulting in a total of 1223 (M., 490; F., 733) patients on the register on December 31. An attempt has been made to relieve the overcrowded state of the hospital by boarding out under Sec. 25 of the Lunacy Act, and it is also proposed to convert the existing nurses block into patients' accommodation.

The admissions for the year were 275 (M., 101; F., 174) and the recovery-rate was 35.6% on the total direct admissions, but as high as 47% on the private cases only.

Under the guidance of Dr. Solly (pathologist to the Royal Devon and Exeter Hospital) a considerable amount of routine work has been carried through in the laboratory, and a special investigation of blood-films in connection with the ultra-violet ray treatment of mental cases is proceeding.

There were 6 cases of post-encephalitis lethargica under treatment during the year; treatment by hyoscine and ultra-violet rays failed to produce any beneficial result.

"Five cases of G.P.I. (all males) were treated by induced malaria. Of these three improved considerably, one (R. W—) sufficiently to justify discharge, one shows no noticeable change, and the other has become worse.

"This makes a total of 18 cases (15 males and 3 female) who have undergone this special treatment since it was started here in December, 1925, and of these, 3 have been discharged (all males), 10 have improved (8 males and 2 females), 2 males have made no improvement, and 3 have died (2 males and 1 female).

"The three cases from which treatment was purposely withheld at the time this was started are still here, and serve as controls to the results. Two of these cases are in the bedridden stage."

A considerable amount of valuable work is done in this hospital under the heading of occupational therapy, the report under review being very creditably produced, both in format and type, by the "Devon Mental Hospital Printing Press."

31.8% of the nursing staff have passed the Final Examination of the Royal Medico-Psychological Association (50.7% of the men; 19.2% of the women) and several of the staff, male and female, hold the General Nursing Council Certificate.

Dorset County Mental Hospital.—At the end of the year 1927 there remained in this hospital 880 cases (M., 362 ; F., 518) or 22 less than at the beginning. There were admitted 146 cases (M., 62 ; F., 84) and 57 patients died during the year, giving a death-rate of 6.47.

On the subject of recovery-rate or discharge-rate Dr. Bedford says :

“ Discharges numbered 111, *i.e.*, 19 more than last year ; of these 68 were recovered, 28 were relieved, and 15 not improved ; these last-named being transfers to other institutions. The official recovery-rate which is calculated on direct admissions and refers only to those patients who have been discharged as fully recovered, is 48.22%, as compared with 31.61 last year. If the discharges as relieved are taken into account the rate is then 68.08, as against 50.32 last year.

“ This extraordinarily high discharge-rate is not only pleasing in itself, but if it were known by the public, as it should be known, it would be recognized as the best answer to the question of whether persons are unnecessarily detained here. It should also serve to allay the fears of those who are inclined to believe that once a person has been ‘ put away ’ in the hospital, as they say, he has bid goodbye to the outside world for ever.”

The laboratory at this hospital, under Dr. G. W. T. H. Fleming, has done much good work during the year, and interesting original research is still proceeding, especially in connection with the significance of the Boltz test and the tryparsamide treatment of general paralysis.

“ Of 13 cases treated with tryparsamide during the past eighteen months, 3 are recovered and in their former employment, 3 have shown well-marked improvement, more particularly physically, 1, although his parietic symptoms are ameliorated, has developed tabetic symptoms, 2 have shown no improvement, and 4 have died. Seven of the 13 have shown marked mental improvement. There has been a complete absence of seizures during 1927. Two of the cases are also receiving intra-muscular injections of a suspension of metallic bismuth in isotonic glucose.

“ Those who have employed the malarial treatment of general paralysis are well aware of the attendant risks, not only to those undergoing the treatment, but to their associates, of the elaborate safeguards that are necessary, and of the special knowledge required to control the treatment. These factors have prevented a more widespread use of a form of treatment that has undoubtedly done good. On the other hand, the safety, simplicity and apparently equally good results obtained by tryparsamide therapy, commend it to the wider usage which it is steadily gaining.”

An out-patient clinic, in connection with the Dorset County Hospital, is held weekly. It is maintained principally at the expense of the various Boards of Guardians of the county, a small fee being charged to a few patients who can afford to pay. All Boards of Guardians and medical practitioners in the county are invited to send suitable cases to the clinic for advice or treatment.

Kent County Mental Hospitals: (1) Barming Heath.—The outstanding event of the year 1927 at this hospital was the completion and opening of the Nurses' Home.

“ Since 1911 obtaining a Certificate in Mental Nursing has been obligatory for the staff here. It is becoming more generally recognized that it is difficult for any but an educated girl with well-formed character and high ideals to succeed in mental nursing, for it requires more than ordinary ability, versatility and resource to lead

and direct the activities of those whose minds are weakened or distorted by disease. Out of her experience the mental nurse must learn to substitute useful and invigorating emotions for those which are sordid and depressing; ennobling thoughts for those which are debasing; habits of industry, helpfulness and contentment for idleness, destructiveness and turbulence. To attract suitable candidates it is necessary to provide proper accommodation, with appropriate social amenities, and a highly-organized system of training. The Nurses' Home, which provides these essentials, was formally opened, in the presence of a distinguished company, by Her Royal Highness Princess Mary, Viscountess Lascelles, on June 7."

There were admitted during the year 341 patients (M., 142; F., 199), and of these practically 59% had been ill for more than a month prior to admission, 30% had had previous attacks, and in nearly 57% some form of hereditary defect was ascertained. The recovery-rate was 36.1%, and the death-rate 8.7%; the number resident at the end of the year was 1840 (M., 737; F., 1103).

Occupational therapy is a form of treatment that has always engaged Dr. Wolseley-Lewis's attention, and holds a high position in this hospital.

"On entering the wards of a mental hospital one cannot fail to be struck by the large number of patients sitting about doing nothing. A large proportion of the patients do not care to read, write or play games, but it is of the greatest importance that they should not be left to lose themselves in a delusional world of their own, or occupy their minds with morbid fancies and imagined wrongs, and for this reason occupation-therapy in its widest sense should be developed as fully as possible, and we are trying to inculcate habits of industry in our patients during their earliest days here, so that it may become the fashion for everyone to try and do something useful. Experience shows that conduct and mental outlook are improved, self esteem re-established, opportunity for self-expression afforded, and the creative and artistic faculties developed by this means."

It must be a source of great satisfaction, not only to the hospital, but to all mental nurses to know that the King has been pleased to confer the Membership of the Order of the British Empire on Sister Copeland in recognition of her pioneer work in mental nursing.

"She sacrificed an assured position of staff nurse here, with a salary of £86 per annum, in order to become a probationer at a large London hospital at £20 per annum, so that she might qualify as a general trained nurse. She did this not only to gain more knowledge of her profession, but as an example to others, feeling how important it is for the mental nurse to establish a status by obtaining general hospital qualifications, instead of accepting the position that general hospital nurses should be introduced into mental hospitals and take the leading positions there."

(2) *Chartham Downs*.—The number of patients on the register of this hospital on December 31, 1927, was 1275 (M., 599; F., 676), an increase of 47 during the year; the admissions were 288 (M., 122; F., 166), and of these 48 were suffering from organic disease of the brain.

Dr. Collins deplors the continued influx of cases of mental deficiency.

"It is regrettable to have to report that, owing to the absence of accommodation for the mentally deficient in the county, that children of tender years continue to be admitted under the Lunacy Act. This is very bad for the children, as they are liable to learn depraved habits, and is very troublesome to other patients, who are thus deprived of the quiet that they need and might otherwise obtain. It is

also noteworthy that the mentally deficient who are not given proper care, control and training early enough in life are often admitted later to mental hospitals, and form a very difficult and dangerous type of patient, for whom little can be done; they require much restraint of liberty, and in this way cause others to be deprived of such freedom as could otherwise be given them."

The clinical laboratory under the charge of Dr. McGowan has done much valuable work during the year, and the X-ray installation has been in regular use in the examination of cases on admission.

As regards discharges Dr. Collins says :

"The total number of discharges was 139, as compared with 118 last year, but the percentage considered to be recovered completely is slightly lower, at 29. It is to be feared that there is a reluctance to take the risks of certifying cases early enough for treatment to be of any avail."

Staffordshire County Mental Hospitals: (1) *Stafford.*—At this hospital there were in residence at the end of the year 1927, 1003 patients (M., 484; F., 519) indicating overcrowding to the extent of 54. The Mental Hospitals Board for the county has apparently decided on extension by means of admission hospitals at each of the three hospitals under their administration.

There were admitted during the year 197 patients (M., 96; F., 101), and of these Dr. Shaw estimated that possible recovery could only be looked for in 88 of the first-attack cases. The recovery-rate on the total direct admissions was 24% in the case of the men, and 36% in the case of the women, while the death-rate was 7.6% on the total cases under treatment.

Owing to the unfortunate breakdown in health of Dr. Farran-Ridge and the necessity of employing a *locum tenens*, original research was considerably interfered with, but routine laboratory work was carried out, and further investigation regarding venom hæmolysis was undertaken with the object of ascertaining its usefulness in diagnosis.

(2) *Burntwood.*—At the end of the year 1927 there were 943 patients in residence at this hospital, or 7 more than the year began with; there were admitted 196 patients (M., 103; F., 93) and among the admissions the greatest ætiological factor was mental stress, followed more or less closely by some disease such as influenza, epilepsy or syphilis; alcohol was a factor in only 4 men and 4 women

The solaria at this institution are all fitted with vita-glass.

"Vita-glass in the male sun-room has benefited the patients. A suitable skin reaction, a steady increase of weight, and a warmer room temperature have been obtained. Convalescing mental cases, others with intractable wounds or sinuses, or those suspected of early tuberculosis of the lungs are suitable for this treatment. Along with tuberculin treatment, a case of tubercular hip has had several sinuses heal up, and the only remaining sinus much benefited."

(3) *Cheddleton.*—The number of patients resident at the end of the year 1927 in this hospital was 1134 (M., 610; F., 524), an increase of 12 in the year. There were admitted in all 265 cases (M., 121; F., 144). Amongst the admissions Dr. Menzies draws attention to the steady increase of cases of dementia præcox, and the anticipated post-war increase of general paralysis.

"It is usual now in mental hospitals to subject all admissions to the Wassermann test. This was done last year on the male side and we hope in future to include the women also; it is a question of laboratory facilities. The malarial inoculation treatment has been applied to all cases and it is really remarkable in what a small percentage good does not accrue. Even if complete recovery is not attained, most patients become quieter and more manageable, cleaner in habits and less difficult to nurse. Dr. Stewart has initiated a modification of the method, which consists in stopping the malarial attack by quinine as soon as the parasites are recognized in the blood during the first rigor, then a few months later inducing a second and then a third short attack. This is much safer for the patient and cuts out the risk of deaths from malaria, nor does it, in our short experience, appear less efficacious than allowing a succession of rigors to occur before giving quinine. That a high temperature has nothing to do with cure is shown by the case of a man who recovered and is now at work outside, in whose blood parasites were abundant without any rigor occurring at all. Coming to statistics of general paralysis, 2 men, out of the 1927 admissions, were discharged recovered during the year, as well as 1 man who had been here since 1925. Three others will almost certainly be discharged this year. Two men and one woman died without inoculation, being considered too feeble, one man and one woman died before the first rigor had time to develop, and two men died of malarial broncho-pneumonia, one before the parasites had appeared in the blood. One man has greatly improved and the rest have not changed, in most of whom insufficient time has elapsed. No case has been made definitely worse. Including admissions in former years the total death roll from general paralysis was 7 men and 3 women."

The cases of encephalitis lethargica that were admitted were all definitely Parkinsonian with the exception of one girl (apache), and one boy (acute katatonia). None of these cases showed any improvement. One girl died suddenly, and at the *post-mortem* was found to have enlarged pineal and pituitary glands and a large persistent thymus.

Difficulties in connection with the nursing staff are well illustrated by a paragraph in the Committee's report.

"The position regarding candidates for the post of probationer nurse, which last year showed signs of improvement, has again deteriorated. Of late, advertisements in the Nursing Press produce an inadequate result. It is scarcely recognized what heavy additional organization a teaching school entails, for it predicates the dismissal of those who refuse to work during training and repeatedly fail in the professional examinations. In the past year 33 nurses left the service out of a staff of 64, although 3 of these were ward sisters given three years' leave for general hospital training, who will presumably ultimately return. Of the 30 remaining no fewer than 10 were dismissed for repeated failure to enter for or pass the R.M.P.A. examinations; 1 was dismissed for misconduct. Six probationers broke their contract and left without notice. Formerly the Committee used to prosecute such persons in the County Court, but this custom has fallen into abeyance. Mostly such girls desert from a passing whim or temporary homesickness, and many who would do the same, were it not for their contract, afterwards turn out excellent nurses. Six left on the expiry of their contract, and four were released by the Committee, three alleging impending marriage. Three were released by the medical superintendent under section 4 of their contract on account of illness. This analysis gives some idea of the restless spirit abroad in the nursing world of women, and may be compared with the male side."

BURMAH.

The accommodation provided for mental disease in the Burmese portion of British India consists of three mental hospitals, two at Rangoon (St. John's Road Hospital and Tadagale), and a smaller one at Minbu. Thus an area of about 240,000 square miles having a

population of some 13,000,000 is served by mental hospitals carrying an average population of a little over a thousand.

The admissions for the year 1927 were 276 (M., 245; F., 31), a proportion of males to females of about 9 to 1.

"There are no doubt economic reasons for this. The actual proportion of male and female insanes to the general population is about equal, but as the men are more troublesome to look after, they are sent to an asylum."

Of the aetiological factors noted amongst the admissions, sexual excess is given as a predisposing factor in the case of three men and three women. Alcohol, *cannabis indica*, opium and cocaine, in that order of prevalence, were causative factors in a total of 60 cases.

Acquired syphilis is a responsible factor in the case of 10 male patients.

"Considering the remarkable prevalence of venereal diseases in Rangoon, the proportion of cases of neuro-syphilis which results in mental failure is small; this is to be anticipated in a population largely engaged in manual labour."

The recovery-rate calculated on the admissions was practically 12%, and the death-rate 6% calculated on the average population.

47% of all the admissions are from Rangoon district, which is in harmony with the fact that over 40% of the total population are located in the South Central portion of Burmah.

In the report of Col. W. H. C. Forster, I.M.S. (the Inspector-General of Civil Hospitals) there are terms which to modern minds seem strangely out of place in "mental hospitals," such as "keepers," and "cells."

FEDERATED MALAY STATES.

Central Mental Hospital, Tanjong Rambutan.—The total number of patients remaining on the books of the hospital on December 31, 1927, was 2220 (M., 1899; F., 321), an increase of 193 over the previous year, and the largest increase since the opening of this institution, although it has now ceased to take the Singapore patients.

During the year 900 patients were admitted, an increased number, attributed by Dr. Samuels to increase of population, higher speed of life, the pressure of Western education, and greater competition, and in addition "people are becoming more and more ready to bring their relations to hospital."

Of the forms of mental disease in the admissions, primary dementia easily heads the list, and in order of frequency there follow recent melancholia, recent mania, confusional insanity, and general paralysis; the latter being almost completely confined to the Chinese section of the population.

"Primary dementia still continues to increase at an alarming rate, showing 286 cases in 1927 against 216 the year before. This is a particularly deplorable condition of things, seeing that it is the young that are attacked, and also the probability of a recurrence, even in cases where an apparent cure has been obtained.

"To me it is a sign that more care should be exercised in the choice of boys for higher education. Many boys, who would do perfectly well at a trade are pushed to make bad clerks instead of useful mechanics. Many of these boys break down as a result of the attempt to make them what they were never intended to be."

The recovery-rate for the year was 37·7, but Dr. Samuels explains that the term includes cases of temporary cessation of symptoms.

As regards ætiology, syphilis, alcohol, influenza and malaria occupy prominent places.

"In addition to syphilis and alcohol appearing as primary causes, one notices that we have on 98 occasions cardio-vascular degeneration appearing as a secondary cause. A large number of these cases of cardio-vascular degeneration might be laid at the door of either syphilis or alcohol, so one sees how important these two are as causes of the mental ill-health of the Federated Malay States.

"Syphilis has always, at least in our time, been here, but alcohol is more or less a recent cause and its appearance may be dated from the day that attempts to cut off opium were made.

"I wonder, have the people who cry out against opium thought of the alternative, and of the crime attributable to alcohol which opium never gives rise to.

"Of the less common causes adolescence and mental strain taken together make a total of nearly 70, and one wonders how many of these are due to education above the boys' capacity; I fear a great many."

Dr. Samuels complains, and apparently with good reason, of the burden of administration caused by the continual flooding of the hospital by criminal cases, and pleads for a separate institution similar to Broadmoor for Malaya.

NEW ZEALAND.

In this dominion, a country (without its accompanying islands) rather more than twice the size of England, with a population (1926) of 1,344,348, there are seven mental hospitals, at respectively, Auckland, Tokanui, Porirua, Christchurch, Nelson, Seacliff and Hokitika, and since overcrowding is present in an acute form in all the existing mental hospitals, and the estimated annual increase is approximately 200, a new hospital for Auckland is in process of development at Puhitahi.

The report is that of the "Minister in Charge of the Department for the Care of Mental Defectives," on the mental hospitals of the dominion for the year 1927.

At the Auckland Mental Hospital the weekly average number under care was 1105, and the admissions for the year were 227, 47 being voluntary boarders, of whom there were 96 in residence. The recovery-rate for the year was approximately 29%.

There were 337 (M., 213; F., 124) patients in the Tokanui Mental Hospital at the commencement of the year 1927, 61 were admitted, and the year ended with 345 (M., 221; F., 124) patients.

At the Porirua Mental Hospital there were 1,408 patients at the end of the year, an increase of 80 since January 1, the total admissions for the year were 291 (M., 158; F., 133) and of these 37 were voluntary boarders. At this hospital a separate admission villa, "Bella Vista," is established, and to this all new admissions are received with the exception of those obviously of hopeless prognosis.

A clinic at Wellington Hospital is also associated with this hospital, which, apart from being a treatment centre for certain forms of psycho-neurosis, is also a channel for the admission of voluntary patients of suitable type.

The average number of patients resident at the Nelson Mental Hospital during the year 1927 was 398; there were 57 admissions and 15 voluntary boarders were under treatment during the year. Imbecile boys from all parts of the dominion are sent to this institution, the overcrowding is great, and Dr. Jeffreys appeals for new villas to be erected.

At the Hokitika Mental Hospital there were 226 patients on the register at the beginning of the year, and 216 at the end (M., 152; F., 64), and 14 patients were admitted.

The Christchurch Mental Hospital is fortunate in having attached to it a neuropathic hospital at Hornby, and for clinical and pathological examinations, the valuable assistance of Prof. Hercus of the Otago Medical School (Dunedin). There were 886 patients on the register at the end of the year as against 870 at the beginning, and the admissions for the year were 166 (M., 89; F., 77).

The average weekly number of patients at Seacliff Mental Hospital was, during the year, 1138 (M., 627; F., 511), admissions 164 (M., 93; F., 71), and of these 20 were voluntary boarders; a separate neuropathic hospital is now being built at Puketeraki, near by, which will be worked in association with this institution, in addition to the already existing admission cottage.

In all the mental hospitals in New Zealand, taken together, syphilis was regarded as a causative factor in 7.7% of cases amongst males, and 0.72% amongst females; alcohol was a causative factor in 7.53% of males and 2.41% of females.

The total voluntary admissions, male and female, first and not-first admissions, have steadily increased from 23 in 1912 to 197 in 1927.

It is noticeable that in a recent bill amending the existing Mental Defectives Act, which has now passed the New Zealand House of Representatives, clauses which had been introduced prohibiting the marriage, and authorizing the sterilization of persons registered under this Act, were excluded.

SYRIA.

Lebanon Hospital.—The total extent of Syria under the French mandate, is an area rather larger than that of England and Wales and this comparatively small hospital of 140 beds is not only the only one provided for mental patients in this large area, but also reaches out its helping hand to such widely distant places as Armenia and Anatolia, Baghdad and Alexandria. There were on the hospital registers on March 31, 1928, 136 patients (M., 74; F., 62), an increase of two in the year; 163 cases were admitted during the year, a remarkably large number for a hospital of this size.

"I would again draw attention to the large number of female patients in the hospital—10 over the proper accommodation number—and to the request which I made last year for more female accommodation. The gift of a row of single rooms linked up to the American and Philadelphia Houses by means of a closed corridor, at a cost of £1,400, would be a very valuable addition indeed to the Hospital. The patients could then be more separated from one another, which would greatly facilitate their treatment and lead to their greater comfort, because the present overcrowding in the female wards leads to much irritability and strife. Such a state of affairs does not exist among the men, where the accommodation is sufficient."

Dementia præcox was the form of mental disease that preponderated amongst the admissions, and the toxic conditions produced by alcohol, morphia, cocaine or hashish were only responsible for 3 cases in the year.

This hospital is fully equipped with a laboratory and means of modern research, and is attached to the American University at Beirût, at which Prof. Watson Smith is the lecturer on psychological medicine.

"I have to report that the fifth-year medical students, who come here for further instruction in mental diseases from the American University of Beirût, continue to give us a great deal of valuable help in the Hospital. They are all very interested in their work, and they seem to appreciate what advantages they gain from the practice of the Hospital.

"The usual instruction on psychological medicine to the fourth-year class of medical students has been given during the past winter. I take great pleasure in teaching these students, and consider that their instruction is essentially an extension of the work of this Hospital. The Hospital has always been regarded as an object-lesson in Syria as to how the insane can be cared for, and such patients as these doctors will be called upon to treat in their future practice will doubtless benefit from the instruction which they have received here.

"The students in the classes of psychology and sociology also visit the Hospital annually. Doubtless the ideas and conclusions which their professors teach them to abstract from what they see during their visit will all help to intensify that influence upon public opinion, with regard to the proper hospital treatment of the mentally afflicted, which this Hospital has been exerting during the past thirty years."

Although some of the patients are paid for by relatives and others by a grant from the French Government, the Hospital is largely maintained by voluntary contributions from the British Isles, European countries and America. Dr. Watson Smith, in his report makes an urgent appeal for further monetary assistance, in order to carry out extensions to meet the increasing demand on accommodation, and with good reason, for in the words of the Chairman of the London Committee (Dr. E. W. G. Masterman):

"The Hospital is a piece of 'practical idealism,' an attempt to cure and relieve those who are 'afflicted and distressed in mind.' And it has this unique appeal about it—that it stands in a land where we are told that the Great Physician Himself went about and healed 'all that were sick, holden with divers diseases and torments, possessed with devils, and epileptic, and palsied.'"

STATE OF NEW YORK.

In the Thirty-eighth Annual Report of the State Hospital Commission dealing with the year ending June, 1926, it is shown that at the beginning of the year there were on the registers 43,601

patients with mental disease in the civil State hospitals, 1,556 in criminal hospitals, and 1,367 in private licensed institutions (committed cases only.) There were admitted during the year 10,915 to the civil hospitals, 191 to the criminal hospitals and 374 to the private licensed institutions; at the end of the year there were on the registers 44,419 patients in civil State hospitals, 1,576 in criminal hospitals, and 1,519 in private licensed institutions, making a total of 47,514 mental patients in the State.

The recovery-rate for the year, based on first admissions, was 24.3% on all admissions (excluding transfers) 18.8%.

There is at present considerable over-crowding in all the State hospitals, amounting to over 50% in the case of Brooklyn. A new hospital is therefore to be established in Rockland County, new State psychiatric hospitals at Syracuse and New York City, and in addition a new Psychopathic Pavilion at Bellevue Hospital.

A considerable amount of valuable research has been done during the year, mostly published in the *State Hospital Quarterly*, now the *Psychiatric Quarterly*. Manhattan State Hospital records that of the 112 cases of general paralysis treated there by malaria infection during the past three years, 32% had complete remissions, 14% moderate remissions, 10% were improved, 25% unimproved, and 19% died; in 12 of these latter cases "one may perhaps be justified in concluding that possibly the malaria hastened the exit." Other cases of general paralysis were treated with tryparsamide, and the results show that this preparation "is far superior to any other arsenical yet introduced"—in 30% of the cases complete remission occurred; in 22% there was improvement; in 20% no improvement, and 28% of the patients died. The treatment of dementia præcox and encephalitis lethargica by malaria infection led to no encouraging result.

An interesting table of the nativity and parentage of the first admissions to the State hospitals appears to indicate that the effect of the new immigration laws is beginning to be seen in decreased foreign-born admissions.

In a table showing the first admissions due to alcoholic psychoses from 1909 to 1926, it is clearly shown that a steady fall in this class of case had been taking place from 1909 to 1920, with the single exception of the year 1917, in which there was a considerable increase which is generally considered (*v. Pollock—Prohibition and Alcoholic Mental Disease*, 1924) to be associated with the entrance of the United States into the Great War. The lowest admission-rate for alcoholic psychoses occurred in 1920 (the first year of prohibition) and since then, there has been a steady rise, chiefly in male cases.

It would appear, from an examination of the racial distribution of the principal psychoses, that alcoholic cases tend to be more prevalent among the Irish and Slavonic population, general paralysis among the African and Italian, and dementia præcox among the Hebrew and Slavonic races.

Part IV.—Notes and News.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

SPECIAL MEETING.

A SPECIAL meeting of the Association was held on Tuesday, July 10, at 2.15 p.m., at the West Riding Mental Hospital, Wakefield.

Agenda: To appoint a Special Committee for the purpose of revising the By-laws on certain matters.

A report prepared by Dr. J. R. Lord (*vide* Council's minutes, July 18, 1927—Edinburgh) was considered, which had been already discussed in detail at a meeting of members on July 3, 1928, at the British Medical Association House. It was approved with some minor emendations, and ordered to be presented to the Annual Meeting on July 11, 1928 (Bye-law 84).

QUARTERLY MEETING.

The usual Quarterly Meeting of the Association was held on Friday, November 23, 1928, at British Medical Association House, 19B, Tavistock Square, London, W.C. 1, under the Presidency of Prof. J. Shaw Bolton, D.Sc., M.D., F.R.C.P.

The Library, Educational, Parliamentary, Research and Clinical Committees assembled on the previous day.

The Council Meeting.

The following matters of interest were dealt with by the Council, and would have been mentioned at the General Meeting which followed but for the curtailment of time rendered necessary by the presence on the agenda of an important debate.

Educational matters.—The Council approved the suggestion made by the Educational Committee that the Mental Nursing Advisory Committee to the Educational Committee should be called for the future "The Mental Nursing Consultative Committee." It was agreed to add to this Committee a member representative of the Mental Deficiency Training Schools.

On the question of the publication of a handbook for those nursing mental defectives the Council approved that action should be taken to supply the needs of mental nurses in this respect, and a panel of members was appointed to advise the Council in the matter.

Parliamentary matters.—The Parliamentary Committee drew the attention of the Council to an address given by Dr. C. H. Bond at the recent National Health Conference, which included the subject of early treatment of mental disorders. The Committee recommended that steps should be taken to give the widest publicity to it. The matter was referred to Dr. J. R. Lord to take appropriate action.

The Gaskell Bequest.—It was decided that no steps should be taken to alter the terms of the Bequest.

The General Meeting.

THE MINUTES.

The minutes of the previous meeting, having already appeared in the *Journal of Mental Science*, were taken as read, and were approved and signed by the President.

The late Dr. J. Beveridge Spence, O.B.E.

(Ordinary Member since 1875 ; First Registrar, 1892-99 ; Chairman, Parliamentary Committee, 1910-12 ; President, 1899-1900.)

At the request of the relatives the usual obituary reference by the President (and which was to include the *Journal*) was omitted. The meeting, however, on the suggestion of the President, stood in silence, as a mark of respect to their departed friend.

THE REPORT OF THE COUNCIL.

Appointment of Librarian.

The PRESIDENT announced that the Council under Bye-law 68 had appointed Dr. J. R. Whitwell to be the Association's first Librarian. (Loud applause.)

Grant to Library Committee.

The Council recommended that the Library Committee be granted the sum of £25 for the current year, to enable it to carry out its new reference. [Agreed.]

The First Study Tour.

Congratulations were offered by the Council to the Study Tours Sub-Committee, and particularly to Dr. Evans, its able secretary, for the success of the visit to the Dutch Mental Hospitals and Clinics, which took place from October 17-25. It was the first tour the Sub-Committee had organized and was thoroughly enjoyed by those taking part in it.

Revision of Bye-laws.

The revocations and alterations of the Bye-laws had been allowed by the Privy Council, and were now in force (since October 29, 1928).

The Presentation to H.R.H. Princess Mary, Viscountess Lascelles.

The reply which H.R.H. Princess Mary had been pleased to make to the Address of the President on the occasion of the presentation to Her Royal Highness of the Association's Nursing Medal in gold and Honorary Certificate in Mental Nursing was then read.

It was received with loud applause.

ELECTION OF NEW CANDIDATES FOR MEMBERSHIP.

The PRESIDENT nominated as scrutineers for the ballot Dr. Douglas McRae and Dr. A. A. W. Petrie.

The following were unanimously elected ordinary members of the Association :

SCHOLBERG, HAROLD ALFRED, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.H., (formerly Sir Trevor Lawrence Research Student in Pathology) ; Grocers' Company Research Scholar ; Fellow Royal Society of Medicine ; late Lecturer on Bacteriology, University College, Cardiff ; Senior Pathologist, Cardiff Royal Infirmary ; Pathologist, Cardiff City Mental Hospital. Address : 3, St. Andrew's Crescent, Cardiff.

Proposed by Lt.-Col. E. Goodall, Drs. E. Barton White and J. R. Lord.
WESTON, ANGUS HAROLD, M.B., Ch.B.Edin., Assistant Medical Officer, Devon Mental Hospital, Exminster.

Proposed by Drs. Richard Eager, C. F. Bainbridge and W. Starkey.
HOWIE, JAMES ERSKINE, M.B., Ch.B.Liverp., M.R.C.S., L.R.C.P.Lond., D.P.M.Manch., Assistant Medical Officer, County Mental Hospital, Prestwich, Manchester.

Proposed by Drs. L. C. F. Chevens, G. C. Parkin and J. Ernest Nicole.
QUINE, MARGARET ANNETTE, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, County Mental Hospital, Winwick, Lancs.

Proposed by Drs. F. M. Rodgers, J. Gifford and J. Ernest Nicole.
CALDER, FLORA HANNAH MACDONALD, M.A., M.B., Ch.B.Edin., Assistant Medical Officer, County Mental Hospital, Winwick, Warrington, Lancs.

Proposed by Drs. F. M. Rodgers, J. Gifford and J. Ernest Nicole.

GORDON, RONALD GREY, D.Sc., M.D., F.R.C.P.Edin., 9, The Circus, Bath.
Proposed by Drs. R. Langdon-Down, J. D. Thomas and Edward Mapother.
 CALDWELL, WILLIAM ALEXANDER, M.R.C.S., L.R.C.P.Lond., D.P.M., attached to the Pathological Laboratory, Maudsley Hospital, S.E.
Proposed by Drs. J. R. Lord, W. D. Nicol and A. Walk.

DISCUSSION.

A discussion followed, under the auspices of the General Paralysis Sub-Committee, on certain points raised in papers on the subject by Drs. J. Brander and J. F. Smyth at the Annual Meeting (*vide* p. 1).

There were present about 80 members, of whom 17 took part in the discussion.

SOUTH-EASTERN DIVISION.

THE AUTUMN MEETING of the Division was held, by the courtesy of Dr. G. H. Adam, at Malling Place, West Malling, Kent, on Monday, September 24, 1928.

There were present twenty-seven members and the following guests: Misses E. L. Adam, E. M. Adam, Dr. A. D. Parr-Dudley, Dr. H. Gray, Dr. A. H. Roberts, Mrs. Dorothy M. Hardcastle, Dr. C. M. Hext, Dr. Margaret M. Knight, of Auckland, New Zealand, Mrs. E. E. Adam, Mr. and Mrs. C. J. L. Bird, and Dr. A. F. Cole.

Members and guests were escorted in small parties by Dr. G. H. Adam and his friends and colleagues, and taken round the various portions of the House and grounds. Dr. and Mrs. Adam then entertained the members and visitors to lunch in a marquee in the grounds.

Dr. J. R. LORD proposed the health of the host and hostess, which was drunk with acclamation. Dr. Adam replied.

At the meeting which followed Dr. Lord took the chair.

The minutes of the last meeting, having been published in the Journal, were taken as read and approved, and signed by the Chairman.

The arrangements for the date and place of the Spring Meeting, 1929, were left in the hands of the Divisional Secretary.

The CHAIRMAN then expressed regret for the delay which had occurred in completing the arrangements for holding clinical meetings in the Division. He had promised at the Spring Meeting to lend a hand, but other urgent work for the Association, such as the organization of the Annual Meeting, and an unfortunate breakdown in health, had prevented him until recently. At the Honorary Secretary's request the temporary secretaries of sub-areas were sending him lists of hospitals and other information, and it appeared to him that the main difficulty was the presence of the metropolis in the centre of the Division. He was working out the details of a scheme of areas to overcome this, which he hoped to circulate very soon. Once the areas were settled (they would, of course, be subject to revision) machinery for carrying out the meeting had already proved very successful in other Divisions.

The members authorized the Chairman to take over the organization of these meetings, with the cooperation of those who had been kindly acting as area secretaries.

The nomination of nurse representatives of the Division on the Mental Nursing Advisory Committee was left to a later date.

Dr. ADAM read an interesting paper on "Malling Place 1808-1928."

A vote of thanks, proposed by the CHAIRMAN, and seconded by Dr. WOLSELEY-LEWIS, was carried by acclamation.

After this, an informal discussion took place on "Some of the Special Difficulties Arising in the Care of Private Mental Patients," in which the CHAIRMAN, Drs. E. J. NORMAN, F. DILLON, H. WOLSELEY-LEWIS, A. F. COLE, J. M. KNIGHT, NATHAN RAW and NOEL SERGEANT took part.

Members and guests were then entertained to tea, which brought to an end a pleasant and informative meeting.

SOUTH-WESTERN DIVISION.

THE AUTUMN MEETING of the Division was held, by kind invitation of Dr. J. L. Jackson and the Visiting Committee, at the Hants County Mental Hospital, Knowle, Fareham, on Friday, October 19, 1928.

Sixteen members and one visitor were present.

Dr. J. L. Jackson was voted to the chair and the minutes of the last meeting were confirmed and signed.

Apologies for absence were received from Drs. Soutar, Nelis, Eager, Rutherford and others.

Dr. Starkey was nominated Hon. Divisional Secretary and Drs. Soutar and McGarvey representative members of Council for the year 1929-30.

Dr. T. Beaton, *O.B.E.*, was nominated a member of the Mental Nursing Advisory Committee to the General Nursing Council for England, in place of Dr. Barton White, who is unable to act.

With regard to the election of a member of the male and female teaching staffs to represent the Division on the Mental Nursing Consultative Committee of the Education Committee, the Hon. Divisional Secretary was instructed to circularize the various hospitals in the Division asking for nominations, the final selection to be left in the hands of the Chairman, Secretary and Divisional Committee of Management.

The following were elected ordinary members of the Royal Medico-Psychological Association :

HENRY JOSEPH CATES, M.D.Lond., Medical Superintendent, Northwoods House, Winterbourne, Bristol.

Proposed by Drs. J. D. Thomas, W. Starkey and H. B. Wilkinson.

VLADIMIR KAMENEFF, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Knowle Mental Hospital, Hants.

Proposed by Drs. J. L. Jackson, C. E. A. Shepherd and W. Starkey.

An invitation from Dr. Bertha Mules to hold the Spring Meeting on Friday, April 26, 1929, at Cliffden, Teignmouth, Devon, was gratefully accepted.

A paper on "Epilepsy" by Dr. ISAAC ATKIN (*vide* p. 101) was read by Dr. C. E. A. SHEPHERD and gave rise to an interesting discussion, in which Drs. J. S. I. SKOTTOWE, T. BEATON, C. G. AINSWORTH, J. L. JACKSON and W. J. A. ERSKINE took part.

The remainder of the meeting was of a purely clinical character, and a most interesting series of cases was exhibited and demonstrated by Drs. V. Kameneff and C. E. A. Shepherd, Assistant Medical Officers.

The former showed (1) case of hypopituitarism, (2) two cases of non-pulmonary tuberculosis treated by tuberculous antigen, and (3) a series of cases of varicose veins treated by injection. Dr. Shepherd showed two cases of anæmia treated by liver diet. Mr. Ord, Consulting Surgeon to the hospital, and various members made most valuable contributions to the discussion on these cases.

During the morning members visited the hospital, and were much impressed by the way in which an old institution is being brought up to date and by the spirit of progress which was everywhere in evidence.

The members were most hospitably entertained to lunch, at which the Chairman (Sir Montague Foster) presided.

A hearty vote of thanks to the Chairman and Dr. Jackson terminated a most successful meeting.

NORTHERN AND MIDLAND DIVISION.

THE AUTUMN MEETING of the Division was held by the courtesy of Dr. H. G. Drake-Brockman at St. Luke's Hospital, Middlesbrough, on Thursday, October 25, 1928.

There were twelve members and five visitors present.

Members were shown over the Hospital and afterwards entertained to lunch by Dr. Drake-Brockman.

Dr. DOVE CORMAC proposed a vote of thanks to Dr. Drake-Brockman for his hospitality and kindness in inviting the Division to meet at Middlesbrough. This was cordially agreed to.

On the proposal of Dr. BEDFORD PIERCE, seconded by Dr. J. I. RUSSELL, Dr. Brockman was elected Chairman of the meeting.

The minutes of the Spring Meeting were read, confirmed and signed by the Chairman.

Letters expressing regret for not being able to attend were received from Dr. T. C. Graves and Dr. Donald Ross.

Prof. J. Shaw Bolton, Drs. M. A. Archdale, G. L. Brunton, Dove Cormac, R. C. Forrester and J. I. Russell were re-elected members of the Divisional Committee.

Miss Celia M. Moore, Cheshire County Mental Hospital, Macclesfield, was, according to the procedure laid down by Bye-law 26, elected a member of the Mental Nursing Consultative Committee, and Mr. Jas. Baird, County Mental Hospital, Lancaster, was nominated as a candidate for election to this Committee by the Educational Committee.

The following were elected by ballot ordinary members of the Association :

DAVID KENNEDY BRUCE, M.B., Ch.B.Glasg., Medical Officer, Storthes Hall Mental Hospital, Kirkburton, near Huddersfield.

Proposed by Drs. J. Shaw Bolton, C. W. Ewing and M. J. McGrath.

THEONIE RENÉE CHAPMAN, M.B., B.S.Durh., Assistant Medical Officer, Northumberland Mental Hospital, Morpeth.

Proposed by Drs. G. R. East, R. C. Illingworth and J. B. Tighe.

ROBERT WILLIAM MACDONALD, M.B., B.Ch.Glasg., Medical Officer, Ministry of Pensions Hospital, Kirkburton, near Huddersfield.

Proposed by Drs. J. Shaw Bolton, C. W. Ewing and M. J. McGrath.

HENRY CECIL WALDO, M.R.C.S., L.R.C.P.Lond, Barrister-at-Law, Medical Superintendent, Notts County Mental Hospital, Radcliffe-on-Trent, Notts.

Proposed by Drs. G. Warwick Smith, G. W. Shore, Noel G. Harris and J. B. Tighe.

ARTHUR GURNEY YATES, M.A., M.D.Edin., M.R.C.P.Lond., Physician, Sheffield Royal Infirmary, 53, Wilkinson Street, Sheffield.

Proposed by Drs. W. Vincent, J. Moir Mathieson and F. Thorpe.

It was left to the Hon. Secretary to arrange the date and place of the Spring Meeting, 1929.

Dr. MIDDLEMISS read a paper, "Some Remarks on the Certification of the Mental Defective" (*vide* p. 45), which gave rise to a very interesting discussion, in which Drs. Drake-Brockman, Archdale, Russell and Davie took part. The view was advanced that though the definition of a mental defective laid down in the Act of 1927 simplified the practice of certifiers, it had undoubtedly caused confusion. Dr. Middlemiss in his reply said that the extension of the age to eighteen years did make it possible for cases of dementia præcox to be included.

In reply to another question Dr. MIDDLEMISS said he always thought it wiser when certifying to use the lesser degree of deficiency, *e.g.*, if higher than an imbecile he used the term "feeble-minded."

Mr. W. BRITTAN JONES described a case of mammary abscess and a case of abscess of the liver, in both of which melancholic symptoms were found. He said that these bodily conditions had for a long period escaped diagnosis, and he consequently was impressed with the importance of very careful examination of all mental cases for physical disease.

Dr. J. P. STEEL read a paper entitled "The Routine Treatment of Epilepsy" (*vide* p. 107).

The CHAIRMAN returned thanks to the speakers for the interesting and informing contributions which they had brought before the meeting. His remarks were endorsed by Drs. BEDFORD PIERCE and DOVE CORMAC and the proceedings terminated.

Members were afterwards entertained to tea by Mrs. Drake-Brockman, during which a cinema film, "The Manufacture of Iron and Steel from Ironstone to the Finished Product," was shown. This gave an interesting picture of the principal industry of Middlesbrough, where the film was taken, as well as of the industrial life of the River Tees generally.

SCOTTISH DIVISION.

THE AUTUMN MEETING of the Scottish Division was held at Kirklands Mental Hospital, Bothwell, on Friday, December 14, 1928.

There were present twenty-seven members.

Dr. C. C. Easterbrook, Divisional Chairman, occupied the Chair.

Before taking up the ordinary business of the meeting the Chairman feelingly referred to the death of Dr. R. B. Mitchell, who had joined the Association in 1881, and who, though handicapped through life by deafness, had, as Medical Superintendent of the Midlothian and Peebles District Asylum, Rosslynlee, for the long period of twenty-eight years, rendered valuable service in the care and treatment of the insane. He also spoke of Dr. Mitchell's fine personal qualities, and of the interest he took in the affairs of the Scottish Division. It was unanimously resolved to record in the minutes that the members of the Scottish Division of the Royal Medico-Psychological Association desire to express their deep sense of the loss sustained by the death of Dr. R. B. Mitchell and their sympathy with the members of his family in their bereavement, and the Secretary was instructed to send an excerpt of the minute to Mrs. Mitchell.

The minutes of the last Divisional Meeting were read and approved, and the Chairman was authorized to sign them.

The Secretary submitted a letter of acknowledgment from Dr. D. R. Oswald thanking the Division for its kind letter of sympathy, and also a letter from Dr. R. B. Campbell thanking the Division for their good wishes for his restoration to health.

Apologies for absence were intimated from Drs. D. K. Henderson, W. Boyd, A. Ninian Bruce, H. de M. Alexander, T. C. Mackenzie, George Gibson, Tuach Mackenzie, W. K. Anderson, J. H. C. Orr, R. Mary Barclay, H. C. Marr and Prof. G. M. Robertson.

Dr. R. B. Campbell was nominated Divisional Chairman, Drs. R. B. Campbell and Neil T. Kerr for Representative Members of Council, and Dr. Wm. M. Buchanan Divisional Secretary for the year 1929-30.

The SECRETARY reported that a proposal to institute a Mental Nursing Advisory Committee to the Educational Committee had been approved by the Annual Meeting of the Association in July, 1928. He explained the constitution of this Committee and saw that the names were requested to be notified before the quarterly meeting in November. As no meeting of the Division would take place in time, the matter had been referred to the Business Committee, who had appointed Miss Maccallum, Dykebar Mental Hospital, as the Scottish female representative, and had decided not to nominate a male representative, as few, if any, of the male nursing staff in Scotland were engaged in teaching. The meeting unanimously approved of the action of the Business Committee in the matter.

The Local Government (Scotland) Bill was discussed. Several members expressed the fear that under its provisions local lunacy and mental deficiency administration might come directly under the control of the county or burgh medical officers of health. The meeting was unanimously of opinion that any such departure would be detrimental in its results. The Business Committee was instructed to watch the progress of the Bill, and to make suitable protest should it prove to be the intention of the Government to place local lunacy and mental deficiency administration under the control of the medical officer of health.

Members were kindly entertained to lunch in the hospital, and, on the motion of Dr. Easterbrook, the Joint Committee and Dr. Buchanan and his staff were cordially thanked for the arrangements made in connection with the meeting, and for their kind hospitality.

On the meeting reassembling Dr. BUCHANAN presented the following cases :

1. Case of multiple cavernous angiomata, of special interest from the nursing standpoint, owing to the danger of a trivial injury producing alarming and possibly fatal hæmorrhage.

2. Case of post-encephalitic Parkinsonianism exhibiting in marked degree the symptom of retropulsion.

3. Case of paranoid dementia with irritative and paretic cranial nerve lesions due to gummata of the posterior edge of pons and anterior edge of medulla; recovery from cranial nerve symptoms followed arsenic, mercury and iodide therapy.

4. Case of dementia in a girl, æt. 17, with stigmata of congenital syphilis, who developed normally till the age of 12, and then rapidly became demented. Mental age now 3. Blood and cerebro-spinal fluid Wassermann positive. Pandy and Ross Jones tests positive; gold-sol curve luetic; cerebro-spinal fluid cells not increased. No physical signs of general paralysis.

5. Case of juvenile general paralysis with syphilitic stigmata, who had recently given birth to a full-term healthy child without labour pains.

The last three cases were shown in order to introduce a discussion on the diagnosis of general paralysis. Many members took part in it, and several interesting views were expressed. The discussion brought out the necessity of defining clearly what exactly was meant by the term "general paralysis" before the diagnosis of the condition could be profitably discussed.

A vote of thanks to the Chairman terminated the business of the meeting, and thereafter members were entertained to tea by Dr. and Mrs. Buchanan.

IRISH DIVISION.

THE AUTUMN MEETING of the Irish Division was held at Grangegorman Mental Hospital, Dublin, by the kind invitation of the Joint Committee of Management of Grangegorman Mental Hospital and Dr. J. O'Connor Donelan, Medical Superintendent, on Thursday, November 15, 1928.

Members present: Dr. J. O'Connor Donelan (in the Chair), Dr. D. L. Kelly, Inspector of Mental Hospitals, Irish Free State, and twenty-three other members.

After luncheon members visited the wards for a demonstration of clinical cases by Dr. Stanley Blake and Dr. Dunne (*vide p. 191*).

Members then assembled in the Board Room of the Hospital.

The minutes of the previous meeting were read, approved and signed by the Chairman.

Letters of apology for unavoidable absence were read from Drs. F. J. Deane, G. R. Lawless, O'Kelly, Parsons, Bigger, O. F. McCarthy, Hardy, S. Graham, G. W. M. Scroope and Mr. Chance.

The following were elected, by ballot, ordinary members of the Association:

JOHN FITZGERALD, M.D., B.Ch.N.U.I., D.M.D., Assistant Medical Officer, Grangegorman Mental Hospital, Dublin.

Proposed by Drs. J. O'Connor Donelan, Stanley Blake and Dunne.

PATRICK JOSEPH CASSIN, M.D., B.Ch.N.U.I., D.M.D., Assistant Medical Officer, District Mental Hospital, Kilkenny.

Proposed by Drs. L. Gavin, P. Moran and R. R. Leeper.

The question of the recognition of the Association's Certificate for Registration by the General Nursing Councils was next discussed. It was considered desirable to have a person connected with the teaching and training of mental nurses as representative on the Irish Free State General Nursing Council, and it was resolved that Dr. R. R. Leeper, Hon. Sec. of the Irish Division, be nominated by the Division as its representative.

The meeting then appointed Miss Delaney, Matron of Mullingar District Mental Hospital, Nurse Representative for Ireland on the Advisory Committee to the Educational Committee.

After some discussion it was decided to abandon the January meeting of the Division and to hold the next Clinical Meeting at Belfast in April, by the kind invitation of Dr. Graham, Medical Superintendent of Purdysburn Villa Colony.

A cordial vote was passed with acclamation, recording the thanks of the Division to the Joint Committee of Management of Grangegorman Mental Hospital for their hospitality and kindness, and to Dr. J. O'Connor Donelan for affording members an opportunity of visiting the Hospital and successfully commencing the Clinical Meetings of the Division, and also to Drs. J. O'Connor Donelan, Stanley Blake and Dunne for the demonstrations.

DIVISIONAL CLINICAL MEETINGS.

Bristol Mental Hospital, Fishponds, Bristol.

A Divisional Clinical Meeting was held at the hospital on Tuesday, October 16, 1928 (postponed from September 25).

Present: Five members and one visitor. Dr. E. Barton White presided.

Dr. Townsend courteously wrote and explained how it was impossible for him to attend.

The following cases were demonstrated and discussed:

(1) A case of disordered metabolism in a girl, *æt.* 17, was shown, with her weights

for the last three years, curves of her blood-sugar tolerance, and records of her mental state, by Dr. BARTON WHITE.

(2) A case of ichthyosis, by Dr. J. REID

(3) A post-puerperal case for prognosis, by Dr. H. SMITH.

Members were afterwards entertained to tea.

Stafford County Mental Hospital.

A Clinical Meeting was held at the above hospital on Thursday, November 1, 1928.

Present: Seven members and 7 visitors. Dr. B. H. Shaw presided.

Dr. G. J. SMITH demonstrated 6 cases of general paralysis treated with tryparamide. All had shown marked physical improvement and also some improvement mentally.

Dr. K. K. DRURY demonstrated 4 cases of suspected epidemic encephalitis that showed improvement after treatment by ultra-violet rays. An interesting discussion followed, and the necessity of distinguishing the condition from that following coal-gas poisoning was pointed out by Dr. Shaw—two cases being probably due to this.

A number of pathological specimens were shown, including the following:

(1) Hyperostosis of frontal bone; (2) rupture of left ventricle of the heart; (3) a teratoid inclusion cyst of brain; (4) cerebral softening; (5) cerebritis resulting from trauma.

The wards of the hospital were then visited and afterwards the laboratory, where a new staining method was demonstrated by Dr. Drury and a Leitz microphotographic apparatus shown.

Grangegorman Mental Hospital.

A Divisional Clinical Meeting was held in connection with the Autumn Meeting of the Irish Division at the hospital on November 15, 1928.

Dr. STANLEY BLAKE demonstrated three cases of post-encephalitis lethargica. The first and second were single women, aged 18 and 24 respectively, the encephalitic attack having occurred four or five years ago. They had well-marked Parkinsonian symptoms with general coarse tremors and rigidity.

The ability to overcome these symptoms by voluntary effort was demonstrated by getting the patients to dance. In both there was marked mental deterioration.

The third case was that of a married woman, *æt.* 24, who contracted encephalitis lethargica previous to marriage. She had two healthy children. There were no Parkinsonian symptoms in her case, but a remaining right-sided hemiplegia. The mental deterioration was not so marked.

Dr. JOHN DUNNE demonstrated two mental cases associated with delinquency:

CASE 1.—Male, admitted May 9, 1923, charged with having damaged a door in Clarendon Street Church. Described as being rational and expressing no delusions.

Since admission he has kept very much to himself, not associating with or speaking to other patients. He works as an upholsterer and has done some rather fine work. Admits having hallucinations of hearing. Has never given any trouble, but seems to suffer from progressive enfeeblement of his intellect.

The interest attaching to this patient arises from the fact that he was an artist. A short time ago a famous painter who called, said that the patient was one of the most promising artists in the School of Art where he the visitor, was a Professor. The patient appeared very pleased to see the visitor, and inquired with great interest after mutual acquaintances in the Art School. The Professor then spoke to him of his art, and the patient evidently found it difficult to understand or to answer complicated questions, his mind seeming confused, and to all appearances his intelligence impaired. His expression was vacant.

After much persuasion the patient eventually produced from his pocket a dirty piece of knotted twine, and explained that this was an idea of his for designing clothes material. Questioned as to why he should not continue his painting here, he said that he could not paint, that he had no wish to, that it was not the same here as if he had his liberty.

The last three cases were shown in order to introduce a discussion on the diagnosis of general paralysis. Many members took part in it, and several interesting views were expressed. The discussion brought out the necessity of defining clearly what exactly was meant by the term "general paralysis" before the diagnosis of the condition could be profitably discussed.

A vote of thanks to the Chairman terminated the business of the meeting, and thereafter members were entertained to tea by Dr. and Mrs. Buchanan.

IRISH DIVISION.

THE AUTUMN MEETING of the Irish Division was held at Grangegorman Mental Hospital, Dublin, by the kind invitation of the Joint Committee of Management of Grangegorman Mental Hospital and Dr. J. O'Conor Donelan, Medical Superintendent, on Thursday, November 15, 1928.

Members present: Dr. J. O'Conor Donelan (in the Chair), Dr. D. L. Kelly, Inspector of Mental Hospitals, Irish Free State, and twenty-three other members.

After luncheon members visited the wards for a demonstration of clinical cases by Dr. Stanley Blake and Dr. Dunne (*vide* p. 191).

Members then assembled in the Board Room of the Hospital.

The minutes of the previous meeting were read, approved and signed by the Chairman.

Letters of apology for unavoidable absence were read from Drs. F. J. Deane, G. R. Lawless, O'Kelly, Parsons, Bigger, O. F. McCarthy, Hardy, S. Graham, G. W. M. Scroope and Mr. Chance.

The following were elected, by ballot, ordinary members of the Association:

JOHN FITZGERALD, M.D., B.Ch.N.U.I., D.M.D., Assistant Medical Officer, Grangegorman Mental Hospital, Dublin.

Proposed by Drs. J. O'Conor Donelan, Stanley Blake and Dunne.

PATRICK JOSEPH CASSIN, M.D., B.Ch.N.U.I., D.M.D., Assistant Medical Officer, District Mental Hospital, Kilkenny.

Proposed by Drs. L. Gavin, P. Moran and R. R. Leeper.

The question of the recognition of the Association's Certificate for Registration by the General Nursing Councils was next discussed. It was considered desirable to have a person connected with the teaching and training of mental nurses as representative on the Irish Free State General Nursing Council, and it was resolved that Dr. R. R. Leeper, Hon. Sec. of the Irish Division, be nominated by the Division as its representative.

The meeting then appointed Miss Delaney, Matron of Mullingar District Mental Hospital, Nurse Representative for Ireland on the Advisory Committee to the Educational Committee.

After some discussion it was decided to abandon the January meeting of the Division and to hold the next Clinical Meeting at Belfast in April, by the kind invitation of Dr. Graham, Medical Superintendent of Purdysburn Villa Colony.

A cordial vote was passed with acclamation, recording the thanks of the Division to the Joint Committee of Management of Grangegorman Mental Hospital for their hospitality and kindness, and to Dr. J. O'Conor Donelan for affording members an opportunity of visiting the Hospital and successfully commencing the Clinical Meetings of the Division, and also to Drs. J. O'Conor Donelan, Stanley Blake and Dunne for the demonstrations.

DIVISIONAL CLINICAL MEETINGS.

Bristol Mental Hospital, Fishponds, Bristol.

A Divisional Clinical Meeting was held at the hospital on Tuesday, October 16, 1928 (postponed from September 25).

Present: Five members and one visitor. Dr. E. Barton White presided.

Dr. Townsend courteously wrote and explained how it was impossible for him to attend.

The following cases were demonstrated and discussed:

(1) A case of disordered metabolism in a girl, *æt.* 17, was shown, with her weights

for the last three years, curves of her blood-sugar tolerance, and records of her mental state, by Dr. BARTON WHITE.

(2) A case of ichthyosis, by Dr. J. REID

(3) A post-puerperal case for prognosis, by Dr. H. SMITH.

Members were afterwards entertained to tea.

Stafford County Mental Hospital.

A Clinical Meeting was held at the above hospital on Thursday, November 1, 1928.

Present: Seven members and 7 visitors. Dr. B. H. Shaw presided.

Dr. G. J. SMITH demonstrated 6 cases of general paralysis treated with tryparamide. All had shown marked physical improvement and also some improvement mentally.

Dr. K. K. DRURY demonstrated 4 cases of suspected epidemic encephalitis that showed improvement after treatment by ultra-violet rays. An interesting discussion followed, and the necessity of distinguishing the condition from that following coal-gas poisoning was pointed out by Dr. Shaw—two cases being probably due to this.

A number of pathological specimens were shown, including the following:

(1) Hyperostosis of frontal bone; (2) rupture of left ventricle of the heart; (3) a teratoid inclusion cyst of brain; (4) cerebral softening; (5) cerebritis resulting from trauma.

The wards of the hospital were then visited and afterwards the laboratory, where a new staining method was demonstrated by Dr. Drury and a Leitz micro-photographic apparatus shown.

Grangegorman Mental Hospital.

A Divisional Clinical Meeting was held in connection with the Autumn Meeting of the Irish Division at the hospital on November 15, 1928.

Dr. STANLEY BLAKE demonstrated three cases of post-encephalitis lethargica. The first and second were single women, aged 18 and 24 respectively, the encephalitic attack having occurred four or five years ago. They had well-marked Parkinsonian symptoms with general coarse tremors and rigidity.

The ability to overcome these symptoms by voluntary effort was demonstrated by getting the patients to dance. In both there was marked mental deterioration.

The third case was that of a married woman, æt. 24, who contracted encephalitis lethargica previous to marriage. She had two healthy children. There were no Parkinsonian symptoms in her case, but a remaining right-sided hemiplegia. The mental deterioration was not so marked.

Dr. JOHN DUNNE demonstrated two mental cases associated with delinquency:

CASE 1.—Male, admitted May 9, 1923, charged with having damaged a door in Clarendon Street Church. Described as being rational and expressing no delusions.

Since admission he has kept very much to himself, not associating with or speaking to other patients. He works as an upholsterer and has done some rather fine work. Admits having hallucinations of hearing. Has never given any trouble, but seems to suffer from progressive enfeeblement of his intellect.

The interest attaching to this patient arises from the fact that he was an artist. A short time ago a famous painter who called, said that the patient was one of the most promising artists in the School of Art where he the visitor, was a Professor. The patient appeared very pleased to see the visitor, and inquired with great interest after mutual acquaintances in the Art School. The Professor then spoke to him of his art, and the patient evidently found it difficult to understand or to answer complicated questions, his mind seeming confused, and to all appearances his intelligence impaired. His expression was vacant.

After much persuasion the patient eventually produced from his pocket a dirty piece of knotted twine, and explained that this was an idea of his for designing clothes material. Questioned as to why he should not continue his painting here, he said that he could not paint, that he had no wish to, that it was not the same here as if he had his liberty.

When the patient had retired, the remarks of the Professor were very interesting. He held that the patient was suffering from exaggeration of the artistic temperament, and that his deficiency in expression could be easily explained and perhaps cured. He said that he himself would act in the very same way and would be just as devoid of expression if he were, like the patient, shut away for five years from all congenial company. He said that the patient never at any time in his life had an opportunity of expressing himself, as his family were antagonistic to his artistic leanings and could not understand the great refinement of his nature. He had also had an unfortunate love affair; the woman of his affections, socially his superior, not having the sense to see that the patient was a great artist, declined to have anything to do with him. The result of all this was that the patient had no one in whom he could confide; was thrown back into himself, and cannot now express his inner sense in language. The piece of knotted twine is symbolic of his state of mind, knotted and twisted without any objective, much like the artistic products of the old Irish monks who, shut up in their cloisters, lost the means of expressing themselves, and whose artistic output was symbolic of the state of their minds—nothing but meaningless curves and twisted lines of different colours.

The Professor claimed that only one who had the artistic temperament could understand the workings of the patient's mind, and that a competent psychoanalyst might do much for the patient. Like the great Dutch painter, Van Gogh, who did his best work in a mental hospital, the patient might yet be a great artist.

CASE 2.—Male, admitted July 22, 1927, charged with indecent assault. He had been in St. Vincent's Hospital from May to August, 1926, as a doubtful case of encephalitis lethargica.

Mental state: The most pronounced mental symptoms are emotional and volitional deterioration. He is apathetic, has no spontaneous conversation, feeling or interest, though he may express his likes or dislikes. He is simple-minded; memory defective for general knowledge and arithmetic.

Physical: He exhibits a well-marked pseudo-Parkinsonian syndrome: absence of spontaneous movement, slowness of voluntary movement, muscular rigidity, Parkinsonian expression and tremors (not very pronounced). There is no oculomotor paralysis or disturbance of equilibrium.

Progress: Since admission there has been improvement both mentally and physically.

Dr. DUNNE also demonstrated three cases of general paralysis, all of which had done well under malarial treatment. The most interesting of these was one of the congenital form with euphoria and typical physical signs. He was infected with malaria on March 2, 1928, had twelve rigors, and when demonstrated was quite clear in mind. There was still some slurring of speech.

STUDY TOUR AND POST-GRADUATE EDUCATIONAL INFORMATION SUB-COMMITTEE.

TOUR OF DUTCH MENTAL HOSPITALS AND CLINICS.

(October 17-25, 1928.)

THE party, fifteen in number, left Liverpool Street Station by the 8.15 p.m. boat train for Harwich and The Hook on Wednesday night, October 17, and reached Rotterdam before 8 a.m. the following day. During breakfast at the hotel we were joined by Dr. Pameijer, the Director of the Rotterdam Municipal Mental Hospital at Maasoord, who had made the arrangements, which we were presently to find so thoroughly complete and hospitable, for our visits to the clinics and mental hospitals of Holland. For the entire period he gave up his time to accompany us and to make our way easy and pleasant. His assistance was invaluable in many directions, and not least in the recovery of garments which members of the party scattered over the Pays Bas.

October 18: At 9 o'clock we were received on a Corporation barge by Alderman Nivard, the President of the Hospital Board; Mr. Tarburgh Suermond, the

Chairman of the House Committee; and Mr. La Rivière, the Town Clerk, who conducted us over the great waterways, dockyards and harbours of the city, and afterwards to the miniature harbour of the mental hospital some ten miles up the River Maas.

At the Hospital a cordial reception with an excellent lunch was provided, and, to avoid reiteration, one should say that the thoughtful hospitality of the Netherlands never failed to keep hunger at a distance from the moment we embarked on the barge at Rotterdam till the completion of our visit on the last afternoon at Bloemenvaal; and hospitality in Holland would not be faithfully recorded without mention of its cigars.

Before describing the scheme of this or any other Dutch mental hospital, it is necessary to refer to (1) the existing legal position of the patient, (2) the method of occupational treatment elaborated, in its present form, by Dr. Simon, of Gütersloh; (3) the training of mental nurses; and (4) the "externe" service, or "after-care" association, intimately connected with the mental hospital. These four subjects are described in appendices.

Maasoord Hospital.

The site of Maasoord Hospital was purchased some twenty-seven years ago with a view to enlarging the municipal water supply. When, therefore, it was decided to build a hospital here it was first necessary to raise the level of the ground some 16 to 20 ft. on about 50 acres—with material dredged from the harbour beds. An additional site was similarly constructed in 1921 to provide a kitchen garden.

The Hospital was opened in 1909 with thirteen pavilions or villas of two floors; in 1913 four additional pavilions were built. These each accommodate 50 patients, except two, in each of which there is room for 75.

The pavilions are quite detached and supplies are conveyed along a trolley line. The villas, like so many new houses in Holland, are conspicuous by their flat roofs, which are covered by pebbles set in a rubber preparation. The day-rooms are lofty, and the colourings of the walls, the curtains and the small table covers are all selected with a view to securing a bright effect, and as the window space is considerable this effect is well achieved. The flooring is maple, and this and the furniture are lightly stained and polished and add to the cheery aspect. Many of the wash-basins are in the dormitories and passages. Single rooms are larger than ours and contain much more glass within reach of the patient, e.g., in the doors, but the smashing of windows is almost unknown.

There are three "open" pavilions for men and three for women. To these wards 151 patients of each sex are admitted without any orders or certificates, but of course they may not be detained against their will.

In both sections—open and closed—provision is made for isolation, use of which is primarily made to separate a noisy patient from others who may be excited to a like state. Apart from a few mildly hilarious patients and one violent woman wrapped in a sheet, all the ward patients not confined to bed for sickness were quietly occupied, the lower grade or difficult ones in such simple handiwork as winding balls of string or rubbing lettering off 3-ply wood. A thick cotton is much used for knitting vests and other articles. It was noticeable that many of the women in the wards which were once "turbulent" were doing plain sewing. Raffia is extensively used and, on the male side, coir rope of various colours is woven into mats on frames containing upright rods like large stair-rods; patients of the low and medium grade imbecile type do most of this work, but it is finished by more intelligent patients, who place the rods with the weaving in another frame, extract the rods and replace them by rope, with which the woven parts are securely bound. Another industry of a new type to us was the making of floor mats with small discs of leather strung together on stout wire; machines were used to cut and perforate the leather. Book-binding, envelope-making, brush-making, untying small lengths of knotted string are all useful employments here.

Continuous baths take the place of our padded rooms, of which we saw none. The patient is kept in the bath by a lid of wood or canvas, the opening of which is padded about the neck. We saw a few in use for women in several hospitals and in the clinics—in cases of maniacal excitement and dirty habits.

Although the occupational therapy method of Simon has only been in operation here some six months, the results of its insistent discipline are readily seen in the atmosphere of quiet industry, which is evidently now somewhat of a habit, but only so long as assiduous attention is given by the medical and nursing staff. Patients receive about 10d. a week by way of encouragement, which they either save in the hospital P.O. bank or spend in the hospital shop, which is opened on Saturdays. Eighty per cent. of the 938 patients resident were employed. In one ward, in the Open Section, containing 48 patients, the nurses number 16 for the 24 hours, working on an 8-hour day basis; one or two nurses remain in each ward by night. In the Pavilions there are about 100 bed-rooms for the more experienced nurses in case of urgency. The others live in the newer Nurses' Quarters or outside the estate.

The heating is by hot-water radiators, which keep the indoor temperature some degrees higher than we are accustomed to. Precautions against suicide are less obvious than in England, as this impulse seems much less prominent among Dutch patients.

The treatment of acute mental disease by the induction of narcosis or somnolence over a period of a fortnight or longer is in regular use in Holland with the object of introducing a patient who is distracted by excitement or depression to one of the forms of handicraft treatment. To this end somnifen is largely used according to the method of Dr. Kläsi, of which more will be said in our note on Santpoort.

Patients' morning ablutions are over by 7, and they retire at 8 p.m., but certain who wish to do so may remain up till 10 o'clock, and this is a feature of all the hospitals. Ablutions commence in the Admission Pavilion about 5 a.m. The hours of patients' occupations are 8 till 11.30 and 1.30 till 5.30, i. e. 7½ hours.

Diet: Breakfasts consist of tea, bread and margarine; dinners of meat, roast, minced or stewed, with vegetables or pea soup, bacon or fish. At tea, syrup, treacle, jam, cheese or smoked meat is added to the breakfast menu. Roast meat was first introduced last year.

The ratio of nurses to patients is 1 to 3.6, and the ratio of all staff, including the field and garden attendants, is 1 to 2.5 patients. The medical officers number 6, in addition to the Director.

The cost of nursing and maintenance amounts to £82 to £83 a year for each patient, or about 31s. 6d. a week, 48% of which is for salaries.

In 1927 the admissions numbered 315: 25% of the men and 6.3% of the women were cases of general paralysis. The treatment of this disease is by blood inoculation with malaria. Where the first and second inoculation both fail, resort is had to the North African relapsing fever. The therapeutic results conform statistically with those observed in Britain. The admissions, it is seen, form about a third of the patient population; not including however some 90 patients who left on probation but who were recalled.

To the "open" section there were 101 male and 146 female admissions during 1927. Of these 32.2% were discharged as recovered, and a further 5.4% were returned to their homes as not recovered or placed in a family; 28.3% were transferred to the "closed" section of this or some other mental hospital, i. e. they were "certified."

The deaths were 85.7 per thousand of the patients compared with 72.7 in county and borough mental hospitals in England and Wales. It should be noted that there is not the same kind of filtration of acute mental patients to or from the Poor Law Institutions in Holland as in Britain, and that the only intermediate provision in Rotterdam consists of 20 beds in the Municipal Hospital.

Santpoort Mental Hospital.

October 19: After a successful early rising we left Rotterdam about 8 a.m. for Santpoort, the largest of the Dutch mental hospitals. Built in 1849 and enlarged in 1884, it provides for 1,500 patients of the Province of Noord-Holland. There are two other "county" hospitals, each of which has its own Board of only five members. Unlike Maasoord, this institution consists of two large buildings, for 800 and 600 respectively, and a pavilion for 100 patients. There is a nurses' home with sick quarters, and a temporary building, which altogether accommodate 260 nurses.

The grounds, very largely wooded, extend to only 135 acres, and the fencing of the grounds near the wards is very inconspicuous, except near the men's workshops. The front of the old building has accommodation for 80 private patients on the female side and 60 on the male side. The hospital is divided into sections for 200-300 patients, each being in charge of a physician, an assistant physician and two head nurses. A section used to consist of an observation room, sick quarters and three departments for quiet, for restless, and for intermediate types of patient, and, though the restlessness nowadays under the insistent scheme of occupation is not very obvious, the three terms are still retained.

Wards occupy the ground and first floors, and quiet patients sleep on the second floor.

The wall colouring and furniture have been studied with a view to securing a bright, pleasing aspect, and the rooms where the one-time turbulent patients live are divided up by moveable wooden settees, each little bay thus formed having comfortable space for four or five patients, with a table. We observed the work in several of these rooms through the corridor windows before entering. Our brief passage, nevertheless, disturbed some of the patients a little, and one or two were removed to single rooms for a while, according to the strict requirements of this method of treatment, which forbids unnecessary conversation by patients during working hours. The side rooms are gradually being changed from the old asylum type, and now, with glazed doors, curtains and ordinary door-handles, present a more homely appearance.

One group of previously turbulent women was quietly employed sorting peas, cutting carrots and doing needlework in their own ward, while from time to time the vegetables were removed so that the patient would only be handling a small amount at one time. Hemiplegic patients and those confined to bed for sickness were likewise occupied in winding or needlework, according to their ability. Two or three nurses were attending to groups of about twenty such women.

Another group of women was filling up hollows and ponds in the grounds, using *débris* they had collected in trucks.

In the laundry there was a useful device to prevent the kinking of the cable to the electric irons, the spare length of the cable being controlled by a weighted pulley.

The former residence of the Director, overlooking the mere, being too large, is utilized as a workshop and was to-day crowded with women weaving, book-binding and picture-mounting. The twenty or more looms vary much in size, and much of the work was done with wool, the cotton-weaving being limited mainly to sheeting and towelling. The women also do basketry. One of the few post-encephalitic patients was employed in the translation of an American work on handicrafts, while her amanuensis was a dementia præcox patient.

A considerable stack of old bricks has afforded the lower grade of male patients much work in removing and trimming; others are making tiles and cement blocks for building. A form of wire fencing extensively used in Holland is made by a male patient assisted by a one-handed imbecile who turns the handle of the little machine. In a reception ward of the male "open" section there was the same atmosphere of quiet occupation. The making of paper bags and envelopes and string net bags is carried on.

We saw several useful pieces of gymnasium equipment which were not much in use at the moment on account of the extensive structural alterations in the 1884 building. There is a room also for Fränkel's re-educative physical exercises.

Among the private patients the same occupational therapy is carried out, and these ladies and gentlemen are induced to co-operate with the nurses in some form of employment, from polishing metal tankards to intricate toy-making and fret-work.

Two patients to-day were in the permanent bath, a means of restraint now used much less than formerly.

Patients remain up till 9 p.m., unless there is reason for them to retire earlier.

The cooking of the dinners is by steam for the aided patients and those of the third-class paying group. This meal consists of meat and vegetables. For breakfast at 8 a.m. there are tea, bread and cheese. An evening meal at 6 p.m. is of a similar kind. Tea and coffee are also served at 10 a.m. and 4 p.m., with some bread and butter. The meals are carried from the kitchen in pails marked with the ward number; no food trolleys are used.

One of the current modes of treatment for acutely excited or depressed conditions is the induction of a state of somnolence by the narcotic preparation, somnifen, introduced by Dr. Kläsi, of Switzerland. It is given orally or by injection into the buttocks twice a day for fifteen days in the case of manic-depressive insanity and for a few days in dementia paralytica. It is essential that the patient undergoing this treatment be not disturbed by light or noise, and several other precautions have to be taken, as in the case of sulphonal. As the somnolence is disappearing, the patient is dressed and given exercise between two nurses, and while still under the influence of the drug is started on manual occupation and so introduced to the habit of quiet behaviour and employment. An alternative drug is opium, 50 mgrm., increased by stages over ten days to 200, and then diminished to 50, and withdrawn after three weeks.

We saw the laboratory for experimental psychology which is connected up with the wards electrically, so that research may be conducted without removing patients from their own quarters.

During the year 1927 the admissions numbered 430, or 30% of the present number of patients. Those discharged, relieved or recovered, numbered 250, or 58% of the admissions.

One hundred and fourteen patients died in the year—a rate of 78·3 per thousand, of which tuberculosis in all forms accounted for 7·5. There were no deaths from malignant disease. Two suicides occurred, one outside the hospital, and another, an imbecile, who had been here seven years, due to gas. There have been only 2 cases of dysentery in eighteen years. The nursing staff is in the proportion of 1 to 3·9 patients, while the total staff bears the ratio of 1 to 2·6 patients. All the male nurses and more than half the female nurses hold the State diploma.

On the evening of this day (Friday) we reached Amsterdam and remained there till Monday morning.

On Saturday morning Dr. Pameijer took us to the City Museum, where there was an exhibition of apparatus of the period when mechanical restraint was in general use for troublesome patients.

University Clinic, Amsterdam.

October 20: The afternoon we spent at the Clinic of Prof. K. H. Bouman, in the Hospital of the University, where there are 200 beds for neurological and mental patients without the need for any form of certification or detention order. Its objects are to provide instruction, observation and treatment of patients, and means for research; the principle of social prophylaxis is kept to the fore.

Close *liaison* is maintained with the social service department of the city, the population of which is about 800,000 and the number of insane about 3,000.

Describing his classification of mental disease Prof. Bouman denoted two main groups—exogenous, in which the factors are environmental, and endogenous, in which there is a personal bias in the direction of insanity. The former includes infection, lues, alcohol and trauma, and the latter, conditions of innate disturbance of development, *i.e.*, imbecility, senility, schizophrenia, neurasthenia and manic-depressive insanity. Infection, senility and schizophrenia he finds slightly more frequently in women, manic-depressive two and a half times more frequently, and neurasthenia considerably more frequently than in men. Only the congenital factor appears more frequent in the male sex.

He sees in this sex distribution a possible new risk to womankind, now leaving the shelter of home and submitting to the influence of the less desirable effects of society. He maintains therefore that in order to render the conditions safe for women on the stage on which they have now appeared, we should fight for a remedy for this harmful environment.

There was a large reduction in the alcohol factor at the end of the Great War, but a corresponding large increase in the infection factor—largely influenza. Lues has diminished as a result of treatment, but trauma claims a larger proportion with the increase in traffic.

The clinic contains 100 beds for men and 100 for women, the admissions per annum number 1,800 to 2,000. The wards contain from three or four to a dozen beds, and there are several single rooms, in one of which we saw a patient on the East suffering from leprosy with mental depression. One new corridor

of single rooms has good natural light with an extensive range of unbreakable glass. Some two or three noisy women were under treatment by continuous bath.

Late information shows that the ratio of nursing staff to patients is 1 to 2 in a 48-hour week.

In the Clinic of the University of Utrecht where there are 102 beds (51 for each sex) there are 68 nurses, male and female, whose working hours are 60 a week.

Two demonstrations of considerable interest were given by members of the Professor's staff:

1. In the laboratory of experimental psychology, where Dr. Godefroy explained the photogram method of recording the various types of motor disturbances and showed us intelligence tests.

2. In the lecture theatre, where four unusual cases were shown, three having some resemblance to Huntington's chorea, and the fourth a form of Parkinsonianism.

Apeldoorn Mental Hospital.

October 22: A journey of fifty miles brought us to Apeldoorn, where, about two kilometres outside the town, in the pine and beech plantations, stands a mental hospital, provided by the Jewish community for 650 patients of their own faith, in which their own religious scruples may be fully observed.

Some distance from this institution of about 100 acres is a farm of 70, and in Apeldoorn a couple of large houses for some 23 mentally defective children. Near Amsterdam there is a second school for 30 such patients. Of the 120,000 Jews in Holland, 70,000 reside in Amsterdam; 100 of their patients are treated elsewhere than in this special mental hospital. Whereas the incidence of insanity in Holland is 2·8 per thousand, among the Jews of the country it is 6·25 per thousand, showing a preponderance which is said to exist also in other European countries.

The patients are housed in four long parallel buildings, with the rooms to the south and the corridors to the north. The distribution is:

Women	160
Administrative quarters and sanatorium in the wings for 45 men and 45 women, all uncertified	90
Men	160
Feeble and demented men.	75
Idiots 32 and female private patients, 95	127

The rooms in each building open from one to another by wide doors; this permits of patients being separated into groups of about 8 or 10 by day or night. The doors and French windows give direct access to the gardens, which are mostly enclosed by a high wire fence.

Well-furnished quarters are provided for private patients, those of the first class paying about £250 a year, but only 18 of the 30 beds in this section were occupied.

The building for women of the noisy type contained one or two in continuous baths, and some forty more largely unemployed. In some of the wards there was activity in handicrafts, and on the male side a workshop of 70 to 80 men was busy on mat, brush and paper-bag making and tobacco-leaf stripping; in other departments one saw tailoring, bootmaking and carpentry.

Previous to the introduction of Dr. Simon's method of occupational therapy, 41% of the patients were unoccupied for mental reasons; within six months of its operation here this percentage was reduced to 21.

Dr. Kat, the Director, has three medical assistants. There are 40 male and 120 female nurses, or 1 to 4 patients. The entire under-staff numbered 262 at the end of 1926, or 1 to 2·4 patients. About half the male nurses hold the diploma as does a fourth of the female nurses. The maintenance cost was, on an average, £80 for each patient.

As no *post-mortem* examination is allowed under the religious tenets of the Managers, laboratory research is limited to clinical channels. Dr. Lobstein, the Deputy Director, has recently conducted investigations of blood coagulation and sedimentation times, and is now carrying out researches into heredity.

We returned in the evening to see a film of Dutch life, which was shown to about 150 patients—as many as the sewing room would accommodate. A new recreation hall is shortly to be built.

The cinema apparatus was a portable one the size of a suit-case and cost about

£60; the ordinary lighting circuit was used, and no restrictions appeared to have been imposed to prevent fire.

The Managers of this hospital have provided, in two large villas in Apeldoorn, a residential school for mentally defective children. From the work done, the progress reports and the appearance of the children it would seem that both imbecile and "backward" patients are received here, although the total number is only 23, for whom there is a staff of five certificated teachers and three maids.

The medical officer, Miss van der Wal, told us during tea about the work here. The need is recognized for the individual training of such patients in the use of the hands and in the development of the perceptive senses. The cost per patient in this little school amounts to £100 a year, of which less than £60 is contributed by the "local authority."

Brinkgreven Mental Hospital.

October 23: Rising early we took a bus through Deventer, some ten miles east of Apeldoorn, to the Brinkgreven Mental Hospital.

It is built on the villa or pavilion system. There are seven main residential buildings for patients, one of which is an acute hospital for men and women. Small buildings, such as an old farm-house, have been adapted also for small groups of patients who need little supervision. Another spacious cottage near the gardens has been converted into a rest-home and tea-room for the patients working out of doors. The number of beds is 426.

Outstanding features of the hospital are the agricultural activity, the detailed precision with which staff duties are allocated and records taken, and the closer observation of acute patients than we had observed previously; precautions against suicide are more in evidence.

Some of the land yields three or four crops of hay; potatoes, rye, oats, brown beans and roots for the cattle are cultivated. The kitchen garden provides all the vegetables for the patients and staff here and for an institution in Deventer.

There are 76 home-bred cows, 40 of which are in milk at present. A modern byre has been built with a drinking-water device that the cow can turn on at will. All the tails are tied to pulleys to avoid soiling. This new byre was not as well ventilated as we expected in a modern farm and the cows were crowded closely together.

Farming and forestry are carried on by the patients on four other sites than that of the hospital. Some of the fir plantations are now twenty years old; near one of them is a small farm-house where some half-dozen patients live.

The entire staff numbers 152, or 1 to 2.8 patients. The acute or observation block of 40 patients has 16 nurses, and in a block of 60 dangerous patients there were 13 nurses on duty. Women nurses take duty in men's wards. They all work on the 8-hour-day system.

Adjoining the acute block are an operating theatre, room for light-treatment, mainly for tuberculous and skin conditions, and a clinical laboratory.

Several details are worthy of record. For changing dirty bed patients there is a strong cycle-tube frame about 2½ ft. high, with a stout canvas sheet stretched over the top. Beds for out-door use, on verandahs, are made of stripped branches, like rustic seats. Light linen screens are placed between the beds of patients liable to excitement to minimize the irritation from their neighbours. The beds of epileptic patients are furnished with horse-hair pillows covered with a wide-meshed cotton net pillow-case. A room is provided for drying patients' garments after rain, and the ablation rooms in this hospital, separate from the wards, have fixed foot-baths. Entire windows of tuberculous wards are fitted with small-meshed wire gauze, which provides free ventilation. Doors which must be kept locked are marked with a small red star. Some of the kitchens are provided with a steam machine which automatically washes and dries the dishes once they are placed on grid trays. Single rooms are furnished with curtains, and the doors, by a special device, can be opened inwards or outwards by the nurse. Men are encouraged to use the swimming-bath.

Dr. le Rütte does not approve of the somnifen or other systematic hypnotic drug treatment. Industry is evidently the habit of the institution, without any monetary reward save that provided by the patients' friends; many patients, confined to bed, were actively occupied in needlework or knitting. Wherever

handicrafts are carried on, in ward or workshop, any unnecessary walking about is forbidden and a quiet environment is insisted upon. For patients who do not comply there is the single room or the continuous bath.

Dysentery has not occurred for some years—since human excrement ceased to be used in the kitchen garden. It is likely, however, that the disease here called dysentery was more akin to summer diarrhoea.

Leaving Brinkgreven another journey of about fifty miles brought us to Utrecht the same evening, when, through Dr. Pameijer's kindness, the men of the party enjoyed the privilege of introduction to the Students Corps' Club of his *alma mater*

Den Dolder Mental Hospital.

October 24: From Utrecht the following morning, we visited the mental hospital at Den Dolder, an institution of independent foundation and secondary to an asylum dating from the fifteenth century in Utrecht, which still exists, with accommodation for 440 patients.

The "Willem Arntsz Hoeve" Hospital at Den Dolder, opened in 1909, stands on an estate of about 500 acres of very sandy soil. Its ten large and two small villas contain beds for 100 paying patients of the first and second class and for 450 patients of the third class. It is contemplated ultimately to accommodate here 1,350. Dr. Engelhard is the Medical Director; his staff consists of two medical officers and a pathologist.

The previous day we were in the vicinity of a recently built Roman Catholic Mental Hospital, all the accommodation of which apparently stood in one building, and here at Den Dolder a new building for as many as 136 patients of the less quiet kind is being built. It has two wings and two floors. Each of the four wards will contain 34 beds, and is designed to afford good means of observation and isolation as well as space for employment of the patients in handicrafts. There are open-air balconies and bedrooms for nurses who may be called up in an emergency. At the same time some very tastefully decorated homes for nurses are being completed, in which there is a sitting-room for every five nurses. These buildings and a new house for the Matron and her deputy, where is also a club-room for the nurses, show no signs of parsimony in their design and construction.

The villas generally consist of a long, broad corridor and the patients' day-rooms and dormitories, which all communicate together in series. These rooms open on the gardens by long verandahs, the roof being supported on the cantilever principle without pillars. A few of the gardens are fenced with lofty wire netting incurved at the top, but for the most part the fences are inconspicuous.

The occupational therapy system of Simon has been in operation here for eighteen months, and the display in the large concert hall of articles made by the patients showed much ingenuity and activity; they included rustic seats, tiles, mats of various kinds, baskets, decorative leather work, painted wooden ornaments, jig-saw puzzles, and numerous kinds of plain and fancy sewing and raffia work, drawings and sketches. Among the products of the least intelligent patients were wire paper-clips, and fire-lighters made of rolled-up shavings. The workshop for men of this type and some weavers contained 58 patients, with two male and one female instructor. A wage of 1s. to 5s. a month is paid to working patients.

The absence of a laundry is a remarkable fact in an institution which promotes so vigorously the employment of patients. It has been decided, however, that this service can be carried out by contract at less cost to the hospital.

Games, drill and dancing in the open air form a definite part in the therapy of occupation.

Some thirty male and female patients are boarded with the families of the staff in preparation for life outside.

An "extern service" of a high order exists as a branch of the hospital in Utrecht, of which one of the medical officers is in charge. It supports a vocational bureau where psychological tests are employed, as in our National Institute of Industrial Psychology.

The nursing staff is in the proportion of 1 to 2 patients in the first and second class and 1 nurse to 5 patients in the third class; the hours of duty are 60 a week.

After tea we heard a lecture by the pathologist, Dr. Bok, on his observations of the comparative capacity of the various layers of the cortex in the sulci and gyri—an able original contribution to the subject of cortical measurement.

General Kleynhens, the President of the Hospital Board for many years, was so good as to spend the whole day with us at the institution, and to be our guest at dinner later in Utrecht.

Our journey to The Hague had to be made the same evening, as we were due at the Ramaer Klinek on the outskirts of the city about 9 o'clock the following morning.

The Ramaer Klinek.

October 25 : The Ramaer Klinek was opened two years ago for the reception of mental patients of all kinds without certification. It is adjacent to The Hague Mental Hospital "Rosenburg" at Loosduinen, and under the same medical director, Dr. Gerritzer.

It is a spacious building of three floors, the ground and first floors having offices and consulting rooms in the centre and wards in the wings for 50 male and 50 female patients. The top floor contains bedrooms for the nurses and balconies for sun cure. The cost per bed was £500; water, lighting and cooking are supplied from the adjoining "asylum." The weekly cost for each patient is 46s. 8d.

Quieter patients occupy the ground floor. On the women's side this floor consists of a ward of two rooms with 25 beds, a corridor at right angles containing a bathroom, and two large single rooms and the sister's bed-sitting room. There is also a small kitchen and a conservatory or verandah. Wash-basins are within the ward, and the w.c. is sufficiently within view for the patient who is using it to remain under the observation of a nurse in the ward. Upstairs there is a similar ward, and in the centre of the building nine continuous baths for patients in an acute state of excitement, which are available of either sex; this number exceeds the need by about 50%. A workroom with space for about 30 patients provides for instruction in several handicrafts, and, in addition, many of the patients in the wards were well occupied with the needle and in other work. The handicrafts are under the supervision of an industrial trainer.

For the 100 patients there is a staff of 40 nurses, of whom 7 are men.

The following table shows the admissions and disposal of patients during 1927 :

	Males.	Females.	Total.
Admitted	203	242	445
Returned home recovered	45	55	100
Returned home not recovered	40	62	102
Removed to asylums	56	80	136 (over 30%)
Removed to other institutions, e.g., for the aged or educational	16	7	23
Died in the Clinic	23	23	46 (10%)

Of the 445 patients admitted during the year, 411 would have gone direct to the asylums had the clinic not existed, and of this number 275 were saved from the necessity of certification at all. In the case of 136 their removal to a mental hospital was required after a period of observation in the clinic. Seventeen of the 445 patients objected to being admitted, and the process of judicial permission or certification was called for.

It is a great pity that the opportunities for clinical teaching in this very useful hospital are not made available for the instruction of students.

The mental hospital in the adjoining grounds, "Rosenburg," was built originally for 100 patients, to relieve the old "Rosenburg" Asylum in the city. As the Minister subsequently decided upon the conversion of that institution into a general hospital, the site of 32 acres originally intended for 100 patients now holds over 400. The Ramaer Klinek has a site of 17 acres.

We had time to see only the first- and second-class wards of this hospital, where the patients had very comfortable rooms, paying from about £80 to 200 guineas a year; the nursing staff is 1 to 2.4 patients.

Bloemendaal Mental Hospital.

After lunch we visited the Bloemendaal Mental Hospital in the same district, an institution opened thirty-six years ago under the management of the Dutch Reformed Church. In its eighteen villas there is accommodation for 850 patients of the province of South Holland. Across the main road the land is being cleared of timber for the erection of a clinic on the "open" system. The hospitals under this management do not provide for the continuous-bath method of treating excited and degraded patients, and there were signs here that the ward discipline is of a very different character from that we saw in the earlier days of our visit; occupation is encouraged, but not in the same insistent manner, and a much larger proportion of patients remain in bed.

There is a workshop for men, containing several looms and frames for mat-making; slippers of interwoven narrow strips of felt, and shavings fire-lighters are made here and books are repaired. The women make under-garments, and we saw many of the women in the admission ward busy sewing. The medical director has three assistant medical officers and a staff of 40 male and 180 female nurses—a ratio of 1 to 3·8 patients.

A farewell dinner at our hotel at The Hague with Dr. Pameijer ended this tour of mental hospitals in Holland, to which our Dutch colleagues had given up much time as well as taking great pains to give us an insight into their capable methods of dealing with the mentally afflicted. Dr. Pameijer had designed a busy tour of a very representative type, and with his characteristic thoroughness and kindness accompanied us to render any service he could, whether in the hospitals or on our journey.

The same evening we returned to the Hook for the Harwich boat with much to contemplate, and with feelings of lasting gratitude to those who had made our tour a matter of enjoyment and information.

Reviewing the journey one must first record the deep impression of the thoroughness with which our Dutch colleagues apply the therapeutic and other principles of the soundness of which they are satisfied. The atmosphere of quiet industry, with the absence from the wards of noisy brawling or introspective idleness, in most of the hospitals we visited, has been a noteworthy achievement of painstaking labour. A uniform endeavour is being made to bring the day quarters into line with domestic comfort of a cheerful kind; even seclusion or isolation rooms in some cases now resemble ordinary dwelling-rooms, with curtains, glazed doors and other more homely features.

The independent foundation by religious bodies of nearly 60% of the mental hospitals is a contrast to our county and borough institutions, and so is the absence of private asylums and of single care under certificate. The most remarkable contrast, however, is in the use of "open" wards, where, without certificates or detention or continuation orders, patients of any type may be received in the mental hospitals and remain as long as they do not declare their wish to leave. One superintendent considers that he really needs detention orders for only about 30% of his patients.

Imbeciles are largely accommodated among the insane, and as both are occupied to the limit of their capacity and time, and the staff is so large, no ill-results are generally noticeable.

The mental disease clinics, of which we saw two, are much more liberally provided, considering the population, than in this country. Holland has 540 beds in such hospitals, in addition to small additional numbers in general hospitals, and the "open" system in the mental hospitals allows of a still greater number of in-patients being treated without certification. Similar provision in England and Wales, outside those premises which may accept voluntary boarders, is limited to a smaller number than the single clinic at Amsterdam.

The Dutch Poor Law apparently takes no statutory part in dealing with mental patients.

I cannot leave the subject of clinics without referring to the high standard of clinical and laboratory methods and research at Amsterdam under Prof. Bouman.

In matters of dress and amusements, floor space and diet it is probable that British patients individually enjoy some advantage. Indoor temperature is generally high and direct ventilation is not much employed. Where it is necessary

to prevent escape, the garden fences leave no kind of doubt as to their object, but these are few. Dysentery, as we know it, seems to be absent.

It is noteworthy also that the management of large mental hospitals is in the hands of small committees: in the province of North Holland for example, each of the three hospitals has a Board of only five members.

The proportion of nursing staff to patients in Dutch mental hospitals is approximately double that in England and Wales, and the staff salaries in some instances exceed 50% of the annual cost of the entire hospital. There are more than four times as many female nurses as male nurses in the mental hospitals which we visited—that is to say, female nursing of male patients is much more extensive than in England.

A well co-ordinated system of double training (general and mental) with qualification by the State diploma exists. The examiners are a State committee of doctors in the mental hospital service.

The thoroughness of the Dutch method is again prominent in the scientific manner in which the "extern" service or mental after-care work is carried on. Linked with the mental hospitals by the medical officer, who knows the patients from within the institution, it ascertains the conditions which the patient will have to face in the outside world, and, recognizing the difficulties of adaptation to his surroundings which have provoked his breakdown, the service takes care to avoid a revival of the same factor after discharge. As far as possible the environment is adjusted to the patient's capacity, and offending conditions are removed. The insight which this kindly investigation of home surroundings gives into the causation of mental breakdown is found to be of prime importance both in treatment and in research.

A. E. EVANS.

APPENDICES

I.

The Dutch Lunacy Law.

Any building where more than two insane persons are treated is regarded in Dutch law as an asylum.

From 1841 until 1906 the reception of a patient into a mental hospital required a reception order, issued in most cases provisionally for fourteen days by a judge of a district court on—

(i) The certificate of a medical practitioner, not connected with the institution, who declares that admission is necessary, giving reasons therefor from his own observation;

(ii) A petition by a relative in the direct line or collaterally within the third degree; where there is no relative the Public Prosecutor petitions.

After fourteen days this authorization is extended by the Court for a year upon the asylum medical superintendent certifying that further detention is necessary.

Irresponsible criminals are committed to the State institutions at Grave or Eindhoven.

Periodic reports are submitted at intervals of a month in recent cases, and later, every year, to the Public Prosecutor of the District, who also visits the asylums several times a year.

The Central Authority in Holland is the Department for Inland Affairs, whose State Inspectors, two medical men, visit the asylums at regular intervals with much the same powers as do the Commissioners in England and Wales. The Inspectors also advise their Department in respect of new buildings.

The discharge of certified patients is in the hands of the medical superintendents. The Prosecutor has also authority to discharge a patient "relieved" but only with the consent of the petitioner.

Open sections.—In 1906 the law was amended in order to meet the requirements of the University Clinics, where patients suffering from mental and nervous disorders are admitted for observation and treatment, and for the instruction of students. The new clause permits of certain buildings or parts of buildings being assigned, by Royal decree, for the treatment of the insane without the building being regarded as a lunatic asylum in the legal sense. It thus enables patients to be admitted without detention orders or certificates and to remain without

periodic statutory reports. Later this clause was made use of to allow of the reception of patients in the asylums, where, however, new wards were erected for them, designated "open" wards.

In our tour of seven asylums we saw about 5,000 patients, nearly 700 of whom were in "open" sections. In addition we saw some 300 in the clinics which are likewise "open"; that is to say about 1,000, or 20% of all the patients whom we saw in mental wards, had been admitted without any kind of certification.

If the patient in an open ward expresses a wish to return home he is not obstructed, but we gathered that if it is desired to remove a patient from the "open" to the "closed" section a local general practitioner is called in to certify the need for it, and an order is made in the usual way.

Many of the "open" class patients are evidently of the non-volitional type, and if isolation, or seclusion, or even continuous-bath treatment is called for on account of restlessness or excitement, use is made thereof irrespective of the certified or uncertified basis of admission.

It follows that there is a certain degree of overlapping or duplication in classification on account of patients of the same type being accommodated in both "open" and "closed" sections, but on the whole the open section contains patients easier to nurse than those in the closed section.

At Maasoord 32% of the 950 patients are in the "open" class, *i.e.*, uncertified, and in Dr. Pameijer's opinion the proportions of certified and uncertified patients could be quite satisfactorily reversed, *i.e.*, were about 75% uncertified and only 25% certified.

Mental hospitals in the Netherlands have been founded by—

1. The State or the authorities of province or municipalities (9 hospitals).
2. Independent corporations, which may or may not have financial ties with certain towns (5).
3. Religious sects (22).

In addition there are clinics at Loosduinen (100 beds), and at the Universities of Amsterdam (200 beds), Groningen (150 beds), and Utrecht (90 beds), and a colony at Beilerood.

There is no legal provision for single care or for the supervision of the disposal of the income of wealthy patients.

The population of the country is seven millions, and the number of insane and defectives in institutions amounts to nearly 20,000 or 1 in 350, compared with 1 in 237 in England and Wales, including defectives, or 1 in 275 excluding the latter.

2.

The Occupational Therapy Method of Dr. Simon of Gütersloh (Westphalia).

This system was introduced into the mental hospital at Santpoort after a visit to Gütersloh two years ago by the Medical Director, Dr. van der Scheer, and by Dr. Pameijer into the Maasoord Hospital several months ago. We saw it in operation in three other hospitals in a somewhat less intensive form.

This method seems to have been devised with a particular view to the betterment of the restless, destructive, aggressive or filthy patients of the turbulent wards, and is based on the observation of principles of infant training and child development. It imposes silence and stillness, and by dividing the workrooms, especially in the otherwise refractory wards, into attractive little alcoves by means of wooden settees with only four or five patients in each, from which the individual patients may not wander, control is the more readily established. Any patient who becomes noisy or excited is forthwith removed to a single room and so learns to associate such lack of self-control with the penalty of isolation, the duration of which for this purpose, varies from ten minutes to a maximum of an hour.

When a new patient is brought into this atmosphere the mass influence of the quiet industry of the others evidently has a beneficial result. It is to be observed, however, that unnecessary conversation and wandering about the room are not allowed during the five or six hours of this daily therapy.

The principle is rigidly observed that one restless or noisy patient is not permitted to disturb the others or to excite those who might readily become noisy but for the prevailing quiet environment. "There is ample explosive material, but we should prevent the spark from reaching it," says Dr. van der Scheer.

As a rule weekly payments of 10*d.* to 1*s.* 3*d.* are made to the patient in recognition of good behaviour and regular work, and to promote self-esteem and normal human feelings; a special hospital coinage is sometimes used which is available at the hospital shop and savings bank.

As will be mentioned in more detail later, this system of occupation requires a high proportion of staff, who must co-operate in the treatment with the exercise of much patience and intelligence. A ward of 48 previously turbulent women in the open section at Maasoord has a staff of sixteen nurses, four of whom were on duty when we visited, with about half the patients—the others being in general sewing-rooms, etc., elsewhere.

Of 260 women in this section of the hospital the number of unoccupied had been recently reduced to three; on the day of our visit the number was six. The medical officer, Dr. Schotman, keeps a carefully scrutinized labour list in the consulting-room of each ward.

Dr. van der Scheer, at Santpoort, contrasting the conditions of occupations among patients now with those previous to the introduction of the Simon method, states that a few years ago 70% of his 1,400 patients were able to work; of the remainder some 10% were physical invalids, and therefore unable on these grounds to work, but 20% belonged to the group of restless, noisy, destructive, filthy and aggressive patients, and were unoccupied on that account.

On July 1 last, a day taken at random, 1,273 out of his 1,420 patients were doing some work; of the 147 (10%) who were unoccupied, 122 were too aged or physically weak. There remained only 25, or 1.75%, who were unoccupied for reasons of mental illness only. There were 8 patients on that date continuously isolated.

He maintains that these behaviour characteristics do not belong to the substance of the psychosis, but that they have arisen through the loss of educational and environmental influences, *i.e.*, from external excitement. He regards the influence of the surroundings as of prime importance in the nursing of patients. In spite of material damage to the brain, he considers enough remains for re-education and for the patient to acquire fresh experiences and for the establishment of new conditional reflexes; no patient who lacks initiative to occupy himself should be allowed to remain in that condition, for methodical perseverance demonstrates that nearly every patient is able to do certain kinds of work. In the case of pronounced dementia præcox Dr. van der Scheer finds that this therapy produces useful new automatisms through which the bad ones disappear. Other aspects of this therapy are diversions such as reading, games and dancing, but the last exercise is used only for its therapeutic effect, and as the patient improves it is discontinued.

Dr. van der Scheer claims that noisy, turbulent wards must disappear by these means as surely as mechanical restraint, penal chairs and dark cells have done.

The following methods of occupation are employed: Raffia very largely, teasing rags or coir, untying knots of string while other patients roll it into balls, envelope making, cleaning the letters, etc. off three-ply wood from tea chests which afterwards serves for toy-making, rudimentary forms of wool and cotton knitting, rug and mat making of several kinds, cleaning the direction labels of mail-bags for further use, tobacco-leaf stripping, old brick trimming, tile making, hauling loads about the grounds, and filling up ponds.

All these occupations are carried out by patients of low grade, whether imbecile, demented or maniacal.

Where the mental state of the patient permits, work requiring more initiative is found, such as weaving, book-binding, basketry, carpentry, plain sewing, wire fencing and string net making.

3.

Training of Nurses in Dutch Mental Hospitals.

Where new mental hospital buildings are erected, the Department for Inland Affairs requires a medical staff of one doctor to every 175 patients.

In all the mental hospitals controlled by the central or local authorities and religious bodies, except the Roman Catholics, the medical director is the chief officer, and an administrative officer occupies much the same position as the clerk and steward in Britain. In the Roman Catholic institutions, however, we understand the Prior exercises general control, and the medical director has little influence outside the sphere of therapeutics; the nursing there is in the hands of the brothers and sisters of the religious orders.

In the other hospitals training of the nursing staffs has been carried on since 1903 for the Certificate of the Netherlands Society for Psychiatry and Neurology. The mental hospitals of the Reformed Church also gave a Certificate. Three years ago, however, the State took over this examination, and now issues a Diploma, both in general and in mental nursing.

After three years' training in a general hospital the successful candidate is awarded Certificate A, and after a similar period in a mental hospital, Certificate B. The holder of Certificate A who spends a year and a half in a mental hospital is entitled to sit for Certificate B, and likewise the mental nurse in a general hospital may obtain Certificate A. Each of these nurses then possesses Certificates A and B. A brooch for women and a button for men with a white cross indicates that they hold Certificate A, with a blue cross Certificate B, and a blue cross edged with white denotes the possession of the double Certificate A and B.

Nurses of the requisite type are difficult to secure, and Dr. Pameijer now accepts only 2 to 3% of the applicants. He finds the number of dismissals becoming fewer each year; it is now about 10%.

The period of probation varies in different hospitals; at Santpoort it is as long as two years, at Maasoord, twelve months.

Nurses are required to pass a hospital examination each year before presenting themselves for the State Diploma at the end of the third year. Attention is paid to their general education, and classes are held, if necessary, to improve it. If the yearly examinations are not passed, the nurse must leave.

Salary.—At Maasoord assistant nurses receive £45 16s. 8d., rising yearly by £8 6s. 8d. to £62 10s. The annual increment is similar in other hospitals.

Nurses holding the Diploma receive £146 to £160 a year, but £73 is deducted for board and residence, or 50% of the initial salary after the Diploma.

An attendant who lives in a house provided by the hospital pays 10% of his initial (Diploma) salary.

At Santpoort probationer nurses receive £35 to £54 a year, and the qualified nurse, holding a diploma, £145 to £185. Here there is a medical officer for the staff only, and, as at several other hospitals, separate sick quarters for the staff.

At Maasoord, a municipal hospital, the duty hours are forty-eight a week, while at Den Dolder, a hospital of independent management, the hours are sixty. Elaborately built homes for the nurses, however, are being erected here, and we saw a very well equipped nurses' home at Maasoord and at Santpoort, but for emergency purposes it is customary to require certain of the staff to sleep in the ward buildings.

Much of the nursing of the quieter male patients is carried out by the female nurses, as may be seen from the figures of three mental hospitals where the combined male patients number about 1,000 and the female patients over 1,800—a proportion of 1 to 1.7; the male nurses in wards total 151, and the female nurses 641, or about 1 to 4. Nevertheless, if an artisan is required to teach a class of women basketry, the employment of a male officer, without a nurse, is not questioned.

Pensions.—The State, provincial, or municipal hospital must contribute in every case 15½%. It can deduct 8½% from the salary, but each town or province has its own method. The State institutions deduct the maximum to which they are entitled, but some towns deduct nothing. The City of Rotterdam deducts 5½%.

No deductions from salary are made on account of pensions during the first probationary year, and in the second year the contribution by the nurse is optional. The amount of the pension is 2% for every year of service of the final salary.

Fresh legislation is under consideration limiting the hours of employment of mental nurses to sixty a week.

4.

An Address by Dr. J. H. Pameijer on the Outdoor Welfare Service of the City of Rotterdam (October 18, 1928).

Our Outdoor Service is on similar lines to the splendidly organized "Service social qui fonctionne en liaison avec le dispensaire et le Service de Prophylaxie mentale de M. Toulouse à Paris," and follows the example of that service which has existed in connection with a number of institutions in Germany already for many years, and which was launched by Mr. Kolb, Director of the Mittelfränkische

Heil und Pfllegeanstalt of Erlangen. "Maasoord" also instituted in 1926 an outdoor service.

Its object is to take in hand the welfare of patients discharged from the asylum. Since the 1st of January, 1926, not a single patient has left the asylum without himself or his family being offered medical supervision. This supervision may be accepted or it may be refused. Pressure is carefully avoided. In practice, however, it is proved that this offer is readily accepted. The outdoor service doctor, who is resident at Rotterdam, is chosen from the medical staff of the Mental Hospital "Maasoord," and is therefore fully acquainted with the nursing difficulties; he comes once a week to "Maasoord" for a whole day. Upon these occasions his attention is directed to the various cases by the departmental doctors; he then speaks with the different patients, so that he can form an opinion of them, where they are not already known to him. If necessary—and this is often the case—the patients' paths are already smoothed before they leave the institution. The outside service doctor, for instance, visits beforehand the place where the patient is going or returning to and inspects the sleeping accommodation, etc. In case of bad housing discharge from the asylum is sometimes postponed until a better house is found. In many cases this is not necessary and the patient is discharged. As early as the day following his discharge the patient is visited by the doctor, and on the succeeding days by one of the nurses as often as this is necessary. In this manner the patient or, we should say, the ex-patient, always remains under observation. This control is exercised more or less intensively, entirely according to the circumstances. The great thing is to gain the confidence of the person, and for this it is of course necessary to show much tact and care. An impression of unnecessary interference or meddlesomeness must never be given, but the patient or his family must get a feeling of good-natured interestedness. It must be brought to such a state that the patients in case of realized need voluntarily appeal to the outdoor service. To facilitate this, consultation facilities have been instituted. The consultation hour was held originally once a week in the evening at a room in one of the council buildings, the old town hall of Rotterdam, but when, in 1927, the doctor and an attendant and later a second attendant had to reside in Rotterdam in consequence of increased work, we were able to procure a private house, where at the moment the two attendants are domiciled, and where opportunity is afforded to consult the medical practitioner on Thursdays, the whole evening, and also on other days of the week. Much use is made of this facility. Also those who were never treated at "Maasoord" and who have been referred to us or come to us voluntarily can be helped there, and their numbers are gradually increasing. In homely surroundings, without any official character whatsoever, they can calmly discuss their affairs there. Therefore, besides our service, a consultative clinic has been created. I would lay stress on the fact that we did not begin with a consultative clinic. No! The consultative clinic comes in the second place in the development of our service. The main object is, and remains, house visitation. I am of the opinion that what we, as asylum medical psychopathists, observe at the patients' homes will prove very instructive. In this manner we get, in the cases of many patients, entirely new impressions, especially as to the origin and the course of their diseases. And this is of great importance. What would be the use of taking all these measures and creating possibilities if one does not profit by them! In the end the asylum doctors must take the initiative of not detaining their patients in the asylum longer than necessary. They must be convinced—persuaded that things can be different to what they have been. It is the task of the outdoor service doctor gradually to convince his colleagues by continually calling their attention to the fact that patients, when they little expected, could remain at home and are much happier there. No matter how excellent the nursing may be in an asylum, and even how much better one may be looked after there materially, there is one thing which the patients cannot be afforded in an asylum, and that is freedom; the greatest gift to mankind.

Our outdoor service has now on its staff one medical practitioner and two attendants. The doctor has a motor car at his disposal.

In 1926 our outdoor service attended to 303 cases, in 1927 to 695. Of these 265 came from "Maasoord" in 1926, and 581 in 1927.

In 1926 there were 506 consultations, in 1927, 1,177.

Visits paid to the homes by the doctor, 735 in 1926, and 1,216 in 1927.

Visits paid by nurses at patients' homes, 1,633 in 1926, and 3,015 in 1927.

Our outdoor service is in close contact with the Rotterdam Society for the Welfare of Neurotics and Mental Deficients. This society, also founded in 1926, interests itself in finding work and affording financial support; in general it deals with all that which falls under criminal reclamation work. Close touch is kept by the outdoor service doctor, who is a member of the daily committee of the Society. It speaks for itself that the boundaries of both spheres of activity are cognate. The Society receives its income from contributions and enjoys a subsidy from the town and from the province in the proportion (2 to 1), equal to the proportion of the contribution of these bodies towards the expenditure of the indoor attendance in the asylum. In 1927 a little more than Fl. 10,000 (or £833) was expended by this Society. This does not include salaries of staff.

Our outdoor service has existed only two and a half years. As you will clearly see, this social work gives an opening to very many possibilities which have not yet been realized, but in the past year it became evident that the service has brought about a vast improvement in the lives of our patients, and will certainly in the long run have a beneficial influence on the repute in which our establishments, and also the nursing of mental patients in general, is held by the public.

It must not be forgotten that the fact that our establishment is a town concern has contributed very much in making the outdoor service a success. Nearly everywhere in our country the circumstances are different, and for this, other solutions must be found to solve the question of "after-care" of our patients. I consider these other solutions just as possible, which, however, does not prevent me from expressing my opinion that the welfare service as a part of the establishment deserves the preference, principally in consequence of the intensive reciprocal effects which it creates between the outdoor and indoor service, and further owing to the parallel interests which can only be obtained when the two services are in the same hands, being together parts of the corporation.

Finally I will show you several graphs from which you will see the curve which the number of Rotterdam patients has taken and the influence, which I think I am justified in partly attributing to our outdoor service.

The charts of relative population and mental disease for various cities of Holland showed an increase except in the case of Rotterdam, where, while the population was still increasing, the rapid rise in the admission of mental patients came to a standstill two years ago, and has remained about that level though the population of the city has continued to soar.

NOTICES.

FELLOWSHIPS FOR TRAINING IN PSYCHIATRY IN THE UNIVERSITY OF COLORADO PSYCHIATRIC HOSPITAL.

Through the generosity of the Commonwealth Fund of New York, three Fellowships of two years' duration have been granted for training in Psychiatry in the University of Colorado Psychopathic Hospital. These Fellowships carry a liberal stipend, and are offered to physicians who have completed an internship and who desire to enter the field of psychiatry.

The next appointment for these Fellowships will be made in April, 1929, and the work will begin in July, 1929, and extend over a period of two years.

Dr. Frank G. Ebaugh, the Director of the Hospital, has intimated to the Sub-Committee that he will be pleased to consider applications from graduates in medicine residing in the British Isles. A candidate desirous of the support of the Sub-Committee should submit a copy of his or her application to the Hon. Secretary, Dr. A. Edward Evans, 3, Rotherwick Court, Golders Green, London, N.W. 11.

A SHORT POST-GRADUATE COURSE IN NEUROLOGY AND PSYCHIATRY IN VIENNA.

The third intensive course in the above subjects is announced to commence on May 21, 1929.

The course will last six weeks, terminating on June 29, and will be conducted in English. It will be held for a minimum number of eight and a maximum of

fifteen men. The fee is \$150, about £30 15s., including the subscription to the American Medical Association in Vienna, under whose auspices the Course has been organized.

Applications, with a banker's draft for \$40, about £8 4s., should be directed to Docent Dr. E. Spiegel, Vienna I. Falkenstrasse 3, Austria. They will be accepted in the order in which they are received. Deposits will be refunded if the number of applications is insufficient for the Course to be held. A card is issued which permits holders to enter Austria without paying the Austrian visa.

It is understood that modest hotel charges in Vienna are about twelve shillings a day and that Pension rates are much less. The American Medical Association in Vienna will be able to supply information on hotel accommodation.

The fares to Vienna vary with the route selected. A first-class return ticket *via* Ostend and Cologne is about seventeen guineas, a second-class ticket a little over £12.

Members intending to take the above Course and wishing to get into personal touch with other members who have the same intention should communicate with the Honorary Secretary of the Sub-Committee, Dr. A. Edward Evans, 3, Rotherwick Court, Golders Green, London, N.W. 11.

BRITISH ASSOCIATION COMMITTEE ON THE PLACE OF NORMAL PSYCHOLOGY IN THE MEDICAL CURRICULUM.

Dr. W. BROWN, *Chairman*; Dr. R. D. GILLESPIE, *Secretary*; Dr. C. H. BOND, Prof. E. P. CATHCART, Dr. H. DEVINE, Dr. J. A. HADFIELD, Dr. BERNARD HART, Dr. D. K. HENDERSON, Dr. J. R. LORD, Dr. C. S. MYERS, Prof. T. H. PEAR, Prof. G. M. ROBERTSON, Dr. T. A. ROSS.

Final Report, 1928.

A *questionnaire* was circulated to all the medical schools in the British Isles and in the Dominions, two questions being asked:

(a) What facilities were offered to medical students for acquiring a knowledge of normal psychology?

(b) Whether an optional or a compulsory course was favoured?

Replies were received from all but one or two schools.

The answers to question (a) showed that the facilities in different schools varied greatly—from none at all to rather elaborate courses.

Thirteen schools in the British Isles offer no facilities at all; eight offer optional courses, and five give compulsory ones. The majority of schools in the Dominions offer courses, sometimes apparently very extensive.

When a course in normal psychology is offered, the tendency is to place it in the pre-clinical or early clinical years.

The usual facilities offered consist in a course of lectures in normal psychology. In some cases a course in experimental psychology is also given.

The majority of the opinions given (mostly personal opinions of the Deans of the respective schools) favour the provision of instruction in normal psychology. The majority of such opinions (twelve out of sixteen replies to query (b)) favoured an optional course; but in four schools at home and in five out of the six Dominion schools who replied, instruction is already compulsory.

RESOLVED:

That it is the opinion of the Committee, after examining the existing arrangements, that facilities should be given in every Medical School for instruction in normal psychology.

This instruction should be given in the pre-clinical years (preferably the second).

It should in the meantime consist in a course of not less than ten and not more than twenty lectures, and (whenever possible) of a course in experimental psychology of about ten two-hour meetings.

The course should be compulsory.

The instruction should throughout have special reference to medico-psychological facts and problems, so as to give a working basis for subsequent lectures in morbid psychology (which should be considered a necessary part of the general instruction in psychiatry).

The findings and resolutions of the Committee be circulated to the Medical Schools who have replied.

MORE TRUTH THAN POETRY ?

By JAMES J. MONTAGUE.

I.
 WHEN Uncle Ebenezer
 Grew wobbly on his gait,
 The doctors said, " He'll soon be dead
 Unless we operate.
 Your relative's condition
 Is one that we deplore,
 But still the knife will save his life,
 And make him young once more."

2.
 And so they plied their cleavers
 With scientific art,
 They cleft his hide and peeked inside
 And took him all apart.
 And Uncle Ebenezer
 Quite quit of his disease,
 Jumped out of bed and scratched his
 head
 And took to climbing trees.

3.
 We find the dear old fellow
 Has changed his habits now.
 He loves to sway and swing all day
 Upon a maple bough,
 And when a barrel organ
 Came up the street one day,
 To our surprise, with chattering cries,
 He followed it away.

4.
 The doctors never told us
 The nature of their cure,
 They kept it dark with the remark
 That it was safe and sure.
 But from the way our uncle
 Goes hopping to and fro,
 And tries to eat with both his feet,
 We sort of think we know.

Reprinted from *Hospitality* by kind permission of Dr. G. V. N. Dearborn, of the United States Veterans' Hospital, New York.

GENERAL NURSING COUNCIL FOR ENGLAND AND WALES.

At a meeting of the above Council held on January 18 at 20, Portland Place, London, W., the following Mental Nursing Committee was elected: Mr. Blackman, Miss Brown, Miss Bushby, Miss Cowlin, Dr. Fawcett, Lady Galway, Dr. Marvell, Miss Villiers.

It was reported that the total number of mental nurses who registered from November, 1922, to December 31, 1928, was 7,184 (including 191 by examination), and of mental deficiency nurses 378 (including 1 by examination), and that 60 mental nurses registered during 1928.

EDUCATIONAL NOTES.

The Maudsley Hospital, Denmark Hill, S.E. 5 (University of London).—Lectures and Practical Courses of Instruction for a Diploma in Psychological Medicine, Course XII, 1929, Part II.

Eight lectures on the Psychoneuroses. By Bernard Hart, M.D., F.R.C.P. On Mondays at 3 and 4.30 p.m., commencing April 29, omitting May 20.

Eight lectures on Morbid Psychology. By Edward Mapother, M.D., F.R.C.S., F.R.C.P. On Wednesdays at 2.30 and 4 p.m., commencing March 6.

Four lectures on the Pathology of Mental Diseases. By F. Golla, F.R.C.P., followed by four demonstrations in Pathology of the Central Nervous System, by Charles Geary, on Fridays at 2.30 p.m., commencing May 10.

Four lectures on the Legal Relationships of Insanity and Treatment. By C. Hubert Bond, LL.B., M.D., F.R.C.P. On Fridays at 4 p.m., commencing May 10.

Six lectures on the Practical Aspect of Mental Deficiency. By F. C. Shrubbsall, M.D., F.R.C.P. On Tuesdays at 2.30 p.m., commencing March 5, omitting April 2.

Six lectures on Crime and Insanity. By W. Norwood East, M.D., M.R.C.P. On Tuesdays at 3 p.m., commencing April 23.

Three lectures on Therapeutics. By A. A. W. Petrie, M.D., F.R.C.S., M.R.C.P. On Tuesdays at 4 p.m., commencing March 26, omitting April 2.

Six Demonstrations in Clinical Psychiatry. By Edward Mapother, M.D., F.R.C.S., F.R.C.P. On Wednesdays at 2.30 p.m., commencing April 24.

Twelve clinical demonstrations in Neurology. Six by F. M. R. Walshe, D.Sc., M.D., F.R.C.P., on Thursdays in March, commencing March 7, at 2.30 p.m., omitting March 28, at the National Hospital for Paralysis, Queen's Square. Six by F. Golla, F.R.C.P. On Thursdays at 3 p.m., commencing April 25, at the Hospital for Paralysis and Epilepsy, Maida Vale.

Two lectures on Abnormalities of the Fundus Oculi. By R. Foster Moore, M.A., F.R.C.S. On Mondays, April 15 and 22, at 2.30 p.m.

Two demonstrations in Laboratory Methods, including the Examination of the Blood and Cerebro-spinal Fluid. By S. A. Mann, B.Sc., F.I.C. On Tuesdays, May 7 and 14, at 4.30 p.m.

Fees for the whole of Part II, £10 10s.

Inquiries as to Lectures, Fees, etc., should be addressed to "The Director of the Central Pathological Laboratory," Maudsley Hospital, Denmark Hill, S.E. 5.

The Fellowship of Medicine, 1, Wimpole Street, W. 1, will collect fees from and issue admission tickets to medical men intending to take the Course who are introduced by the Fellowship.

In addition to the Special Lectures and Demonstrations of the above course, there is opportunity for clinical experience and instruction available at the Hospital. In particular there are a limited number of appointments available as clinical assistants; service in this capacity (either whole time or part time) is recognized by the various examining bodies as constituting the clinical experience required by the regulations for the Diploma. Applications and inquiries regarding these clinical facilities should be made to the Medical Superintendent of the Hospital.

The Tavistock Square Clinic for Functional Nervous Disorders, 51, Tavistock Square, W.C. 1.—A Short Course of Lectures on Functional Nervous Disorders for practitioners and students will be given at the Clinic, beginning February 11, 1929, the lecturers being J. R. Rees, M.D., W. Langdon Brown, M.D., F.R.C.P., John Freeman, M.D., H. Crichton-Miller, M.D., James Young, M.D., and George Riddoch, M.D., F.R.C.P.

Fee for the Course: Medical practitioners, £2 2s.; medical students (*i.e.*, unqualified), 10s. 6d. Tickets for the Course can be obtained in advance from the Hon. Lecture Secretary at the Clinic. These lectures are not open to the general public.

The National Council for Mental Hygiene.—A series of lectures to be delivered in the Rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W. 1, at 5 p.m. as follows:

January 23: "Dangerous Ages—Childhood," by Dr. J. A. Hadfield.

January 30: "Dangerous Ages—Youth," by Dr. Hugh Crichton-Miller.

February 13: "Dangerous Ages—Middle Age," by Dr. Helen A. Boyle.

February 20: "Efficiency and Deficiency," by Dr. Letitia Fairfield.

February 27: "The Irresistible Impulse," by Dr. W. A. Potts.

March 6: "The Minor Mental Disorders of Everyday Life," by Dr. Bernard Hart.

March 13: "The Problem of Nervous Breakdown," by Sir Maurice Craig, M.D.

March 20: "The Mental Hospital of To-day," by Dr. C. Hubert Bond.

Tickets, price 1s. 6d. each, or 10s. for the course, may be obtained from the Secretary, National Council for Mental Hygiene, 78, Chandos House, Palmer Street, S.W. 1. Tickets may also be obtained at the door.

OBITUARY.

An obituary notice regarding the late Dr. George E. Shuttleworth, by Sir Robert Armstrong-Jones, C.B.E., will appear in our next number.

RESEARCH AND CLINICAL COMMITTEE.

The Research and Clinical Committee begs to thank several Honorary and Corresponding members for the gift of the following literature :

Eenige statistische gegevens betreffende het begin en het beloop der schizofrenie, door Dr. F. J. Stuurman.

Distribuzione geografica dell' epilessia e del gozzo endemico nella Svizzera, dal Dott. V. M. Buscaino.

Appendice al Curriculum, dal Dott. V. M. Buscaino.

Dati bio-biografici sulla propria attività medica e scientifica, dal Dott. V. M. Buscaino.

Psychiatrische en Neurologische Bladen : Zur Frage der Schizophrenie, No. 5 en 6, Sept.-Dec., 1928.

Körperbau- und Charakteruntersuchungen bei melancholischen Frauen im klimakterischen und präsenilen Alter, von F. Gravestain-Briedé en F. J. Stuurman.

Über das Vorkommen eisenhaltigen Pigmentes im Liquor cerebrospinalis, von Prof. Dr. Alexander Pilcz und Priv.-Doz. Dr. Richard Stern.

Drei weiteren Lebensschicksale von Kindern, welche während des Bestehens einer mütterlichen Geistes-oder Nervenkrankheit geboren worden sind, von Prof. Dr. Alexander Pilcz.

Verzeichnis der wissenschaftlichen Arbeiten des Hofrates Professor Dr. Julius Wagner v. Jauregg, von Prof. Dr. Alexander Pilcz.

Bibliographie van de Werken van Nederlandsche Schrijvers op het gebied der Neurologie en Psychiatrie en Aanverwante Vakken, samengesteld door M. J. Mesdag.

Idem, Part II, *Systematisch Gedeelte*.

Gifts of books, journals, reprints and reports for the use of the Sub-Committees should be sent to Dr. B. H. Shaw, County Mental Hospital, Stafford.

NOTICES BY THE LIBRARIAN.

The following journals are circulated from the Library :

American Journal of Psychiatry.

The Psychological Review.

Journal of Neurology and Psychopathology.

L'Encéphale.

International Journal of Psycho-Analysis.

Journal of Abnormal Psychology.

Mental Hygiene.

Journal of Nervous and Mental Diseases.

Revue Neurologique.

Archives of Neurology and Psychiatry.

Journal of Comparative Psychology.

NOTICES BY THE REGISTRAR.

Bronze Medal and Prize for 1929.

Dissertations for the Association's Bronze Medal and Prize must be delivered to the Registrar by April 30, 1929.

Divisional Prizes for 1928.

Papers certified as eligible for this competition must be forwarded to the Registrar not later than April 30, 1929.

Gaskell Medal and Prize.

The following Regulation is rescinded on the authority of the Annual General Meeting (Wakefield), 1928:

"(3) A thesis based on original research, if of sufficient merit, may be accepted by the examiners in place of either the written or the clinical examination or both."

NOTICES BY THE GENERAL SECRETARY.

Died.

HUGH FRANK BODVEL-ROBERTS, October 11, 1928.

DONALD GRAHAM CAMPBELL, December 14, 1928.

JOHN VALERIAN GEORGE BROSNAN TIGHE, January 21, 1929.

Appointments.

HENRY YELLOWLEES, O.B.E., M.D., F.R.F.P.S., F.R.C.P.E., D.P.M., to be Consulting Physician in Mental Disorders, St. Thomas's Hospital, London.

JOHN BRANDER, M.D., M.R.C.P.Lond., D.P.M., to be Medical Superintendent, Colney Hatch Mental Hospital, London.

JOHN KIDD COLLIER LAING, M.B., B.S.Melb., D.P.M., to be Deputy Medical Superintendent, Colney Hatch Mental Hospital, New Southgate, London.

GEORGE WILLIAM BLOMFIELD JAMES, M.C., M.D., D.P.M., to be Examiner in Mental Diseases and Psychology to the University of London.

Meetings.

Quarterly Meeting.—May 22, 1929, at University College, Gower Street, W.C. 1. Council meeting 11 a.m.; General Meeting 2.30. The Tenth Maudsley Lecture, by Prof. C. E. Spearman, Ph.D., F.R.S., at 3.30 p.m. in the Botanical Theatre. (Committee meeting on the previous day, May 21, at 19B, Tavistock Square, London, W.C. 1.)

South-Western Division.—April 26, at Cliffden, Teignmouth, Devon.

Northern and Midland Division.—April 25, at the County Mental Hospital, Chester.

Irish Division.—April, 1929, at Purdysburn Villa Colony, Belfast.

STUDY TOURS.

The Study Tours and Post-Graduate Education Sub-Committee announces a tour of the Paris Mental Hospitals and Clinics to take place in April. Particulars will be circulated in due course.



GEORGE E. SHUTTLEWORTH, M.D.

Born November 16, 1842.
Died May 28, 1928.

Ordinary Member
since 1877.

THE JOURNAL OF MENTAL SCIENCE

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APRIL, 1929.

VOL. LXXV.

GEORGE EDWARD SHUTTLEWORTH, B.A. (HONS.)
LOND., M.D. HEIDELB., L.S.A., M.R.C.S. ENG.,
Fellow of King's College, London.

An Appreciation by Sir ROBERT ARMSTRONG-JONES, C.B.E., D.Sc.,
M.D., F.R.C.P.

It is especially befitting that our Journal should express its appreciation of the great services rendered by the late Dr. Shuttleworth to the welfare of the mentally afflicted and to those who tend them.

He was born on November 16, 1842, at Edgbaston, and his long and useful life of 86 years is the history of the care of the feeble-minded in this country. It was his skilful and expert guidance which secured for them the first separate legislative enactment, *viz.*, the Idiots Act, 1886, since replaced by the Mental Deficiency Act, 1913, and its subsequent amending Acts. This Act first made it possible to place mentally defective children under special educative methods of training, and it also for the first time distinguished the care of the weak-minded from that of the insane. By its authority it was no longer necessary to describe backward children as lunatics or persons of unsound mind in the medical certificate—an injustice to them and a deep and cruel wrong to their parents and guardians.

The life of Shuttleworth may also be described as the period of history covered by the pioneer establishments in this work, the Royal Earlswood Institution, then the Earlswood Asylum, and the Royal Eastern Counties Institution, then Essex House, first founded in 1848, at Park House, Highgate, through the efforts of that noble and large-hearted divine Dr. Andrew Reed.

Dr. Shuttleworth's first appointment in mental diseases was as Assistant Medical Officer to Earlswood, then under the superintendence of Dr. G. W. Grabham (afterwards Inspector of Asylums

and Hospitals in New Zealand, and a brother of the well-known Dr. Michael Grabham, of Madeira), and the present writer in later years was fortunate in being the successor to Dr. Grabham and Dr. Shuttleworth.

From Earlswood Dr. Shuttleworth was promoted to become the first Medical Superintendent of the newly-founded Royal Albert Institution at Lancaster, where for 23 years he carried on the traditions of Earlswood. It was a Lancaster man, Mr. Samuel Gaskell, F.R.C.S. (in whose memory the Gaskell Gold Medal and Prize were founded), Resident Surgeon and Superintendent of the Lancaster County Asylum—and afterwards a Lunacy Commissioner—who was the originator of the care of the mentally defective in this country, for in 1847 he contributed three articles to what was then called *Chambers's Journal*, calling attention to the work carried on by Séguin at Bicêtre for the defective, and urging that the same guiding principles should be adopted in England. This led through the Earl of Shaftesbury—the great philanthropist and “friend of the insane”—to the first constructive policy in this direction. It was Dr. Shuttleworth's life-work to press on with success, earnestness and expert knowledge towards this great ideal.

Just as the humanity of Pinel and Esquirol in France and the genius of Tuke and Conolly in England created an epoch in the treatment of the insane, so it may be claimed the teaching of Séguin in France and America, Shuttleworth in England and Madame Montessori in Italy also created a new departure in the care of the mentally defective, and it is not too much to say that the first modern principles in the education of the backward child were promoted and pursued by Shuttleworth. It is to his influence that “special” schools were instituted for subnormal children, and to him in a great measure that we are indebted for their subsequent success.

After twenty-three years as head of the Royal Albert Institution, Dr. Shuttleworth moved to London, where his great knowledge and wide experience of mental defect soon brought him into fame as a reliable consulting physician and a recognized authority on the education, training and care of the feeble-minded. It is the writer's experience in his official visits that the great help, sympathy and expert advice given by Dr. Shuttleworth are not infrequently referred to with gratitude and affection, not only by parents and friends who have sought his advice, but also by those who have themselves been under his care, those who, through his help, have gained a measure of economic independence and social stability, and are able to take their part in social life or to earn their

own livelihood in remunerative occupations. He was a great upholder of manual training as an aid to intellectual development, and often pointed out that those with defective articulation and impaired graphic language may yet be most highly endowed with manual dexterity, as the celebrated case of Pullen at Earlswood clearly demonstrated.

Shuttleworth possessed a mind of extraordinary patience and perseverance, and he had "the infinite capacity for taking pains," which enabled him to overcome most obstacles. In action he was deliberate and perhaps slow, but he was impressive and was never ruffled, presenting what has been well described as the "aristocratic calm," and being of the type of "absolute imperturbability," even in a highly charged and conflicting atmosphere. Once his mind was "set," he could not be deflected from his purpose, yet he was large-hearted and generous, and his kindly sympathy was never denied to those who sought his help.

Shuttleworth may be well described as indefatigable. He was a worker all his life, and to the last he was keen to follow up investigation and research into mental problems. He had the advantage of an unusually sound early training at King's College, London, of which he was a Fellow and Hon. Associate, for he graduated B.A. with honours in physiology at London University before taking up his medical career—an exception then as now at this University—and his writings in consequence always showed a studied diction.

He contributed extensively to the literature of his special branch, yet he had many interests and diversions outside his purely professional work. He took an active part in ambulance work, and was an Honorary Associate of the Order of St. John of Jerusalem. He served upon many Boards, Councils and Committees, and he was a member of the Departmental Committee of the Board of Education, upon whose report the Elementary Education Act (Defective and Epileptic Children) was framed and passed in 1909.

He was the greatest friend of the mental nurse, and for years he undertook (with his friend and secretary Major Bargrave Wilson) the laborious task of organizing the Asylum Workers' Association, whose interesting little journal he edited; as a small tribute of acknowledgment for his devotion a presentation was made to him by its members. In no previous account of Dr. Shuttleworth's life have his great services to asylum workers been referred to, *viz.*, in promoting the Act which entitled them to receive pensions. Yet this was his greatest public work.

It may be recalled that through the efforts and interest of the distinguished ophthalmic surgeon, Sir William J. Collins—an

Honorary Member of our Association and formerly Chairman of the London County Council—the Asylums Officers' Superannuation Bill became law in 1909. This is an Act for which all who have spent their lives in the care of the mentally afflicted must be deeply grateful. Formerly pension for long and meritorious service was an act of grace, and bestowal was within the discretion of the Visiting Committee of each asylum, but Sir William Collins considered that faithful public services should be adequately recognized as a matter of right, and his views were, after much discussion, accepted by the Legislature. The part that Dr. Shuttleworth played in this work is best described by the following words in which Sir William Collins himself very generously expressed his appreciation :

“When I introduced the Asylums Officers' Superannuation Bill in the Commons in 1909 and piloted it through all its stages in that House, no one could have had a more active coadjutor or a more resourceful “lobbyist” than I had in Dr. Shuttleworth. Whenever the Bill was on the agenda, and all through the Committee stage, he was in attendance and available for counsel and suggestions.

“When, to secure its passage in the House on the Report stage, I had to accept certain amendments, I reassured him that “in another place” matters could be put right; and in the Lords Dr. Shuttleworth rendered similar aid to Lord Monk Bretton, who kindly shepherded it there.

“Lastly, on the return of the Bill to the Commons with certain financial amendments which transgressed the prerogative of the Commons, I remember Dr. Shuttleworth's eager anxiety as he sat in the front row of the gallery, when, after 11 o'clock, I moved and carried, time after time, ‘that this House doth agree with the Lords in the said amendment,’ thus waiving the Commons' rights in regard to money Bills.

“It is not too much to say that but for Dr. Shuttleworth's vigilance, energy and all-round knowledge of the subject, the Asylums Officers' Superannuation Bill, 1909, would never have reached the Statute Book.”

His widow is the daughter of the late Henry Hadwen, of Lancaster, and was a sister of the late Mrs. Fletcher Beach. A son in the Indian Civil Service and a daughter share the loss of a man who loved his home, and of a father who always felt a deep affection for his family.

Dr. Shuttleworth was one of the oldest members of our Association which is the poorer by the loss of this great man.

Mr. WILLIAM MORGAN, formerly Clerk and Steward to the West Ham Mental Hospital, in a letter to Sir Robert, writes :

“ From a sense of duty and with a sincere desire to pay a tribute of profound respect to his memory I will endeavour to comply with your request for a few recollections of the late Dr. Shuttleworth.

“ From 1901 until 1911 it was my privilege to be in close and constant touch with him, chiefly in connection with the interests of the Asylum Workers' Association, of which I became, by his wishes and encouragement, a fairly active member. On my first acquaintance with him I was greatly impressed by his zeal for the welfare of the mental hospital worker, and it was therefore only natural that I should catch his enthusiasm and do what I could to support him. Only a few of us can have realized the extent of the work which he carried on for a great many years as Secretary of this Association and as Editor of the *Asylum News*. He had to deal oftentimes with a heavy mail-bag, but he was ever attentive and considerate to his numerous correspondents, always giving them the fullest of any information required. It was inexplicable to me how he found time to deal with it all, and why he should have worked so assiduously and made so many sacrifices for the benefit of others without any hope of fee or reward. And when one remembers that writing was to him a slow and painful business, it is truly wonderful that he was able to get through so much, for he had many other interests and activities besides those pertaining to the Asylum service. For years Dr. Shuttleworth and others had struggled on with various schemes to get assured pensions for asylum workers. It often seemed as if we were ploughing the sands, for in the absence of Government support we could not make any appreciable progress. Still he kept plodding on, patiently, and with a great optimism, until eventually he made his great achievement of discovering Sir William Collins and prevailing upon him to become President of the Association. Then came far greater activity. Various conflicting interests within the asylum service had to be reconciled ; the sympathy and support of public men secured ; a practical Bill on a contributory basis had to be prepared, and evidence had to be submitted to the Select Committee. In these matters Dr. Shuttleworth's wisdom and tact were prominent. The Bill was pushed through Parliament under Sir William's skilful generalship in that memorable session of 1909. All ranks in the service were naturally delighted at the result, and grateful. A few—only a very few—dared to criticize, but they were among the foremost to fight for the preservation of the Act when, about two years ago, a suggestion was officially made for replacing it by some other Act.

"Everyone in the mental hospital service to-day has reason to be thankful for the existence of such a wise and beneficent Act, but as time goes on those who can remember the energy and sacrifice that brought it about are getting fewer and fewer.

"In saying so much about that Act, therefore, I need not make any excuse, for no tribute to Dr. Shuttleworth's memory would be complete without reference to the great part he played in this matter, and it is only fitting that we should place on record again our sense of gratitude to him.

"Truly one can say that to know him was to love him, for he was always so kind and considerate, without an atom of malice, sham or insincerity in his nature. In all my experience I have never met a more kind-hearted man.

"In closing I would like to make an appreciative reference to the kind and charming lady, Mrs. Shuttleworth, who, by her cheerful devotion, helped him so much in all the good work that he undertook."

Miss BERTHA JAMES, the Hon. Secretary of the Society of the Crown of Our Lord (to help mental invalids), in a letter to Sir Robert, writes :

"It was in 1895 that in seeking for advice how best to promote work for the mentally deficient I was told by a high authority to write to Dr. Shuttleworth as 'the best man in England' on the subject. I wrote. He at once responded and introduced me with two friends to various institutions abroad. We were received royally just because he had won there (and everywhere he went) sincere esteem for his professional and personal qualities. Since then, after invaluable help in starting small private schools and homes, we have had reason to be grateful to him in all our efforts to help mental invalids. Not only to us did he give advice, but also to anyone who appealed for help, and in so hidden and modest a way that few realized that they were being aided by a good physician who had moulded his life on that of his great Exemplar, and had built up traditions by which 'the work' still lives and will live."

Dr. THEO. B. HYSLOP writes :

"Having known Dr. Shuttleworth for more than forty years, and having worked with him at Lancaster, I have entertained for him the deepest respect and affection. He was always a great enthusiast in his work, a most assiduous and careful student of the problems of mental deficiency, and throughout our long acquaintance he was ever a cordial friend and colleague. His knowledge of his subject was very deep and extensive, and one felt that

his clinical experience and his wide grasp of the significance of various symptoms were unequalled. His gentleness and subtle sense of humour made him a most charming and agreeable friend. His influence was all for the good."

Dr. H. WOLSELEY-LEWIS writes :

"As I remember him on the Parliamentary Committee he was hard-working and painstaking; he knew his subject from A to Z, his subject being the Asylum Workers' Association, of which he was the Honorary Secretary. He had high ideals, and shared with some of us the hope that mental nurses might be welded into a powerful association on professional lines, and it was a great blow to him when the Asylum Workers' Association went smash. His great work was the promotion of the Asylums Officers' Superannuation Act, 1909. He inspired the whole movement, and most unselfishly devoted himself body and soul to the cause of his fellow-workers. He was indefatigable in his efforts, and spent much time in 'lobbying' members of Parliament and convincing them of the justice of his cause. Belief in the righteousness of his cause rather than his eloquence brought the matter, after many years of strenuous work, to a satisfactory conclusion. The humblest of men, he did what he did because he believed it to be right, and not in order to be seen and applauded of men."

EDITORS' NOTES.

Dr. G. E. Shuttleworth was educated at the Philological and City of London Schools and afterwards at King's College, London.

From 1870-1893 : Medical Superintendent of the Royal Albert Institution.

From 1899-1901 : Medical Examiner of Defective Children to the London School Board.

From 1901-5 : Medical Expert to Rochester House Institution for Improvable Imbeciles.

From 1900-10 : Consulting Medical Officer, National Association for Feeble-minded.

Other posts : Medical Officer for Schools for Mentally Defective Children, Willesden Education Committee; Member of the Departmental Committee, Board of Education, which gave rise to the Elementary Education (Defective and Epileptic Children) Act of 1899.

He was for years on the Council and Parliamentary Committee of the Royal Medico-Psychological Association.

His British Medical Association activities included : Member of Council, 1899-1903; Member of the Parliamentary Committee; President of the Lancashire and Cheshire Branch of the Association; Vice-President of the Hampstead Division; and Secretary 1883, and Vice-President in 1885 and 1906 of the Section of Psychology.

Principal Publications.—*Mentally Deficient Children: Their Treatment and Training*, 1895, fifth edition, 1922, and articles in the *Encyclopædia Britannica*, Allbutt's *New System of Medicine*, Hack Tuke's *Dictionary of Psychological Medicine*, *Teachers' Encyclopædia* and *Encyclopædia of Education* on Idiocy, Imbecility, and Mentally Defective and Backward Children.

He died at Hampstead on May 28, 1928, and was interred at All Saints' Church, Hertford.

Part I.—Original Articles.

JEROME CARDAN: A STUDY IN PERSONALITY.

By G. A. AUDEN, M.A., M.D., Ph.D., F.R.C.P.

"Jerominus Cardanus, that famous Physician of Milan, a great enquirer of Truth, but too greedy a Receiver of it. He left many excellent discourses, Medical, Natural and Astrological; the most suspitious are those two he wrote by admonition in a dream, that is *De Subtilitate* and *Varietate Rerum*. Assuredly this learned man hath taken many things upon trust, and although he examined some hath let slip many others. He is of singular use unto a prudent Reader."—*Sir Thomas Browne, Pseudodoxia Epidemica, Bk. i, Chap. viii, 13.*

THE chief interest of any autobiography depends upon the success with which the writer draws a picture of himself and reveals the development of his character, his orientation to the people amongst whom he has moved, and his relation to the events in which he has played his part. Such self-revelation is not common, and hence it is that but few autobiographical writings have more than a transient interest. Amongst these few, however, may be included the *De Vita Propriâ* of Jerome Cardan, which, together with the personal references scattered through many of his other books, offers an opportunity to trace the factors which went to mould his character and personality and to influence his outlook on life. Apart, therefore, from our interest in him as a man, the study of his life as revealed by himself is interesting in the light of modern psychology.

Jerome Cardan, Professor of Medicine at Pavia, enjoyed a wide reputation as a physician, a reputation which caused him to be summoned from Italy to Edinburgh for a consultation on the health of John Hamilton, Archbishop of St. Andrews. It was on this journey that he was consulted on the health of King Edward VI. His medical writings were much read in his time and are frequently quoted by Sir Thomas Browne. But this is not his only title to be remembered, for he was the leading mathematician of his time, and as such his memory is still perpetuated by "Cardan's Rule" for the solution of certain algebraical equations; and perhaps a still greater cause for remembrance, certainly by all who are interested in motors, is the "Cardan shaft" with its universal joint, of which he first described the mathematical principles.

In an age of voluminous writings Cardan surpassed most of his contemporaries. His pen was never out of his hand, and according to his own statement in his *De Libris propriis* he published 139 books, and had in addition at the time of writing 111 manuscripts which had not been published.* But, with the possible exception of his *De Consolatione*, none of his books can compare in interest or pathos with his last work, *De Vita Propriâ*, written at the end of his long life, when he was bowed down by grief at the execution of his eldest son for murder.

The illegitimate son of an eccentric jurist and mathematician already advanced in years, he was born into the world in 1501, an unwanted child, whose mother had done her best to prevent his advent by taking drugs to procure abortion (*cf. De Utilitate*). The confinement was difficult and protracted, and he was at once put out to nurse. Within the first month of his life his troubles began, for his foster-mother died of plague. Steeped in the astrological lore of his time, he always believed that he had been born under an unlucky star, and that had it not been for the fortunate influence of the moon he must have been born a monster. The list of infantile complaints from which he suffered, and of which he gives a catalogue, shows clearly that, like his contemporary Paracelsus, he suffered from rickets, although this disease had not yet been described at the time. In his case the condition was doubtless due to the fact that he was not weaned until three years of age.

His weakness and delicacy, however, did not protect him from harsh and cruel treatment. His aunt, who lived in the home, for his father and mother had now married, was particularly cruel; indeed, he says, she must have been born without a gall-bladder, for her choleric temper could only have been due to the direct absorption of the gall into her blood. But in addition, throughout his childhood, there were constant bickerings and quarrels between his parents, such as could not fail to exercise a malign influence on a highly strung, nervous child. Added to this, his father, clever and unstable, was always in monetary difficulties, and constantly moving from one house to another. The boy had no companionship with other children of his own age, and thus was thrown entirely upon himself. Here, therefore, we have the factors which inevitably produced the nervous instability and the maladjustment to home environment which bore such bitter fruit in after years.

* In *Liber de Vita Propriâ*, cap. xlv, he gives a classified list of his writings, including mathematics (3), astronomy (10), physics (40) (this includes the *De Subtilitate*—22 books in one volume and *De Rerum Varietate*—17 books in one volume), moral (8), various "opuscula" (24), medical commentaries (52), dreams (4), theology (2), the art of medicine (47) and sundry others.

Neglected and ill-treated as he was, and living as he did in a household which could scarcely be called a home, there is little cause for wonder that at the age of four or five years the sensitive lad began to suffer from a hallucinatory phantasmagoria, apparently of a somnambulistic character, for it chiefly occurred in the early morning hours. He describes processions of colourless ring-like figures rising from the right-hand side of his bed, also horses, houses, trees, musical instruments, etc. But the most constantly recurring vision was that of a cock with red wings and red comb, with a human voice, for which he listened with terrified expectancy.* There were also other threatening voices which frightened him. Cardan tells us that the mental agony and fright of this period of his life brought him to think of suicide—an impulse which appears to have recurred at other times in his life.

At the age of seven his father, presumably to save the expense of a servant, added to his son's troubles by making him trot about the streets with him carrying his bag of books and papers, until a serious illness supervened, which at last aroused in his parents some hitherto dormant sense of parental affection. The boy was formally dedicated, should he survive, to the tutelary protection of St. Jerome, whose name was taken as his Christian name. Released from his servile duties he grew up to adolescence untrained, sensitive, self-conscious and introspective, and ever conscious of the slur of his illegitimate birth, and though he was a lad of unusual quickness and intellectual precocity, his education was completely neglected. When a rich nephew of his father offered to settle money upon him to pay for an adequate education, his father summarily refused the offer. At this time Jerome went through the not uncommon experience of adolescence, a phase of religious emotion, and began to consider the question of becoming a monk. Doubtless one of the reasons for this plan was the thought that within the monastic walls he would have access to books and to the education which his father denied him. But a still more powerful emotional appeal was made to him by the death, at the age of thirty, of a relative, Nicolo Cardan, to whom he was much attached. This event prompted Jerome to make his first attempt at authorship—a treatise on immortality.

It was not until he was nineteen years of age that his father Fazio, who had only given him irregular instruction in mathematics and astrology, allowed him to become a serious student of Latin—the language which alone could throw open the entrance to the world of learning and the humanities. At the same time his capacity

* "Gallus quem timebam ne loqueretur humanâ voce, inde paulo post ita continebat."

for mathematics stirred him to attempt the authorship of two treatises which are interesting as showing the special bent of his mind for many years to come, *i.e.*, one on astronomical calculations, the other on the theory of chance in relation to card-playing. His love of gambling, which lasted throughout his life, no doubt dated from this period of repression, and it would appear that, added to his skill and knowledge of the mathematical aspects of gambling, the excitement which it provided offered an escape from reality and from his feelings of inferiority into a realm where the dice-box placed all on an equal footing. There was another outlet to his emotional energies in music,* for his mother had, unknown to his father, supplied the money for music lessons. The memory of his own sufferings as a child is revealed in some of the precepts to his children, *i.e.*, "Educate a bastard as if he were legitimate, for he is your own blood." "You owe to your children agreeable names, knowledge of a useful art, good manners, instruction in music, arithmetic and writing."

By nature timid, afraid of thunder, firearms, swords, swimming and riding, he found compensation in roaming about the streets at night, disguised and armed, despite the drastic prohibitions of the civic authorities. Here, indeed, is a good example of fantasy-building, wherein his conscious shrinking from danger and his lack of self-confidence found compensatory expression in the fantasy of being a bold and venturesome swashbuckler.

At length his father, to whom, rather than to his mother, he often shows affection, stirred by urgent representations of his friends and by the boy's own entreaties, enforced by the threat to run away from home if he did not have his way, consented to allow him to enter the university. Accordingly at nineteen years of age he entered the University of Pavia as a student of medicine. Here at last Jerome found freedom and the opportunity for self-expression which had hitherto been denied him. Reading, music, excursions into the country and fishing filled his days, and the gaming-table his evenings. His university career was successful and in due course he was ready to graduate in medicine. But here he was met by a sudden check to his ambitions, which profoundly influenced his future and once more brought him back to a state of morose introspection. He was rejected by the College of Physicians. The stigma of illegitimacy clung to him, together with, it is probable, an unsavoury reputation as a gambler. Moreover he had brought himself into the prominent notice of the University authorities by one of the most extraordinary actions of his life, the

* *De Vita Propriâ*, cap. lii, p. 219: "Lætus, voluptate deditus, musicæ præcipue."

assumption of the Rectorship of the University in the previous year (1525). It was a time of great political and military disturbance, and the University had been closed for several years previously. There was accordingly a dearth of suitable candidates for the Rectorship, and it would appear that in the confusion of the times when the Rectorship was going a-begging, the opportunity for self-assertion which the appointment offered induced Cardan to put himself forward as a candidate. He was duly elected.* That the election was irregular in some way is shown by the fact that Cardan's name does not appear in the official record of Rectors, the years from 1508 to 1526 being left blank. From a common-sense point of view it was an extraordinarily foolish venture, and indeed Cardan says he was a fool to undertake it (*Stulte vero id egi*). He was a poor student, and the expenses for robes of office and for entertainments were heavy. The post, however, entitled the holder to proceed to the doctorate of his faculty without further trouble. It may be that the University authorities took the opportunity of showing their annoyance by rejecting the madcap student when he applied to be allowed to receive his doctorate. Be this as it may, he obtained his medical degree in the following year (1526). From his father he had learnt to take a keen interest in astrology, and his computation of his own horoscope led him to believe that he must die in middle life before he had been able to achieve that fame and immortality for which his restless spirit craved. This prospect of an early death filled his mind with haunting dread. Writing at the end of his life he shows a very natural misunderstanding of his real attitude of mind in his desire for the approbation of his fellow men. In the words of Sir Thomas Browne (*Hydrotaphia*, Cap. v): "To be content that times to come should only know there was such a man, not caring whether they knew more of him, was a frigid ambition in Cardan."† Though doubtless this statement of his motives expresses what Cardan believed to be the truth, for he is always extraordinarily frank in his self-criticism, all his actions show it to be false. It is clearly a rationalization in his old age, for never was a man more thirsty for fame and for the good report of his colleagues and successors in the world of letters. He had, moreover, another cause for mental distress at this time, a common cause of despondency amongst the unstable and neuropathic—the belief that he was impotent and physically unfitted for marriage.

Without any financial resources he was constrained to settle

* *De Vita Propria*, p. 12, "Sub anni xxiv finem, factus sum rector ejus academïæ; in fine sequentis Medicinæ Doctor."

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down to a country practice in the small town of Sacco, but he soon began to look around for a wider sphere in which to prove his talents. Accordingly in 1529 he made an attempt to migrate to Milan, where his mother was still living. Once more the opprobrium attached to his birth stood in his way, and his application to be enrolled in the College of Physicians of Milan met with a refusal.

Disappointed at this rebuff and wound to his pride he returned to Sacco, where he appears to have had a definite physical and mental breakdown. In fact the remark of his biographer Naudé, "*insaniente proximum vixisse*," is probably not altogether untrue. He gradually recovered his health, but seems to have neglected his practice in a devil-may-care reaction, and before long was considering marriage. Throughout his life Cardan had an implicit belief in the prognostic value of dreams, which he frequently describes in considerable detail, sometimes with sufficient precision to allow a reasonable interpretation in the light of modern psychological knowledge. In his later years he published a book on the interpretation of dreams. It was a dream which led him into marriage. He dreamt that he was in a beautiful garden, surrounded by a wall, full of delicate flowers and fruits. The gate was standing open, and just outside was a beautiful maiden dressed in white. He stepped outside and embraced her, but at his first kiss the gardener closed the gate and the two were left standing without, like Adam and Eve cut off from the beauties of Paradise. It seems a reasonable interpretation of the latent content of this dream as representing his release from the haunting dread of physical impotence, which he tells us had recently passed away—the garden with the walls and open gateway—coupled however with a feeling that marriage (he was now twenty-nine years of age) would not fully solve his conflicts, and in his then state of restricted income would be a further bar to the advancement of his ambitions as a physician.

Shortly after his garden dream he believed that he recognized in Lucia, the daughter of a new next-door neighbour, whose advent had at first greatly annoyed him, the girl of his dreams. He fell in love straightaway* and was duly married. Lucia proved a good wife to him despite his temper, irritability and general recklessness, sharing with him his poverty and anxieties for fifteen years, but dying before he had won a secure position. Cardan, looking back at the end of his life over all the troubles that his sons had brought him, somewhat harshly attributes all his ill-luck to his marriage: "*hoc incommodum omnium malorum quæ mihi in totâ vita acciderunt causa fuit*" (*De Vita Propriâ*, xxvi).

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When his wife had been dead a few years he once dreamt that he had married again, and that his late wife stood beside them both and asked for five masses to be said on her behalf. His dream wife disappeared and in her place appeared his mother; between the two dead women stood his eldest son as he was when seven years old at the time of his grandmother's death. Here it would appear the wish to marry again was set against the interests of his son, who was the dream-surrogate of himself and a reminiscence of his own misery and harsh treatment at seven years of age. In his precepts to his children he writes, "Never let your children have a step-mother; if you do never put faith in her as an accuser."

Shortly after his marriage he made a second attempt to secure admission to the Milanese College of Physicians, but again in vain. This experience and the pinch of poverty soon made it necessary for him to apply himself to practice in the country, where living and the necessaries of life were cheaper and the conditions of life more healthy than in the crowded tenements of Milan. Practice, however, in a country district which had been ravaged by war and pestilence offered but little pecuniary remuneration—in fact he states that in the whole of his nineteen months in Gallarate he only earned 25 crowns towards his house rent. His luck at the gaming table had deserted him, and he had dived away his wife's jewels and even their bed. Something must be done, and accordingly with his young wife and infant son Cardan once more moved into Milan, where their destitute state brought them at length into the Zenodochium, or casual wards of the workhouse. A small lectureship in geometry and astronomy, the endowment of which was in the gift of the Prefect of the Zenodochium, was ultimately secured for him.

Cardan was now thirty-three years of age, without prospects and with few friends, but still with the same overpowering ambition to show to the world the light of knowledge which he felt burnt within him. ("*Hoc unum sat scio, abeunte aetate me inextinguibili nominis immortalis cupiditate flagrasse.*") Gradually patients began to consult him, and the fame of several successful cases spread abroad, despite the attitude of the regular physicians of the College. As soon as he had found his feet he found means to get his own back upon his professional brethren by the publication of a book which held them up to satire and derision—*Bad Practice in Modern Medicine*, or, as it might be translated, "Errors in Modern Medical Practice." Herein he pilloried the methods of his colleagues without mercy. It was a bold stroke, which certainly served its purpose, if this was to bring him before the public eye, for it was eagerly read by everyone. As a weapon of vengeance, however, it proved to be a

two-edged sword, for the hurry with which it had been written (Cardan says it was written in fifteen days) and the carelessness of typesetting and lack of correction caused numerous errors to appear, which gave his enemies an opportunity, which they were not slow to seize, for turning the tables upon him. Cardan was greatly disheartened at the result of his venture as an author, more especially at the counter-attack made upon his own capacities as a physician and upon his mental condition.* A new avenue of fame must therefore be sought, and accordingly he turned once more to his earlier studies of astronomy and mathematics, and began to write the book which was soon to earn for him a European reputation and an assured place in the Temple of Fame, his *Practica Arithmetica*. He held a lectureship in mathematics, and had not his enemies derided him by saying that he was only fit to teach mathematics? Then on mathematics he would write, and prove his genius to the world! It is noteworthy that at this time, taking Cicero as his model, he wrote his *De Consolatione*, the only book of his that has ever been translated into English—a kind of personal soliloquy, the writing of which was probably in some measure an attempt towards the sublimation of his own thwarted ambitions. If read from this point of view the book will be found to possess a good deal of psychological interest. In the opening chapter he writes, "I know not what benefits others may reap by this my labour; as to myself (for whom I chiefly designed this book) the considerations contained therein have abundantly profited me. . . . What wise man will torment himself in adversity, considering how vain, short and uncertain the life of man is?" (translation, London, 1683). The book is no mere sententious compilation, but has the ring of personal experience, if not of conviction, and comfort. Be this as it may, his fame as a mathematical teacher spread quickly and brought him several notable pupils, while a further series of successful cures brought at length the distinction which he had so long coveted—admission to the College of Physicians, which gave him a place amongst the recognized physicians, with full right to practise. His *Practical Arithmetic* was published at Nuremberg in 1539. Its value was at once recognized, but it involved Cardan in new difficulties in that it brought him into sharp controversy with another mathematician, Tartaglia, and gave his enemies an opportunity to bring a charge of bad faith against him. The controversy is the old problem of priority of discovery. Tartaglia had discovered a method of solving certain cubic equations, and Cardan, naturally anxious to include the latest work in his

* "Dicebant numquid modo dubitatio hunc insanire. Itaque merito qui tot insanientibus contradicere niterer, insanire visus sum."

text-book, attempted, with ultimate success, to draw from Tartaglia his carefully guarded secret method. This he did on promising to give due credit to the discoverer. He kept his promise, but recognized that his rival's solution was less generally applicable and therefore less valuable than his own solution, together with that of one of his pupils, Ferrari, who had discovered a rule of general application to problems of this character. Cardan, however, had not touched upon Tartaglia's rule in his *Arihmetic*, having reserved it for use in a subsequent work on Algebra. Tartaglia accused Cardan of a breach of faith in no measured terms, though it appears that Cardan may be acquitted of conscious double-dealing in the matter.

His greatest work, *The Book of the Great Art*, was published in 1546, and marks a real advance in the history of mathematics. While acknowledging his obligations to Tartaglia as to others, Cardan does not definitely give him credit for this particular discovery. Doubtless the temptation to seek fame for an original discovery was a strong one, and the immoderate invective he had received from Tartaglia would not dispose him to be meticulously fair to his rival, but there is little doubt that Cardan and his pupils had advanced this particular branch of algebra very considerably beyond the actual point where Tartaglia had left it. Honours now came thick and fast. He was made Rector of the Milan College of Physicians in 1541, and two years later became Professor of Medicine in the University of Pavia, which, owing to the disturbed state of the country, had been transferred to Milan. He migrated to Pavia and continued his teaching there when the University returned to its own city. He now received two offers which must have flattered his self-esteem: the first was to enter the service of the Pope; the second, conveyed to him by the anatomist Vesalius, was an invitation to become physician to the King of Denmark. Cardan declined both offers. Some years later occurred what is to us the most interesting incident in his varied career. In 1551 John Hamilton, Archbishop of St. Andrews, was suffering from an affection of the lungs, the description of which points to asthma or emphysema. He was advised by his resident French physician, Cassanate, to seek the advice of Cardan. The consultation was finally arranged, and in the following year Cardan set out on his long and perilous journey from Milan to Edinburgh. Here he stayed for three months (June to September) in 1552, and though he was no chronicler of sights and scenes, he has left scattered through his published writings a certain number of his impressions and observations. He notes the large flocks of rooks and the collective efforts to reduce their numbers, the fine wool of the sheep, and their security from the attacks of wolves, which by this time had

been exterminated ; also the absence of snakes. He notes also the variety of semi-precious stones found in Scotland.* It is, however, disappointing that he tells us so little of his journey from the coast to Edinburgh, though he probably travelled along the Great North Road through York.

Cardan's treatment of the Archbishop was remarkably successful, for the latter lived nineteen years longer, only to be hanged at Stirling in 1571. Before he left Scotland Cardan was consulted by many notables and earned large fees, and on his return journey he stayed in London in the house of Sir John Cheke. Here he was consulted upon the health of King Edward VI, who had recently suffered from measles and smallpox. He gives a very interesting account of his conversation with the boy King, who showed a great interest in astronomy and asked a number of questions about the nature of comets. Cardan was sanguine enough to cast the King's horoscope and to predict a long life—a prognosis which did more justice to his political prudence than to his astrological acumen, for the King died six months later. Cardan felt it incumbent upon himself to publish subsequently a memorandum on the reasons for his prognosis.†

His return to Italy was a triumphal procession, and the ambition of his life to be acclaimed the leading physician in Europe were abundantly realized. His practice amongst the nobility and notables increased, and he prospered exceedingly. To this period belongs the famous controversy with Julius Cæsar Scaliger, who, taking himself seriously as the "big noise" in the academic word, trounced Cardan's encyclopædic book *De Subtilitate* as a farrago of rubbish. Cardan treated the onslaught with silent contempt. Scaliger, hearing that Cardan had died from annoyance, proceeded to publish an effusive panegyric on his late rival, and became a laughing stock to the rest of the world. Sir Thomas Browne

* *De Subtilitate*, Lib. x, p. 384 (Leyden, 1584).

† His horoscope of King Henry VIII, published with the rest in his *De Exemplis Centum Genituarum*, is a good example of his astrological activities: "1491 die 27 Junii ho. 22, mi. 40 post-meridionem. Inclutus vir, ut ex stellarum positione apparet. Sol cum Apolline, regiumque plane animum magnitudine deceruit, violentia plusquam regium. Chronocratorem Solem habet. Nemo plures experietur in regno turbas." Butler, in his *Hudibras*, alludes to Cardan's astrological interest as follows:

"Cardan believes great states depend
Upon the tip of the Bear's end,
And as she whisks it t'wards the sun,
Strews mighty empires up and down."

A reference to Cardan by Sir Thomas Browne (*Pseudodoxia Epidemica*, Bk. vi, Chap. vii) makes this quotation from Butler more clear: "Some have therefore forsaken this refuge of the sun, and to salve the effect have recurred unto the influence of the stars, making their activities National, and appropriating their powers unto particular regions. So Cardan conceiveth the tail of Ursa Major peculiarly respecteth Europe."

mentions this rivalry between the two scholars in his *Christian Morals* (Pt. ii, §2): "If Cardan saith that a parrot is a beautiful bird, Scaliger will set his wits o' work to prove it a deformed animal."

He who had suffered so much at the hand of Fortune now seemed to be the favourite of that fickle deity. But "the little cloud, no bigger than a man's hand" now began to appear, and that in his own household. Cardan had two sons, Gianbatista and Aldo, and a daughter Clara, who married well, and except for her childlessness never gave her father any trouble. The behaviour of both sons, however, caused their father much anxiety, and he was continually called upon to get them out of foolish and reprehensible scrapes. Their mother had been dead for some years. He had already cast his own horoscope, in which he found that "the natiuities of my sons promise me much good and little harm."* The wish was clearly father to the thought, and he poured out his affection upon his reprobate sons in the attempt to make decent men of them. But his own inherent instability showed itself in a still more pronounced form in his boys, and his inveterate addiction to gambling can hardly have been a satisfactory example to them. The elder boy, after several failures, finally qualified in medicine, but failed to make any success of his profession. Like his father, he was particularly fond of music. Without telling his father, Gianbatista was secretly married to a young woman of worthless character. Cardan broke off all relations with them, but when a child was born to the couple, who, having sold or pawned all their possessions, were living in great poverty, his affection for his son overpowered his anger and he took upon himself their support and maintenance. But marriage did not wean the wife from her previous mode of life, and quarrels were constant. When a second child was born the mother told her husband that he was not the father of either of her children. This was the last straw, and Gianbatista cast about for means to rid himself of the incubus which he had bound to himself. In an incredibly foolish manner, and with but little attempt to conceal his designs, he proceeded to murder her by giving her a piece of poisoned cake. His younger brother Aldo was staying in the house and it is quite possible that he was privy to the murder; in any case both brothers were duly arrested. The charge against the younger prisoner was, however, subsequently dropped. Cardan, who was still Professor of Medicine at Pavia, on the receipt of the news rushed back to Milan to arrange for the defence. He threw all his energies, resources and professional influence into the struggle—a struggle all the more hopeless because the prisoner had already

* *Genituarum exemplar*, p. 122.

confessed not only to the deed itself, but to two previous unsuccessful attempts. The arguments which his father put forward at the trial are strangely casuistic. One of these is curious in that it seems to suggest that Gianbatista was recognized as being "simple" and that the fact was notorious. "He was so simple in fact that he had no more prudence than a boy of ten years old." His want of prudence as evidenced by the egregious folly of his marriage and his failure in his profession were proofs of this simplicity. Certainly the whole setting of the crime, the placing of the arsenic in the cake after having got his servant to procure it for him and the absence of any attempt to destroy the evidence against himself seems to point to a degree of fatuousness amounting to feeble-mindedness. Another fact pointing in the same direction and indicative of a complete failure to appreciate the gravity of his position was his petition to his father to go bail for him in 10,000 gold crowns in order that he might be allowed two hours *exeat* from prison to attend a race meeting. The evidence against the husband was too clear to be rebutted and he was duly condemned and executed.

From this time forth Cardan was a broken man, ruined in spirit, in resources and in reputation, and shunned by his colleagues and former friends. Always inclined to superstitions in relation to dreams and omens, he became more and more the slave of superstitions of this kind, and now in association therewith developed ideas of persecution. The simplest actions of others were translated into fancied attempts upon his life. His moroseness and harshness of character and outspoken manners can never have made him popular, but there is no reason to suppose that there was any real attempt to bring about his death, although undoubtedly scurrilous attacks were made upon his morals and personal character. Moreover, his surviving son Aldo continued his worthless career until, after several periods of imprisonment, he was finally exiled from the city.

In his distress of soul he admits that the behaviour of his sons reflected their father's defects and failures as a parent. As is so often the case with ambitious fathers, he had hoped his children might prove surrogates for himself, and that in their successes he might see himself mirrored, in an image undimmed by his own consciousness of failure. Affectionate after a fashion as he was, it seems probable that behind the natural grief at the death under such circumstances of his eldest son, and the graceless behaviour of his younger son, was the unconscious knowledge of personal failure in and through them—the longing for "what might have been" which is ever the cry of the human heart in distress. Such

was his mental distress at times, he tells us, that he resorted to flagellation. He notes how great is the emotional relief which comes from an outflow of tears. His eccentricity showed itself in many ways, such as in the keeping of all sorts of queer pets in the house, as he could never induce himself to get rid of them, "goats, lambs, rabbits, hares, storks, so that they pollute the whole house." Doubtless some of his eccentricity was a pose which earned for him the notoriety for which he craved. He devotes a chapter to a description of his own character, which is nothing if not frank. He calls himself irascible, simple, lascivious, harsh, pertinacious, contentious, imprudent, despising riches, but seeking fame after death.*

Resigning his professorship at Pavia in the expectation of being appointed Professor at the newly constituted University of Bologna—an expectation which was but tardily realized—Cardan turned more and more to his own inner thoughts, and once more found in philosophy that comfort which the world denied him.† To this period of his life belong most of his philosophical works, especially *Theonoston*, including sections on tranquillity, the prolongation of life, contemplation, and the life and felicity of the soul after death. His book *De Usu Adversitatis* closes with the story of his son and of his sad fate, together with the defence which he had prepared for the trial, and he adds as a pathetic memorial of his blighted hopes and aspirations a fragment of a medical thesis by his son. Cardan's father had always believed that he had a dæmon or familiar spirit which directed his actions and life, and in his later years Cardan himself came to believe that he, too, had a dæmon, like that of Socrates, "a great, powerful and a rare one," which had taken over the entire governance of his life. A report which particularly annoyed him at the time, probably because of its half truth, was that he was a madman. Though he was always careful to avoid trouble by submitting his works to the judgment of the Council at Rome, something in his writings or his statements must have given a handle to his enemies, for suddenly at the age of seventy he was thrown into prison on some charge of impiety or blasphemy. After a year's imprisonment he was released, but was forbidden to teach or to publish further works. His life-long addiction to writing could not be so easily repressed, and the last five years of his life he spent in

* "Gloriæ post obitum cultor. Natura ad omne vitium pronus, præter ambitionem agnosco imperitiam meam si quis alius" (*De Vita Propria*, cap. xiii, p. 41).

† He seems to have been strongly drawn to the study of Plotinus. Thus Burton (*Anatomy of Melancholy*): "Cardan in his 16th book of Subtleties reckons up twelve super eminent acute philosophers for subtlety and wisdom . . . but his triumviri terrarum far beyond the rest are Ptolemæus, Plotinus, Hippocrates." I cannot, however, trace this specific reference in the *De Subtilitate*.

working over the material contained in his store of manuscripts, destroying many and incorporating much into his last books. To these he devoted a special volume, the *De Libris Propriis*. To this period also belongs the autobiography, from which the material of this paper has been taken, the *De Vita Propriâ*. Fortune, however, shone upon him at the last, for the liberality of the Pope supplied a pension in place of the means and position which he had lost, and he continued to live in Rome until his death at the age of seventy-five. By his will, which he gives in chapter xxxvi of his *Life*, he left his property to his grandson Fazio and his heirs, with directions that his books should be edited and printed. Failing succession, his house in Bologna was to pass into the possession of the University and to be called the Cardan College (*Collegium Cardanorum*). A Frenchman, M. de Thou, has left an account of the impression which he gave as he walked about the streets of Rome, "strangely dressed and generally described as a madman of impious audacity who had attempted to subject to the stars the Lord of the stars, and cast the horoscope of Our Saviour."

Such was the current idea of the man whose fame as a mathematician still remains, and who, as a physician, had earned a reputation throughout Europe greater than had been ever gained by any other practitioner of the art of medicine.

It has been necessary to enter into details somewhat fully in order to be in a position to appreciate the motives and underlying forces which moulded his life. As has been stated earlier in this paper, the key to the whole outlook on life and to the actions, successes and failures of Jerome Cardan appears to be the strongly marked inferiority complex, which had been so forcibly impressed upon him in his early years. His life illustrates very clearly how diverse the manifestations of such a complex may be, especially when coupled with an inherited instability of mind.

Two lives of Cardan have been published in English, to both of which this paper is greatly indebted, the first, in two volumes, by Henry Morley, published in 1854, the second by W. G. Waters, published in 1898. Although both of these lives give much information concerning his mental development, both are devoted rather to the events of his life and the part he played in them than to a psychological study of his personality. The edition of the *De Vita Propriâ* used for this paper is that issued by Gabriel Naudé, Amsterdam, 1654; the *De Subtilitate* used is the edition published at Leyden, 1580.

THE RELATION OF MUSCULAR TONUS AND THE PATELLAR REFLEX TO MENTAL WORK.

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Mental Hospitals.)*

THE fact that intellectual effort is accompanied by an increase of muscular tonus was demonstrated by one of us in 1921 (1), the method employed being the registration, by means of a highly magnifying optical lever system, of slight displacement of a relaxed limb. It was found that those muscles which were in a state of postural tension increased in tonus during intellectual work, whilst the fully relaxed antagonists remained unaffected.)

In the present paper an attempt has been made to evaluate the relation of this increase of tonus to prolonged intellectual effort.

METHODS.

The muscle groups specially studied were those governing extension of the knee-joint, and those producing dorsiflexion and extension of the wrist-joint. In the previous communication it was pointed out that it is possible, even without apparatus, to demonstrate the occurrence of an increase of tonus in the knee extensor group when mental work is performed. It is only necessary to cross the legs so that one hangs free and is adequately supported by the other knee, while sufficiently relaxed to pulsate visibly with each heart-beat. If one observes the alignment of the toe-cap of the shoe with some object, or a line formed by, *e. g.*, a crack in the wall, it will be found that when a mental effort, such as that involved during a short calculation, is made, the leg moves visibly upwards, indicating a rise of tonus in the extensor group of thigh muscles.

In the present series of experiments the toe-cap was attached to the lever of an optical myograph of the pattern introduced by Sherrington. The myograph was made with a torsion-wire of sufficiently stout steel piano-wire and adjusted by a heavy, rigid

screw stand, so that the toe-cap exerted, when in a neutral position, an appreciable pull on the lever. The reflected beam from the mirror of the myograph was recorded photographically on the paper of a kinograph. This was set at such a distance as to secure a magnification of 30 to 40. The subject was comfortably seated in a special chair employed for our knee-jerk experiments, as described elsewhere. In the case of the wrist-joint a somewhat similar arrangement was used. The arm rested in the groove of a moulded trough extending from elbow to wrist. The relaxed hand, hanging over the edge of the trough, was attached to the myograph lever by a thread from the middle knuckle of a close-fitting glove. In later experiments the optical lever was abandoned for an air-transmission method, giving a high degree of magnification. In this method the limb pulled on a large tambour, 5 inches in diameter, which transmitted to a small recording tambour giving a five-fold magnification. The work performed was usually the addition of a series of columns of figures. In order to estimate the velocity of the performance, the subject was instructed to press an electric contact at the end of each column, thus signalling on the drum the time taken. In other instances, reading and recitation, either silently or aloud, were tested, and also muscular exercises requiring close attention, such as the holding of a pin electrode in the centre of a small wire circle, or maintaining a spot of light on a fixed point.

The records invariably showed the same type of response during mental work, whether the tonus of the leg or of the arm muscles was examined. An immediate rise of tonus occurred at the inception of work, and remained at a maximum for a brief period. It was then followed by a gradual return to the original level, although the work might be still in progress. Fig. 1 shows such a tonic alteration in the case of the hand during the performance of a series of calculations.

When a series of additions of short equal columns of figures was signalled it was possible, by measuring the time taken for each column, to establish the relation between any point in the curve of tonus and the efficiency with which work was performed. A study of a number of such tracings showed no quantitative relationship between the two. The tonus curve reached its original level long before any signs of fatigue could be traced in the work record. In many instances, whilst the tonus had fallen to normal, there was an increased efficiency of output. When the work was arranged to become progressively difficult the form of the tonus curve remained unaltered—there was no prolongation of the period of maximum tonus, nor of that of its subsidence. The rise of tonus precedes by

a variable period the actual beginning of work. The tonus reaches its maximum in a period varying from 10 to 40 seconds. Both the preparatory period and that of the rise are subject to great variation on repetition of the identical task by the same subject. The only statement that can positively be made in this connection is that the greater the degree of maximum tonus reached, the shorter will be the period of preparation, and the steeper the rise of tonus. The maximum increase of tonus showed no very distinct relation to the difficulty of the work performed so long as this was of a nature to call forth repeated mental operations on the part of the subject. When, however, tasks were set demanding passive attention, such as the estimation of given time-periods, the rise of tonus might be very slight, though never quite absent. The period of maximum tonus varies from 3 to 6 minutes in the same subject, and the period of decline to normal from 6 to 12 minutes. As already stated, these periods bore no relation to the difficulty of the work performed; but the duration of the period of increased tonus is sensibly shortened by fatigue. A curve of tonus obtained by the method indicated will show, in addition to cardiac and respiratory waves, a series of irregular oscillations of various sizes and duration. These fluctuations sometimes represent sharp diminutions of tonus, followed by slow recovery; sometimes sudden increases, followed by diminution. They might be considered as the correlatives of fluctuation of voluntary effort. Examination of the curves in which the time taken for each calculation has been signalled reveals, however, no relation between the efficiency of work and the oscillations of tonus. Since the delicacy of the method used was such as to show accidental movements of the body as a whole, it might be assumed that these irregular fluctuations were the expressions of postural adjustment. Whether the primary change be in the direction of increase or of decrease of tonus, there is always a secondary return to the mean position of the curve. This fact suggests the probability of these oscillations being what in fact they appear to be on the surface, namely, primary fluctuations of tonus, seemingly unconnected with mental effort.

Records taken from a case of tabes showed no increase of tonus during mental work; whereas in a case of spasticity due to pyramidal lesion the height, but not the duration, of the tonic response was increased.

In a previous communication (2) it was pointed out that the electromyogram of the tonic response to effort and emotion appears either as a straight line, or as a very slow monophasic variation which we are now inclined to regard as being due to movement of the electrodes. This would suggest that the tonus of effort and

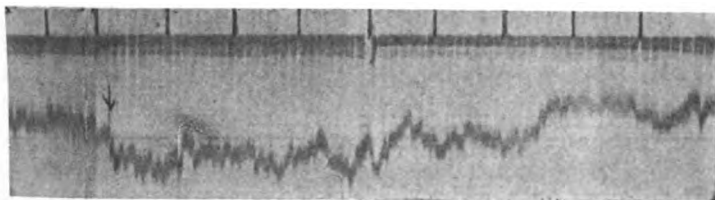


FIG. 1.—Photographic record of tonus increase of the extensors of the wrist during addition of a series of equal columns of figures. Upper vertical lines show time in minutes. Middle white line signals completion of each addition. Commencement of work signalled by arrow.

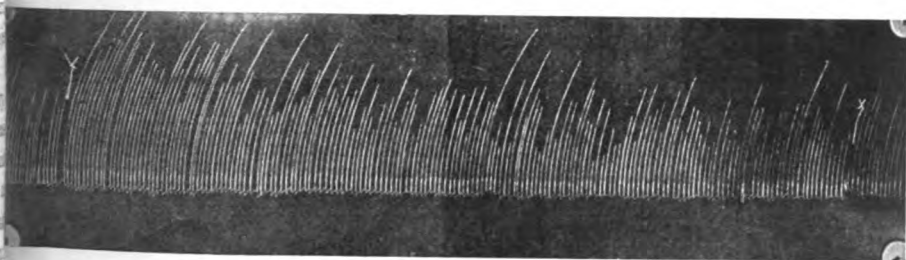


FIG. 2.—Isometric record of knee-jerks during performance of mental work (calculation). Work period between the two crosses.

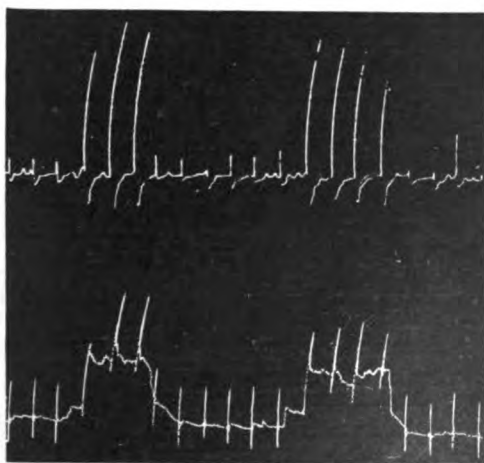


FIG. 3.—Simultaneous tracing of isometric knee-jerk (left leg) and extensor tonus (right leg), showing two successive periods of rest and mental work. Upper line, knee-jerks. Lower line, tonus on which corresponding knee-jerks are signalled.

a variable period the actual beginning of work. The tonus reaches its maximum in a period varying from 10 to 40 seconds. Both the preparatory period and that of the rise are subject to great variation on repetition of the identical task by the same subject. The only statement that can positively be made in this connection is that the greater the degree of maximum tonus reached, the shorter will be the period of preparation, and the steeper the rise of tonus. The maximum increase of tonus showed no very distinct relation to the difficulty of the work performed so long as this was of a nature to call forth repeated mental operations on the part of the subject. When, however, tasks were set demanding passive attention, such as the estimation of given time-periods, the rise of tonus might be very slight, though never quite absent. The period of maximum tonus varies from 3 to 6 minutes in the same subject, and the period of decline to normal from 6 to 12 minutes. As already stated, these periods bore no relation to the difficulty of the work performed; but the duration of the period of increased tonus is sensibly shortened by fatigue. A curve of tonus obtained by the method indicated will show, in addition to cardiac and respiratory waves, a series of irregular oscillations of various sizes and duration. These fluctuations sometimes represent sharp diminutions of tonus, followed by slow recovery; sometimes sudden increases, followed by diminution. They might be considered as the correlatives of fluctuation of voluntary effort. Examination of the curves in which the time taken for each calculation has been signalled reveals, however, no relation between the efficiency of work and the oscillations of tonus. Since the delicacy of the method used was such as to show accidental movements of the body as a whole, it might be assumed that these irregular fluctuations were the expressions of postural adjustment. Whether the primary change be in the direction of increase or of decrease of tonus, there is always a secondary return to the mean position of the curve. This fact suggests the probability of these oscillations being what in fact they appear to be on the surface, namely, primary fluctuations of tonus, seemingly unconnected with mental effort.

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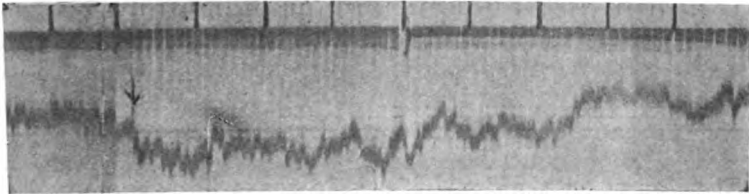


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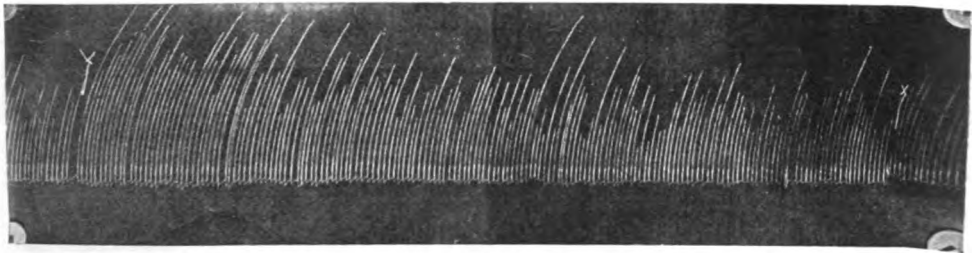


FIG. 2.—Isometric record of knee-jerks during performance of mental work (calculation). Work period between the two crosses.

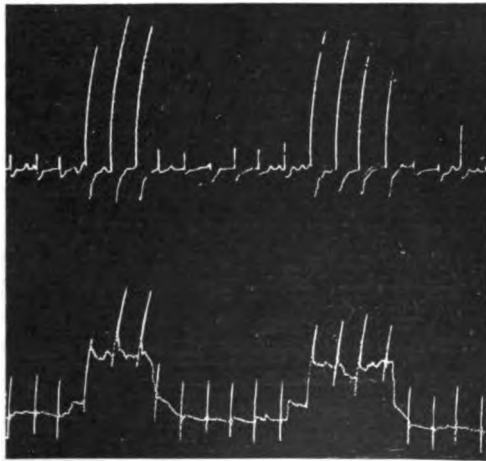


FIG. 3.—Simultaneous tracing of isometric knee-jerk (left leg) and extensor tonus (right leg), showing two successive periods of rest and mental work. Upper line, knee-jerks. Lower line, tonus on which corresponding knee-jerks are signalled.

affective responses differs in its mechanism from the postural tonic responses, which are characterized by aphasic electromyogram, indistinguishable from that of voluntary contraction.

THE RELATIONSHIP BETWEEN KNEE-JERK AND TONIC RESPONSE TO MENTAL EFFORT.

The relation of the deep reflexes to tonus has generally been assumed to be such that the magnitude of the knee-jerk varies directly with the tonus of the extensor muscles. It would appear, however, from the following experiments that this statement requires qualification. In some experiments previously published (3) it was found that isometric records of the patellar reflex had great advantages over those obtained by isotonic methods, in which the long and heavy leg acts as an insensitive and cumbersome lever. We therefore decided to use the same method as that described in the previous paper, recording the isometric contractions of the knee extensors by means of a rigidly fixed myograph resting on the muscles. We substituted, however, a pendulum percussor for the double spring percussor used in the former experiments. In order to ensure a single stimulus the pendulum was caught on the rebound and restored to its releasing apparatus.

Lombard (4) in 1887 found that the knee-jerk was increased by mental activity. This was confirmed by one of us in conjunction with Hettwer (5), using the electromyograph, and by Tuttle (6) using the conventional isotonic method. By applying a series of uniform stimuli at intervals of 6 seconds, it was possible to obtain a curve of the knee-jerk responses during mental work in every respect similar to the tonus curves already dealt with (Fig. 2). The knee-jerk at once ascends to a maximum, and after a period comparable to that on the tonus curve, begins to descend till it reaches a normal level, in spite of the continuance of the work at the original level of efficiency, or even of its increase in efficiency. Records of the knee-jerk in one leg and tonus in the opposite leg confirm the simultaneous increase of tonus and knee-jerk with mental activity (Fig. 3). Inspection of the isometric records obtained from a series of uniform submaximal stimuli reveals, however, an astonishing degree of variability in the individual responses. Of any two successive knee-jerks one may be as much as ten times the size of the other. This obtains equally during an increased tonic response to mental effort, so long as the knee-jerks are not maximal. When maximal responses are obtained either by applying maximal stimuli or by intense effort on the part of the subject, the variations are almost entirely abolished. In some of

our younger subjects we found that the variability of the response was so enormous that for a time we were inclined to suspect our methods of stimulation or of recording. By substitution of a tam-bour for the patellar tendon it was easy to show that the stimuli were uniform ; and by recording the electromyogram simultaneously with the mechanical response it was found that the procedure used was reliable. Tuttle appears to be the only author who has called attention to these variations, and he dismisses them with the obvious explanation that they are due to fluctuations of the psychical states of the subject. Introspection makes this explanation doubtful, and it was decided to obtain a continuous record of the knee-jerk on one of the experimenters during the whole course of an ether anæsthesia, till the knee-jerks disappeared, and again during recovery from the anæsthetic. The knee-jerk, after a preliminary period of hyperexcitability, diminished gradually till it disappeared with the onset of complete relaxation. It was found that the variability of the response was maintained, and again, during the process of recovery, variability was evident at the earliest return of the knee-jerk. Conscious cerebration was, of course, absent during the greater part of the experiment ; but this does not negative the possibility that the variations were conditioned by fluctuations in the activity of subcortical cerebral mechanisms. It was, however, found that no alteration of the knee-jerk could be produced by severe painful stimuli administered during the deeper stages of anæsthesia. It would appear, then, to be improbable that the variation of the knee-jerk depends on the activity of the subcortical mechanisms governing the effective response to nocuous stimuli. No evidence could be obtained of any correlation between the phases of respiration and the variability of the response.

Though an increase of tonus accompanying mental effort shows a corresponding general increase of the knee-jerk response, isolated knee-jerks may occur during the heightened phase which are not only much smaller than their neighbours, but may actually be much less than those occurring when the tonus is depressed during the resting period.

An examination of simultaneous records of the knee-jerk of one limb and the tonic response of the other shows no correlation between the spontaneous variations of knee-jerk and of tonus when the subject is at rest. We may therefore distinguish increases and decreases of knee-jerk depending on mental effort and affective stimuli which are accompanied by parallel variations of tonus ; and on the other hand, random individual fluctuations of the knee-jerk not dependent on cerebral activity and not accompanied by

any corresponding changes of tonus. Observations of the irregular spontaneous muscular twitches occurring in the spinal animal point to the occurrence in the spinal cord—at any rate under conditions of defective control—of endogenous fluctuations of excitability in the isolated centres.

The variations observed in the knee-jerk would appear to belong to the same class of phenomena. It is therefore of interest to find whether the variations of excitability occur in isolated centres governing a single limb, or whether the knee-jerk is affected bilaterally. To test this point it was necessary to apply synchronous and uniform stimuli to each patellar tendon. A horizontal rod was placed over both tendons and kept in position by elastic springs at each end and in the centre, so that simultaneous stimuli could be administered by striking the centre of the rod with a pendulum percussor. The resultant impact could be distributed by the rod equally to each tendon, and the isometric extensor responses were recorded simultaneously by a system of pulleys and twin-levers. It was found that the variations of the knee-jerk were without exception bilateral.

Some importance may be attached to the demonstration of these apparently autonomous variations of cord excitability in the normal subject, as there are many facts in mental pathology that might support the view that similar autonomous discharges take place in cerebral activity. We may be too prone to assume the invariable operation of the law of association in the seemingly disconnected ideas and utterances that arise in confusional states and also during drowsy periods in normal people.

There is a large body of evidence summarized by Bills (7) in a recent paper on the influence of muscular tension, which tends to support the view that increased muscular tension improves mental efficiency. It will be found that all this evidence deals entirely with voluntary innervation, and has in itself no direct bearing on the problem of the increases of tonus here dealt with. These latter, as we have pointed out, differ essentially from the contractions accompanying voluntary or postural tonus.

Our own experiments lend no support to any attempt to co-ordinate attention with muscular mechanisms. The rise of tonus occurring at the inception of work appears to be of the nature of a preparatory reaction which might fitly be compared with some of the bodily concomitants of emotional states. Here again we find that the rise of an emotional state is accompanied by certain bodily reactions which do not persist throughout the continuance of the emotion. These reactions are probably an atavistic phenomenon, representing the preparation of the organism for continued bodily

activity, the necessity for which no longer exists under modern conditions. Such movements as actually accompany mental processes are of a more purposive type, and belong to another and more recent mechanism than that concerned with emotion or effort.

In conclusion we have to thank Dr. E. M. Browne for kindly coming to give the anæsthetic, and members of the staff of the Central Laboratory and the Maudsley Hospital for acting as subjects. We also wish to acknowledge a grant made to one of us by the Medical Research Council.

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THE HÆMATOPOIETIC FUNCTIONS IN GENERAL PARESIS.

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IN a disease with so widespread a seat as general paresis, in which the cerebral syphilitic changes are local manifestations of a generalized infection, it is only reasonable that an attempt should be made to correlate the cerebral changes with those found in other organs in the same body.

In reading descriptions of the histological findings in general paresis, it is striking to note the scarcity of references to the hæmatopoietic system. Yet these tissues certainly suffer, and the changes they undergo are fairly constant, and may be observed in the bone-marrow and inferred from examination of the blood.

For the observations described below specimens of marrow were prepared, consisting of sections and smears taken from ribs at autopsy. Lymphatic tissues were at the same time removed from various situations. The subjects were all patients who had died from paresis without any treatment likely to stimulate the hæmatopoietic functions.

The examination of the blood was made in a series of 50 patients in all stages of the disease who had not yet received treatment, and in 30 of the same subjects during treatment with relapsing fever, and six to nine months afterwards. The fever was induced by injection of the blood of mice infected with *Spirochaeta Obermeieri*. As no death occurred among those so treated, it was not possible to examine the marrow or lymphatic tissues of the same cases.

UNTREATED PARESIS.

Lymphatic tissues presented the usual slight changes described in connection with syphilis, so far as the glands, tonsils, thymus and spleen were concerned.

Bone-marrow.—Ribs: To the naked eye the marrow was bright red. Little change was noted in the trabeculæ except slight thickening and fibrosis in some instances. The detached cells, however, showed notable changes. There was a marked scarcity of polymorphocytes. A diminution in number of the myeloblasts and myelocytes was a conspicuous feature. No changes were noticed in the number or form of the normoblasts or red cells.

These features were absent in 8 non-paretic syphilitic cases.

Long bones: The marrow showed nothing abnormal.

Blood.—There were no obvious numerical or morphological changes in the red cells until late in the disease, when the numbers fell to four or even three million. For some time the white count was normal, with a Schilling index of about 5%, but when wasting and weakness were apparent the total leucocytes showed a slight but progressive decline in numbers, with a rise in the Schilling index.

Paresis, middle stage :

Leucocytes	5,000–6,000
Polymorphs	63·5%
Eosinophils	2%
Mast-cells	0·5%
Small lymphocytes	29%
Large „	2·5%
Monocytes	2·5%

During the pyrexial periods there was often a slight absolute lymphocytosis. In some cases, however, only the neutrophil cells were increased, owing, no doubt, to intercurrent infection.

Paresis, pyrexial attack :

Leucocytes	8,000
Polymorphs	54%
Eosinophils	3%
Mast-cells	0·5%
Small lymphocytes	37%
Large „	2·5%
Monocytes	3%

THE BLOOD IN RELAPSING FEVER.

Little reference is made in the literature to the changes in the blood in patients contracting the disease in the usual manner. Polynuclear leucocytosis and a slight rise in the number of large mononuclear cells are mentioned.

THE BLOOD IN RELAPSING FEVER ASSOCIATED WITH PARESIS.

The red cells numbered about five million. An occasional normoblast was seen, and there was slight variation in the size of the red cells. These changes were not found in paresis apart from pyrexial treatment.

Only an occasional red cell exhibited reticulation in films stained with cresyl blue.

The white cells :

At the beginning of pyrexia—

Leucocytes	10,000
Polymorphs	75%
Eosinophils	1%
Mast-cells	0·5%
Small lymphocytes	6%
Large „	6%
Mononuclears	11·5%

Middle of pyrexial period—

Leucocytes	12,000
Polymorphs	80%
Eosinophils	0·5%
Mast-cells	0-0·25%
Small lymphocytes	5%
Large „	6%
Monocytes	7%
Myelocytes	1-1·5%

The total leucocyte count followed closely the course of the fever. At the onset of the first paroxysm the total rose to 9,000 to 10,000 owing to a numerical increase in polynuclears and mononuclears. At the height of the fever the total reached 12,000 owing to a further flooding of the circulation with polynuclears, accompanied by a relative fall in mononuclears. During the interpyrexial periods the numbers were maintained at about 5,000 in normal proportions.

In advanced stages of paresis there was little or no leucocytic reaction.

Polymorphocytes constituted the bulk of the supernumerary cells. At the beginning of the leucocytosis as many as 25% of the neutrophil granular cells were metamyelocytes—that is to say, immature polymorphocytes—while towards the end of the pyrexia the percentage rose to 50-65%.

A few neutrophil myelocytes were present.

The cells varied greatly in size, exceptionally large forms being frequently seen, with excessively mature nuclei.

At the end of the fever, in favourable cases, when the number of cells fell to normal, the proportion of immature neutrophils fell gradually, reaching normal a few weeks later.

The lymphocytes included an unusual number of the large variety. The nucleus varied greatly in size, but stained well with Leishman's and Pappenheim's stains. In many cells the cytoplasm, which took on a darker stain than that of the monocytes, was plentiful, and in several it contained fine basophil granules.

The mononuclear cells reached about 10% at the beginning of the fever. Great variations in size were observed, many cells having the diameter of a medium-sized neutrophil. In the majority the nucleus was well notched or reniform, but in many the notching was slight. In one cell there was a double notch, the two nearly meeting in the middle and almost dividing the nucleus into two equal parts. The contour of the cytoplasm was rounded. Two cells were noticed in which the double notching had resulted in complete bisection of the nucleus, the cytoplasm in both cells being clear and pale blue, with an oval outline, the long sides of which presented an indentation which was suggestive of the division of a parent-cell into two.

Many cells contained a few neutrophil granules. Towards the end of the fever the number of monocytes fell before that of the polymorphocytes.

The eosinophil cells showed no appreciable change in form or numbers, except that they were reduced numerically at the end of the fever and that there was no post-infective increase.

Neutrophil myelocytes appeared in small numbers, and an occasional eosinophil myelocyte was seen. No myeloblasts were observed with certainty.

Mast leucocytes were scanty. They were medium-sized, with usually a tripartite nucleus, the whole cell being studded with coarse basophil granules.

THE BLOOD SIX MONTHS AFTER INFECTION WITH RELAPSING FEVER.

From a therapeutic point of view the results of treatment were disappointing. Four cases showed some mental and physical improvement. These yielded a higher percentage of polymorphocytes after this interval than did the others. It was found that in those patients whose decline proceeded steadily in spite of treatment, the granular cells were abnormally few and most of them immature. In fact, the progress of the disease appeared to have been hastened by fever treatment, and the same results were

obtained with other methods of inducing pyrexia. With a good leucocytic response slight benefit resulted; with a poor response harm was done.

A satisfactory case nine months after treatment :

Leucocytes	6,000
Polymorphs	65%
Eosinophils	2%
Mast-cells	0
Small lymphocytes	26%
Large "	2%
Monocytes	5%

A poor result :

Leucocytes	4,000
Polymorphs	50.5%
Eosinophils	3%
Mast-cells	1.5%
Small lymphocytes	34%
Large "	5%
Monocytes	6%

THE RELATIONSHIP OF THESE CHANGES TO PATHOGENESIS.

It is conceivable that the depression of the blood-forming function described above may play some part in determining whether a syphilitic subject will develop paresis. The cerebral lesions in general paresis consist of—

- (1) Meningo-vascular changes and—
- (2) Neuronal degeneration.

As regards the parenchymatous changes in spinal cord and medulla the posterior columns are most obviously affected, yet careful search will, in nearly all cases, demonstrate degenerative changes in the lateral, antero-lateral and postero-lateral tracts. The distribution and type* are almost identical with those of the lesions found in subacute combined degeneration. It is suggested, therefore, that the pathological findings in the blood and blood-forming tissues, together with the distribution of the parenchymatous changes in paresis, bear a close analogy to a somewhat similar condition in pernicious anæmia, and that the attack upon the reticulo-endothelium by the syphilitic virus is one of the factors which determine the occurrence of paresis in a syphilitic subject.

Severe anæmia occurs in tertiary syphilis in association

* The lesions are circumscribed; they are non-inflammatory, as they do not shade off at the edges, and non-systemic, as they are not continued up or downwards.

sometimes with hepatic involvement (1). In congenital syphilis a definitely hypoplastic myeloid reaction may be found in the marrow (2).

It is sufficient to say, therefore, that profound changes may occur in the hæmatopoietic tissues in syphilis.

A further point of interest is the resemblance of early paresis to hyperthyroidism, as regards signs and symptoms, and the presence in exophthalmic goitre of lymphoid deposits in the body associated with lymphocytosis in the cerebro-spinal fluid, bearing in mind the probable endocrine control of the adult blood-forming organs.

It is not suggested that the failure of a portion of the reticulo-endothelium is entirely responsible for the accumulation of spirochætes in large numbers in the cortex in the manner peculiar to general paresis, but it is reasonable, on the above hypothesis, to consider the possibility of the cerebral neuronal tissues being thereby depressed in their vitality, as in pernicious anæmia, to such an extent that the syphilitic virus is enabled to invade, flourish in, and destroy these tissues.

GENERAL CONSIDERATIONS.

The exhaustion of the leucogenic function of the reticulo-endothelium, proportionate to the stage to which the paresis has advanced, implies a break-down in the cellular forces of resistance so far as a polymorphocytosis is concerned. This may partly account for the readiness with which paretic patients suffer from bed-sores and succumb to intercurrent infection.

In modern pyrexial therapy, the only effect, apart from the fever, appears to be to stimulate a leucocytosis or, in some cases, a lymphocytosis. Considerable attention has been paid to the pyrexia, but apparently none to the depressed reticulo-endothelium.

It would appear somewhat futile to over-stimulate an already exhausted tissue, and the rationale of pyrexial treatment should be to stimulate these functions at a time when this means of combating infection, associated as it is with the production of fever, would be more likely to be successful. This should be in the earliest stages of paresis, as is well recognized, or better still, employed as a preventive measure in the tertiary or secondary stages.

The selection of cases of developed paresis should be controlled by making a preliminary test with sodium nucleinate or some other mild leucogenic agent in order to avoid applying drastic pyrexial treatment to those cases which have a poor leucocytic response.

The more beneficial effects of induced malaria are interesting in

view of the fact that a leucopenia is produced so far as the polymorphocytes are concerned. It is possible that the rest afforded to the leucoblastic tissues allows of some regeneration.

CLINICAL NOTE REGARDING RELAPSING FEVER.

Twenty-four to forty-eight hours after the injection an initial rise of temperature occurred to 100° F., probably the result of the introduction of foreign protein. On the third or fourth day the first paroxysm occurred. The pyrexial periods and the interpyrexial intervals were, in most cases, of five days' duration, and followed the ordinary clinical course. There were, however, a number of abortive attacks. Although the blood of the mice teemed with organisms, they were very scanty in that of the patients.

One point of interest was that two of the patients presented a transient facial palsy of the lower neuron type.

SUMMARY.

In general paresis there is impairment of the function of the leucoblastic tissues in the bone-marrow, with diminution of the leucocyte reserve. This is not the case in non-paretic syphilis.

General paresis is differentiated from other forms of cerebral syphilis by the nature of the parenchymatous changes in the central nervous system. The affection of the blood-forming tissues constitutes another differentiating factor. It is possible that this condition is one which depresses the cerebral tissues and weakens their resistance to the attacks of the spirochætes.

An analogy can be drawn between paresis and pernicious anæmia, in that—

(1) There is, in both, impairment of the blood-forming tissues, and—

(2) The distribution of the degenerated areas in the medulla and spinal cord is suggestively similar in both.

The depression of leucopoietic activity may account for the ease with which bed-sores are developed in paretic subjects, and the readiness with which the patients die of intercurrent infection.

When some infection is induced in a paretic which will excite polymorphocytosis, the circulation immediately receives a high proportion of immature leucocytes.

The degree of leucocytic reaction induced by infection with *Spirochæta Obermeieri* or other leucogenic agents varies inversely with the stage to which the general paresis has advanced.

The better the general condition of the patient after such pyrexial

treatment the nearer does the differential count approach the normal, and the converse is equally true.

The progress of general paresis can sometimes be stayed by measures which result in increased leucogenesis.

On the other hand, these measures tend to hasten the progress of the disease in cases which produce an unfavourable leucocytic response.

With regard to induced malaria, which, so far as the polymorphocytes are concerned, produces leucopenia, it is significant that a condition which gives the leucopoietic tissues a rest should be associated with a clinical improvement.

It is suggested that when pyrexial therapy of a leucogenic type is contemplated, a preliminary test should be carried out in order to eliminate those cases which give a poor leucocytic response, since these cases are apt to deteriorate under such treatment.

HISTOLOGICAL METHODS EMPLOYED.

Differential blood-counts . . .	Leishman's stain (Gruebler).
Reticulated red cells . . .	Cresyl blue.
Nuclear differentiation . . .	Pappenheim's nuclear stain.
Reticulo-endothelial tissue . . .	Hortega's silver method.

Acknowledgments and thanks are due to Dr. A. A. W. Petrie, Medical Superintendent of Banstead Mental Hospital, and to Dr. Golla, the Director, and to the Staff, of the Pathological Department of the Maudsley Hospital for assistance and facilities given.

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OLD AND NEW METHODS OF TREATMENT IN GENERAL PARALYSIS: A COMPARISON OF RESULTS.*

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DURING the five years prior to the war I carried out a series of investigations on the treatment of general paralysis. The proportion of general paralytics resident at this hospital was then very high—some 40 out of our usual 350 males. The only treatment given by us up to that time had been mercury and potassium iodide.

I was fortunate enough to have the opportunity of seeing cases being treated in London by Dr. Stoddart with urotropine, and in Edinburgh by the late Dr. Ford Robertson with a special serum. Dr. Ford Robertson was very anxious that I should try his serum, and I thought it would be a good opportunity for comparing the results of treatment by the following means :

Ford Robertson serum ; urotropine ; sodium nucleinate ; and salvarsan, mercury and potassium iodide.

I selected 12 cases for the serum treatment, 4 for the urotropine, 3 for sodium nucleinate and 2 for the salvarsan, mercury and iodide. At the same time I took 4 cases as controls, and gave them no treatment beyond dietetic and hygienic measures.

With regard to the serum treatment, it may be remembered that Ford Robertson was able to isolate a diphtheroid organism which was constantly found in general paralytics and which was non-pathogenic to guinea-pigs (thus distinguishing it from the diphtheria bacillus). He was able to inoculate rats, mice and rabbits, and found histological changes in the brain closely resembling those of general paralysis.

In preparing his serum he used the sheep as the immunizing animal. The serum was sent direct to me in sealed sterile tubes containing 15 c.c. each. Just before use the serum was heated to body temperature, and after 15 to 20 c.c. cerebro-spinal fluid had been withdrawn by lumbar puncture the 15 c.c. of serum was injected. The patient was kept in bed. A second dose of 15 c.c. was injected after a week and a third dose a week later.

* A paper read at a Clinical Meeting held at Winson Green Mental Hospital, January 29, 1929.

After each injection the typical reaction consisted in a rise of the patient's temperature to 101° F. on the third day, dropping to 99° F. on the fourth day and to normal on the fifth. The pulse rose with the temperature. Respirations were unchanged, and sleep and appetite not affected. Fluid diet was given. No rash appeared after the first injection, but on the third day after the second injection an urticarial rash appeared, on the chest first, spreading to the abdomen and limbs on the fourth day, and disappearing on the fifth day. The rash did not always appear after the third injection.

I would like to describe very shortly the symptoms in one of the cases which improved after two courses of treatment.

He was a married man, æt. 41, with no history of insanity. The duration of the illness was given as nine months before admission. He walked very unsteadily, and in fact could hardly stand without help. Knee-jerks were increased, patellar and ankle clonus present. Pupils unequal and irregular. Light reaction sluggish. Slight tremor of upper lip. Sustained muscular effort produced tremors of limbs. Speech much affected: *e.g.*, February became Feb-ra-ra-ra-y. He was wet and dirty in habits. He was confused and had no idea of time, place or persons. His wife said he had been trying to buy motor cars (he was a colourman). His blood film showed an increase in large lymphocytes and a decrease in the polymorphs. Blood Wassermann slightly positive. On lumbar puncture his cerebro-spinal fluid was increased under pressure, and the Noguchi, Ross-Jones and Nonne-Apelt tests were positive.

Three weeks after his third injection a marked physical improvement was noted. His weight, however, was only 8 st. 8 lb. as compared with 9 st. 4 lb. on admission. In another month he put on 6 lb. and was able to walk and even run. Coordination and pupil reflexes returned to normal, and clonus disappeared. Still some tremor of the upper lip, and speech was hesitating. Mentally, too, he was much improved. He laughed when told he had wanted to buy motor cars.

Four months later his mental and physical improvement was well marked; he had gained another 6 lb. and was working on the farm. In about seven months from admission, therefore, he was being considered for discharge to his wife's care.

However, two months after this he dropped to 8 st. 4 lb. in weight, became faulty in habits, and got so bad on his legs that he had to be sent back to bed—to all appearances well advanced in the third stage of his disease.

I thought I might try the effect of a second course of serum,

and eleven months after his admission I commenced the second course. The temperature and rash followed the usual course, and in two months he again began to improve. In a further two months he had improved very much except that his speech was still affected and he had tremor of his lips. His blood-film showed a decrease in the large lymphocytes and an increase in the polymorphs. The Wassermann was still slightly positive. His wife was not then in a position to apply for his discharge and he remained in the hospital, and during the war years deteriorated and died.

In another case, with similar symptoms, but very much more exalted, the improvement was so marked after the first course of serum that the patient was discharged and went back to work. His treatment was commenced in May, 1913, and he was discharged in January, 1914, and was still following his occupation of engineer at the beginning of the war.

Out of the 12 serum cases the above 2 showed marked improvement. In 7 others there was considerable improvement, but none were considered fit for discharge, and in 8 to 10 months' time they again deteriorated. In 3 cases there was no improvement, and 2 of them died from convulsions after the treatment had stopped.

In none of these cases was I able to get a negative cerebro-spinal fluid. I did the Wassermann, Noguchi, Ross-Jones and Nonne-Apelt tests in each case.

The blood-film in general paralysis generally shows a reduction in the polymorphonuclears, and an increase in the lymphocytes, especially the large. In the cases which improved I found that the polymorphs increased and the lymphocytes were reduced. The improvement seemed to commence immediately after the third injection and was maintained for 6 to 8 months, the patient then relapsing. In the case I have described in which a second course was given, the improvement was slower in its advent, but more lasting.

With regard to the urotropine cases, Stoddart in 1912 had been giving 10 gr. urotropine three times a day to 34 general paralytics, and of this number he discharged 6 as recovered. He recorded several cases of irritability and rapid deterioration due to the urotropine.

The 4 cases I selected for treatment with urotropine were as nearly as possible similar clinically to the 12 serum cases. I gave 15 gr. of urotropine thrice daily. Each dose of 15 gr. was given in a pint of water, as urotropine is rather a nasty drug to take.

In one case I stopped the treatment after six weeks, as the patient thought he was being poisoned and became "difficult." In the others I carried on for three months. I had no untoward results,

but only 1 of the 4 showed any improvement. He was discharged to his friends, but soon afterwards had to be sent to another hospital.

With sodium nucleinate Donath obtained a remission in 13 out of 36 cases. I used his formula of 1 grm. sodium nucleinate, 1 grm. sodium chloride in 50 c.c. of sterile distilled water. Seven injections were given at five days' interval, the first two of 50 c.c. and the last five of 100 c.c.

The temperature in these cases rose to 100° F. in four hours, and in another four hours reached a maximum of usually 103° or 104°. The following day it was normal.

None of the patients showed the slightest improvement.

The last two cases were given 0.6 grm. salvarsan intramuscularly, three doses at weekly intervals. This was followed by mercurial inunction and medium doses of liq. hyd. perchlor. and potassium iodide, continued for twelve months.

Both cases had syphilitic ulcers, which cleared up, but there was no change in the mental condition and both died shortly after from convulsions.

The 4 control cases were interesting in that 3 of them showed remarkable improvement. Two, in fact, were discharged to the care of friends, but one returned in a fortnight and the other in a couple of months and died within a month or two of their return. These cases were given the continuous hot bath, frequent saline purges and a soft food diet in which milk and butter predominated.

In coming to the more modern forms of treatment, I would like to speak particularly of malaria. Wagner von Jauregg, before he started malarial treatment, had tried tuberculin, typhoid vaccine and sodium nucleinate, and although he got remissions, he states that the improvements shown were not nearly so good as those from malaria.

I have treated only 3 cases of general paralysis with T.A.B. vaccine. (general paralytics are not so thick on the ground as they used to be and the majority of mine have been treated by malaria). There was no improvement in the 3 cases.

I commenced malarial treatment in August, 1924. The blood was obtained from Dr. Rudolf, of Claybury, who sent me 10 c.c. of what was known as the Claybury-Hanwell strain. During August, September and October I treated 7 cases, carrying the blood on from one to the other. I did not use mosquito infection. Of the 7, 1 died soon after the malaria from convulsions. Another was an Italian, who probably had had malaria before and who showed an incubation period of twenty-one days. He made no progress, and died in April, 1927, two and a half years after his

malaria. Three others improved very much physically and a little mentally. They have also died, one in May, 1927, one in October, 1927, and the third in October, 1928. That gives periods of two and a half, three, and four years of life. In the ordinary way I should have expected all those patients to die within six months. During the period after the malaria they led quite useful lives in the hospital and were clean and tidy. All of them went quite rapidly at the finish—convulsions on and off for a week or two, and then death. The remaining two are still alive, one in another hospital and one here. The latter is interesting from the fact that he improved after his malaria and then degenerated in about twelve months. I gave him a second course of malaria and N.A.B., and although his mental condition is poor, he works well and keeps himself clean and tidy. He was very exalted and excited on admission; physically he was hardly able to stand, and he had positive Wassermann and gold-sol reactions. His Wassermann in January, 1927, was negative, and although he is not very steady now, he gets about. He has been here five years, and it is nearly four and a half since he had his malaria.

Since 1924 I have treated 15 males. Of these, one has been transferred and is still alive. Four have been discharged and are going on well, and 10 remain here. All the 10 have improved physically, but only 2 have shown real mental improvement. Of the 4 discharged, 1 has been at home for nearly three years, and the other 3 for twelve to fifteen months.

One of those remaining here is noteworthy because he came in November, 1925, extremely excited, destructive, dirty in habits, exalted, and with marked physical signs and positive Wassermann and gold-sol reactions. He was inoculated with malarial blood in January, 1926, had a course of N.A.B., and improved so much that he was discharged in June, 1926. He went back to his employment and kept well for fifteen months. He then relapsed to his old state and was re-admitted in October, 1927.

He was given a course of T.A.B. immediately on admission. He had not shown much improvement by December, 1927, and in the beginning of February he was given malaria again, this time by mosquito inoculation. He had an incubation period of fourteen days. After three rigors the malaria stopped of its own accord. In March a course of bismostab intramuscularly was commenced. This appeared to depress him, and he remained in this condition until October (seven months). The following month a course of tryparsamide was commenced, and since the end of December he has shown improvement, which is still maintained.

In all these cases the blood was examined for the Wassermann

reaction and the cerebro-spinal fluid by the Wassermann and gold-sol tests, and in every case these were positive. Immediately after the patient had had ten to twelve rigors he was given quinine, and the following week N.A.B. was commenced, six doses at weekly intervals of .3, .3, .6, .6, .9, .9 grm. being given intravenously. Of the 10 cases remaining here to-day, only 4 still have positive Wassermans, and these have been given a course of tryparsamide. It is only since I commenced to follow up the malaria at once with either N.A.B. or tryparsamide that I have been able to get negative Wassermans. I have been surprised at the manner in which the physical symptoms disappear after treatment, and frequently reappear some six or ten months after.

I have not had a death in a general paralytic (although I had one recently in a case of dementia præcox) from the malaria, but the heart requires careful watching, and a dusky complexion or increased respiration rate are danger-signals. The spleen enlarges in all cases but returns to normal very quickly. Acute dilatation of the heart is not nearly so frequent as in treatment by T.A.B. Any marked increase in the number of parasites in the blood film is an indication for stopping the malaria. I have allowed patients to have as many as eighteen rigors, without untoward effect, but I do not think it necessary to allow more than ten. In one of the men discharged only six rigors were allowed.

Leucocytosis always occurs. I do not think the improvement is due to that, or to the high temperature, or the shock to the mental system, but to specific antibodies formed during the regeneration of the blood-cells.

Looking back over the various forms of treatment, I remember feeling very optimistic when I was able to obtain a remission, twice repeated, by the injection of the Ford Robertson serum. Those remissions, however, lasting as they did for only eight months, are very small compared with the long-continued remissions we now get with malaria. To know that a definite general paralytic has been in his own home for almost three years is, I think, most encouraging.

In carrying out malarial treatment I have invariably tested the cerebro-spinal fluid by the various methods already mentioned. By far the most valuable of these I consider to be the gold-sol test. I discovered that frequently the reaction appeared at once, and I further noticed that when this happened, the prognosis turned out to be a poor one. If the test took fully twelve hours to be apparent the prognosis was very much better. I also noticed that frequently a fluid would show in six hours what resembled a luetic curve, but that if the test was left over for two

days the curve became a paretic one. I put this down as a favourable sign, and I have found it in all the 4 cases which have been discharged. It is only during the last year that I have been keeping an exact time record of the changes in the curve, and it is much too early yet to lay down any definite figures. I think, however, it is worth further investigation.

I will close with two small personal notes. When giving tryptarsamide intravenously to a general paralytic a couple of months ago I found I had entered the ulnar artery. I continued the injection, and the patient showed no signs of any distress and has gone on normally since.

The other note is with regard to a symptom of general paralysis which I have not seen noted anywhere and of which I can give no explanation. Most general paralytics, if asked to get into bed, try to "step" into bed, however high the bed may be. I have found this symptom in some 80% of paretics and never in any other condition.

TREATMENT OF IDIOPATHIC EPILEPSY BY INDUCED MALARIA.

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THE use of malaria as a therapeutic agent in epilepsy was suggested by the known beneficial effects of other specific infections in this disorder. The earliest observation was probably that of Plato, who found that lepers were free from convulsions. A "tendency to respite which is sometimes temporarily induced in the course of the confirmed disease" (by febrile infections) is noted by Aldren Turner (1). Hamilton (2) found that of 11 cases who contracted typhoid 9 showed distinct temporary improvement, and 1 of these was free from seizures for four years. Maisonneuve and Gerard (3) reported cases of epilepsy whose seizures ceased altogether during 2 attacks of intermittent fever.

Reduction in the frequency of fits following injections of various foreign proteins has been often noted. Held (3) found that of 400 cases treated by injections of animal serum only 39% were not benefited. Crockett (4) noted that of 23 tubercular epileptics treated with tuberculin 11 were benefited, 1 case, who had had 300 fits in one month previous to treatment, being afterwards free for 14 months. Edgworth (5) treated 20 cases with peptone intravenously, 9 of whom were at least temporarily benefited. Peptone was given at Hanwell to 24 patients showing hypersensitiveness to proteins (as shown by cutaneous tests). "In some cases the fits became less frequent, and in a small proportion of cases there was some mental improvement as well" (Wallis and Nicol in collaboration with Maurice Craig) (6).

In view of these results it was thought that, by inducing malaria, the pyrexia itself or the liberation of foreign proteins, *viz.*, erythrocyte stroma and parasites, might produce similarly favourable effects. It was expected that the most likely cases to respond to the treatment would be those showing hypersensitiveness to protein, the presence of which would be suggested by finding Widal's hæmoclastic crisis. Such cases might be expected to undergo some degree of non-specific desensitization—an end admittedly attainable in asthma, urticaria and other anaphylactic

conditions in which the crisis is found. The possibility of desensitization in epilepsy has been suggested by various writers. Purves Stewart (7) writes: "There is considerable evidence that there is a non-specific desensitization attainable in asthma, and the same thing may yet prove true in epilepsy." Miller (8), referring to the effects of injections of foreign proteins in epilepsy, says, "Whether the results were due to a non-specific desensitization, or to some other action of protein, is a matter to be determined." Hamilton noted that the improvement after injections of protein might be explained on the basis of desensitization, which is the accepted explanation in asthma. This author, in his series of cases benefited by typhoid, found that the degree of improvement in no way corresponded to the degree of fever, and observed that though the rise in temperature might have been a factor, there were certainly other and more important causes at work. He also quotes Lannois, who insists that it is not the febrile reaction that induces the change, but the action of some special poison developed during the course of the intercurrent disease.

Six cases were accordingly inoculated, 4 of whom showed the hæmoclastic crisis, the remaining 2 responding to the ingestion of milk by a leucocytosis.

The patients were kept on their ordinary diet and all received a constant and regular dosage of bromide throughout the period in which their attacks were recorded. Cases 4, 5 and 6 also received small doses of luminal. The last two, who showed a leucocytosis after milk, gave the same reaction three weeks after temporary omission of the drug. (Tinel and Santenoise (9) found that epileptics under treatment by gardenal gave a leucocytosis, which was replaced by a leucopenia when the treatment was discontinued.)

Results.—Of the first 4 cases 2 showed a temporary reduction in the frequency of their attacks, with a subsequent increase. One showed a reduction sustained up to the time of writing. One showed no change during the period of malaria, after which there was absolute cessation of fits. Death occurred a month after the last paroxysm. Cell-counts done on two of these patients (Cases 3 and 4) during the febrile period showed a reversal of the leucopenia. Cases 1 and 2 showed for many months a remission in their abnormal mental states: the excitement in the former and the stupor and pronounced post-epileptic confusion in the latter became notably less. Case 3, soon after inoculation, developed a state of constant and extreme confusion, which persisted until death from pulmonary complications.

The remaining two subjects (Cases 5 and 6), who presented a

leucocytosis after milk, showed a decrease in the frequency of their fits, which in both cases gave place to a temporary increase during the post-malarial period.

Results of Inoculation of Six Epileptics with Malaria.

Pre-malarial period: Up to day of inoculation. *Malarial period:* From inoculation to last paroxysm. *Post-malarial period:* Seventy-five days following last paroxysm. *Period following:* Until treatment altered. *Symbols:* +, increase; -, decrease; o, no change in frequency of seizures.

Case.	Period.	Number of fits.	Number of days.	Fit: days ratio.	Symbol.	Mental state.
1	Pre-malarial . . .	25	174	1 : 6.9	..	Excitement lessened.
	Malarial . . .	9	45	1 : 5	+	
	Post-malarial . . .	10	75	1 : 7.5	-	
	Period following . . .	25	180	1 : 7.1	-	
2	Pre-malarial . . .	26	197	1 : 7.5	..	Stupor and confusion much less marked.
	Malarial . . .	1	55	1 : 55	-	
	Post-malarial . . .	14	75	1 : 5.3	+	
3	Pre-malarial . . .	21	120	1 : 5.7	+	Developed extreme confusions.
	Malarial . . .	36	365	1 : 10.1	+	
	Post-malarial . . .	1	26	1 : 26	-	
4	Pre-malarial . . .	86	328	1 : 3.8	..	No change.
	Malarial . . .	7	43	1 : 6.1	-	
	Post-malarial . . .	9	75	1 : 8.3	-	
	Period following . . .	16	60	1 : 3.7	+	
5	Pre-malarial . . .	188	183	1 : .97	..	No change.
	Malarial . . .	20	72	1 : 3.6	-	
	Post-malarial . . .	108	75	1 : .6	+	
	Period following . . .	60	152	1 : 2.5	-	
6	Pre-malarial . . .	11	182	1 : 16.5	..	No change.
	Malarial . . .	0	39	..	-	
	Post-malarial . . .	8	75	1 : 9.3	+	
	Period following . . .	0	30	..	-	

CONCLUSIONS.

It would be a presumption to make general statements based on the observation of 6 cases; it is not claimed that the results do more than merely point to the possibility of obtaining some degree of benefit.

1. Decrease in the frequency of the attacks may be expected over varying periods. This may be accompanied by some amelioration in the mental state.

2. The reversal of the leucopenia in two cases affords some evidence that desensitization can be attained in patients who show the hæmoclastic crisis. Improvement in symptoms occurs, however, in the absence of this reaction, and there are apparently other factors concerned in bringing about the change.

3. The induction of pyrexia is not free from danger in certain cases.

I have to thank Dr. G. F. Barham, the Medical Superintendent, for affording me the facilities in making these observations, and for his help and criticism.

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THE MONGOL: A NEW EXPLANATION.

(SUMMARY.)

By R. M. CLARK, M.B.Edin.,

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My view that mongolism is caused by foetal hyperthyroidism ceasing at birth, is based on the theory that if the known actions of hyperthyroidism on the embryos of animals, as proved by feeding experiments and otherwise, were at work on the human foetus, the characteristic features of the mongol would be produced. Foetal hyperthyroidism could not fail to cause abnormal endocrine inter-reaction, and it has been said that in every mongol some endocrine disturbance can be demonstrated. The action hyperthyroidism has on frog embryos, including the cutting out of the later stages of normal development and growth, and the action thyroxin has in retarding cell division and embryonic development, would explain the general arrest of growth and development of the mongol, including that of the skull and the brain. The same actions would also account for the coincident congenital anomalies, *e.g.*, congenital heart lesions, cleft palate, hypospadias, undescended and undeveloped testicles, primitive hands and feet, syndactyly of fingers and toes, atresia of anus, spina bifida, etc.; these are also manifestations of arrested development, and in favour of a common cause for the local and the general defects, are the facts that both are symmetrical, and that there is a parallelism between the amount of general physical defect, the number of anomalies, and the degree of amentia. Again, if the above retarding actions of thyroid on growth and development affected a part of the embryo when it was recapitulating a pre-human stage of its evolution, it is conceivable that resemblances to pre-human features might result which would explain the so-called "reversions." Sir Arthur Keith considers that the thyroid determined the special characteristics of the Mongolian skull and face, and, in like manner, thyroid might account for the brachycephalic skull and Mongolian features of the face in the mongol. Hyperthyroidism is the cause of exophthalmos in Graves's disease, and thyroid feeding has a similar effect in the frog embryo, and the mechanics of exophthalmos, with Moebius's

sign, occurring during antenatal life and ceasing at birth, would account for the changes in and around the eyes of the mongol. These changes, *e.g.*, cataract, epicanthus, strabismus, slanting eyes, high arched eyebrows, large orbital fissures, etc., differ from arrests of development, and therefore require a different explanation; the nasal bones, too, show more than arrested development, for sometimes a nasal bone is found lying transversely, and articulating with bones on both sides of the middle line, as if mechanically displaced. The usual explanations given to account for the characteristic tongue of the mongol are not in conflict with a hyperthyroidic theory, but in my view the mongol's tongue results from participation of the tongue muscles in the general muscular hypotonus before mentioned; as elsewhere, the tongue muscles are lax and extensile, and tone being defective, the tongue gradually expands owing to oral suction; such an organ functions defectively, and this in turn gives rise to the constant sucking movements. The cause of adult hyperthyroidism is not understood, and so it must be with foetal hyperthyroidism, but the incidence of mongolism in twins suggests the possibility that the placenta may be at fault, and it would be interesting to determine what effect feeding thyroid to pregnant mammals would have on the offspring. The varying degrees of departure from thyroid balance—that is to say states of hypothyroidism and hyperthyroidism—are, with one exception, readily recognizable at all ages. The exception, congenital hyperthyroidism, has never been described, and it may be asked, Why is this condition so obviously missing? Increasing degrees of congenital hypothyroidism bring about cretinoids, cretin imbeciles, cretin idiots, and physiological impossibilities; it is my thesis that increasing degrees of antenatal hyperthyroidism bring about respectively mongoloids, mongol imbeciles, mongol idiots, and physiological impossibilities.

SMERDYAKOV: A REVIEW OF AN AMORAL EPILEPTIC.

By I. ATKIN, M.D., D.P.M.,

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IN the domain of literature there is no author who has probed so deeply into the human soul as Dostoevsky. Possessed of great powers of introspection, and having experienced a most varied career, he was well fitted for the task of analysing the human mind and its motives. His intimate contact with criminals of all kinds during his exile in Siberia, together with the fact that he himself suffered from epilepsy, made him especially qualified to describe subnormal, criminal and epileptic types. Such a type is portrayed in his masterpiece, *The Brothers Karamazov*, in the character of Smerdyakov; and as an example of amorality, this character is well worth study.

In the final trial scene two views of Smerdyakov are given. The prosecutor* asserts that he is a man of weak intellect, timid but honest, and quite capable of experiencing remorse; and that he committed suicide in a mood of melancholy. The defence, on the other hand, describes him as very intelligent, but spiteful, excessively ambitious and intensely envious. As is usually the case, neither counsel is actuated by any keen desire of giving an accurate scientific picture of the case. Each aims at presenting the character in a light favourable to his particular thesis of the murder. The truth, as one might suspect, is between the two, approximating more to the view of the defence.

What appears as intelligence in Smerdyakov is really his cunning, a trait common to epileptics and amoral criminals. The manner in which he plots the murder, with all its possibilities, to the smallest detail certainly appears impressive, but is not really so remarkable in view of the fact that his whole mind was absorbed, to the exclusion of almost everything else, in a desire to kill the man whom he regarded as responsible for his low social position. An intense impulse in a subnormal mind will often bring out a native cunning that works even unconsciously.

* It must be remembered that Dmitri and not Smerdyakov is in the dock.

Now there is no doubt that Smerdyakov had an intense hatred for old Karamazov (Fyodor). As Meier-Graefe* figuratively puts it, "already in the womb of his mother, Smerdyastchaya, he had stormed at everything connected with his procreator." Certainly he harboured a sense of injustice from his earliest days. . . . Why should he not have the social position of Dmitri, Ivan, and Alyosha? Was he not a son of Fyodor's just like them? . . .

We are prepared for his subnormal intelligence from the beginning. His inheritance is poor. His father is the drunken dissolute Fyodor; his mother, Lizaveta Smerdyastchaya, is an idiot†—"a dwarfish creature, 'not five feet within a wee bit.' . . . Her broad, healthy, red face had a look of blank idiocy and the fixed stare in her eyes was unpleasant, in spite of their meek expression. She wandered about, summer and winter alike, bare-footed, wearing nothing but a hempen smock. Her coarse, almost black hair curled like lamb's wool, and formed a sort of huge cap on her head. It was always crusted with mud, and had leaves, bits of stick, and shavings clinging to it, as she always slept on the ground and in the dirt. Her father, a homeless sickly drunkard, called Ilya, had lost everything. . . . Ilya's employers . . . tried to clothe her better, and always rigged her out with high boots and sheepskin coat for winter. But, although she allowed them to dress her up without resisting, she usually went away . . . and taking off all that had been given her—kerchief, sheepskin, skirt and boots—she left them there and walked away bare-footed in her smock as before. . . . She could hardly speak, and only from time to time uttered an inarticulate grunt." From such a source one naturally expects a creature of low intellectual level. And so indeed the illegitimate son proves to be. Smerdyakov will not read books. His excuse is that they are untrue (if fiction) or too dull (if scientific); not because his mind cannot apprehend the higher concepts. He occasionally makes long-winded speeches on religious or philosophical subjects, but they are obviously a repetition of phrases that he has learnt from Ivan. Their moral significance he certainly cannot grasp, for he lacks all moral feeling.

Throughout the book Smerdyakov does not exhibit a single altruistic action. He once returns three hundred roubles to Fyodor, but this apparent honest action is due to cowardice, for he well knew where suspicion would fall. As a child he displays sadistic tendencies, and amuses himself by hanging cats. To Grigory, who brings him up, he does not show the least gratitude.

* J. Meier-Graefe, Dostoevsky, 1928.

† The quotations are from the translation of *The Brothers Karamazov* by Constance Garnett.

Friendship and love, remorse or regret, are unknown to him. In the scene with Marya Kondratyevna he plays the egoist all the time, sitting like a tailor's dummy whilst she casts languishing glances at him. He, the lackey, admired by a lady. So his simple vanity is touched, but love there is none.

His amorality is best demonstrated, however, when he makes the mistake of confessing his guilt of the murder to Ivan. We fail to find in others those mental qualities that we do not possess ourselves. Smerdyakov thinks only of the safety of his own body; he has no conscience to disturb him. Surely Ivan is likewise! Is not Ivan partly responsible, and will he not be afraid to give Smerdyakov away and so involve himself also? Smerdyakov is sure that Ivan won't go to the Court, that he will not give evidence; he likes too much to be respected, etc., etc. . . . But here the epileptic makes a fatal error. There is something in Ivan that he has missed—the moral feeling, and it is because he finally realizes that Ivan will really give evidence that he commits suicide.

Lack of moral feeling is correlated with absence of the social instinct. Smerdyakov is morose, taciturn, rarely speaks and keeps to himself. "He was just as unsociable, and showed not the slightest inclination for any companionship. In Moscow, too, as we heard afterwards, he had always been silent. Moscow itself had little interest for him; he saw very little there, and took scarcely any notice of anything. He went once to the theatre, but returned silent and displeased with it."

All subnormals and epileptics have an inferiority complex. In this case, however, there is an added circumstantial factor. Smerdyakov never forgets that he is descended from a filthy beggar and that he is an illegitimate child. . . . Did they not throw it in his teeth even at Moscow? And did they not sneer at the degenerate appearance of his mother? Does not Ivan call him a stinking lackey? . . . He hates them all, he includes all Russia in his hatred!

He tries to compensate for his inferiority by assuming the airs of a "gentleman," and is haughty even to Ivan and Alyosha. In his simple mind clothes make the gentleman. So he brushes his suit twice daily, and with a special polish makes his boots shine like a mirror. Practically all his salary is spent on clothes, pomades and perfumes. It is only an accident of birth that puts him on a low level! In reality Dmitri is more stupid than he. It is true that he cannot understand poetry, but then it's all rubbish! . . . He despises everybody, criticizes everything and develops a highly conceited attitude.

Though a repulsive degenerate, a liar and a coward, it is, from one point of view, round Smerdyakov that the action centres. He is the symbol, the concentration of the three* brothers' hatred for old Karamazov. Once this *motif* of his life is accomplished he has nothing to live for, and it appears only natural that he should end his life.

* Dmitri and Ivan hated old Karamazov consciously, Alyosha unconsciously.

THE RELATION OF FOCAL INFECTION TO MENTAL DISEASE.

By NICHOLAS KOPELOFF, Ph.D.,

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and GEORGE H. KIRBY, M.D.,

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THE recent contributions of Hunter (1) and Moynihan (2) are significant of the importance of focal infection or "sepsis" in mental disease. Cotton's (3) view that toxæmia resulting from focal infection is the specific cause of the "functional" psychoses is well known on both sides of the Atlantic. Further, his therapeutic claims for surgical detoxication are only too familiar.

Our own published studies on the general subject (4, 5), led to the conclusion that focal infection could not be regarded as the essential ætiological factor in the functional psychoses, and that surgical detoxication resulted in no greater a number of improvements or recoveries than occurred in patients not operated on.

Hunter has criticized our work as follows: "Kopeloff's patients were not satisfactory clinical material; the morbid process in them had lasted a long time, and the sole step taken was the elimination of a few teeth. The only patient who did well had had thirty teeth removed." (6)

What were the facts? In 69 of our cases, or more than half of our series of 120 cases, the duration of the psychosis before admission to the hospital varied from one week to one year. This would appear a satisfactory proportion of fresh material, when it is remembered that we were dealing with a goodly number of dementia præcox patients, in whom the disease is not infrequently of long standing prior to hospitalization. In our reports every effort has been made to present all the data arranged in such a manner that the unbiased reader may draw his own conclusions.

Had Hunter taken the trouble to analyze the 24 case-reports published by Cotton (3) in an effort to determine the duration of the psychosis before admission to hospital, he would have been confronted with such indefinite statements as "a few days," "some years ago," etc., but would have found that in 13 out of

the 24 cases the duration of the psychosis before admission was one year or less.* In other words, 57% of our clinical material was of one year's standing or less, as against 54% in Cotton's published series. What remains, then, of Hunter's criticism on this score?

Science, particularly medical science, cannot thrive on mis-statements. It is therefore difficult to reconcile ourselves to Hunter's remark that the "sole step taken was the elimination of a few teeth." Even the most superficial examination of our data would reveal the fact that in our operated group of 58 cases there were 50 showing infected teeth. 253 teeth were removed from these 50 patients, or an average of 5 per patient. If these may be considered only "a few"—what of the other operations? In the operated group, tonsillectomy was performed on *all* the patients with infected tonsils, numbering 47. But this was not all the surgery undertaken. Enucleation of the cervix was performed in all female patients of the operated group showing cervical infection, namely 6. Colectomy was not performed in patients showing intestinal stasis, but *acidophilus* milk was administered (7). It is significant in this connection to cite the report of Cotton's remarks (made at the close of Hunter's (1) paper): "He no longer recommended colectomy, but used copious colonic douches instead." Obviously we have done as much for our patients as is consonant with reasonable practice. Incidentally, it is noteworthy that in the past four years Cotton has published nothing of interest to consolidate his position, nor has anyone else in the United States.

We can scarcely be expected to take seriously Hunter's (6) remark that "the only patient who did well had had thirty teeth removed." For, as a matter of fact, there were in our operated group (to which, presumably, reference alone is made) 8 patients who recovered and 14 more who were classified as improved. As already pointed out, the average number of teeth removed was 5.

Hunter's final argument (6) was most conclusive: "He found that Kopeloff was not even a doctor; he was a bacteriologist. He did not think psychiatrists need worry about Kopeloff's work." Deeply appreciating the scientific forcefulness of this statement, the bacteriologist in question is glad to be enlightened on the point that bacteriology has no place in the study of focal infection in relation to mental disease. But he does resent most emphatically the insinuation levelled against Dr. G. H. Kirby, Director of the Psychiatric Institute, and Dr. C. O. Cheney, now Superintendent of

* Case 24, which is equivocal, reads: "Onset of the psychosis: Rather suddenly, April 30, 1918, although there had been noticed a rather decided change of disposition for at least three years." Our interpretation is that the duration of the mental disease process was about three years

the Hudson River State Hospital, who were personally responsible for the *psychiatric* data of the investigation, and whose place in American psychiatry is unquestioned.

The conclusion to be drawn from an analysis of our data is that Hunter's (6) remarks are contrary to the published facts (4, 5), just as Cotton's interpretations are at a variance with *his* facts. It seems necessary, in view of the complex problem under discussion, to emphasize again certain fundamental aspects of our position.

There are really three important questions requiring consideration in dealing with the relation of focal infection to mental disease :

1. Is focal infection the specific *cause* of the functional psychoses ?
2. Can the surgical removal of foci of infection *alone* bring about improvement and recovery of patients with mental disease ?
3. Is focal infection of importance in mental disease ?

Our studies (4, 5) indicate clearly that the first two questions must be answered in the negative. We have compared two groups of patients living under the same hospital conditions and in whom foci of infection were noted. One group received the usual hospital treatment ; the members of the other group received surgical treatment to remove the foci of infection. No essential differences were noted between the two groups as regards mental improvement or recovery. In a word, operative procedure *alone* was not responsible for mental improvement or recovery.

No such clear-cut statement can be made with regard to the question, Is focal infection of importance in mental disease ? The patient suffering from a mental disease should receive as much attention from the physical standpoint as does any patient in a general hospital. Precisely what *role* may be played by the different factors which contribute to the picture as a whole remains to be determined. Upon this we may speculate to our hearts' desire ; we may regard foci of infection as of more importance than want of endocrine balance, faulty metabolism, hereditary taint or even psychological factors. Each according to his lights. Obviously the interests and experience of the individual observer will influence his point of view ; the endocrinologist favours the endocrines ; the geneticist, heredity ; the surgeon, focal infection, etc. The psychiatrist may even be justified in regarding focal infection as a precipitating factor in some psychoses.

But so long as there exist no satisfactory criteria for evaluating the relative importance of each of the factors which enter into mental disease we must suspend judgment and gather further facts or develop better methods. In the meanwhile nothing should be left

undone, physically or mentally, which will tend to restore the mental patient to a normal condition. To repeat our former conclusions: "It is desirable to eliminate focal infection when adequately demonstrated in psychotic patients in the same way as one should attempt to alleviate any physical disorder in mentally diseased patients. Nevertheless, it has *not* been shown that focal infection is *the* ætiological factor in the functional psychoses."

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GENERAL PARALYSIS.

THIS discussion, which stood adjourned at the Quarterly Meeting held on November 23, 1928, was resumed at the Quarterly Meeting, February 14, 1929, under the Presidency of Prof. J. Shaw Bolton, D.Sc., M.D., F.R.C.P. (*vide p. 1*).

The PRESIDENT said that last time a good deal of attention had been paid to diagnosis, though considerable reference had also been made to the subject of treatment. Little, however, had been said on symptomatology, except by Dr. Smyth. Dr. Caldwell had referred to the question of there being a special neurotropic strain of spirochæte. And there were other pathological questions, such as whether acute cerebral syphilis should be regarded as general paralysis; and whether general paralysis was a pure or a mixed infection; also whether the pathological findings in general paralysis were pathognomonic, or were found in cases of dementia. The latter he did not think was worth discussing. Naturally, it was not the wish that members should tie themselves down to any particular subject; he hoped, for the benefit of the meeting, that everything possible would be mentioned.

Dr. C. HUBERT BOND said he rose to ask a question, which he hoped someone present would answer. It was in connection with cases of general paralysis treated by malaria in whom improvement had not occurred, but death had taken place, perhaps after improvement at one stage. In those cases had any spirochætes been found in the brain?

Dr. J. R. LORD, answering Dr. Bond, said the reply would be found in a special paper by Mr. Geary, published in the Mott Memorial Book, which described the work done in the Maudsley Laboratory on this subject. In 50 cases treated by malaria the spirochæte was not found.

Continuing, he said that he had purposely included No. 4 of the points for discussion; it was the foundation of our knowledge of cerebral anatomy, particularly of how the changes in the brain occurred in mental disease. The President had taught them that the cortical areas concerned in the dementia of general paralysis were the

same as those involved in every form of dementia. To the speaker this was a point of extraordinary interest. The theory was now suggested that the brain was damaged in the direction taken by the perivascular lymph-stream of the cerebral arteries. If such were so, the poison was not selective in its action, and the damage done depended upon an anatomical and mechanical, and not a biological factor.

The old theory of general paralysis was that it resulted from a premature using up of cerebral vitality due to excessive enjoyment of "wine and women," and a too full life. The new theory was that of a healthy brain which would have persisted in its health but for the circulation of a poison in a particular direction.

With regard to No. 3, "Is general paralysis a pure or a mixed infection," that was put in because it occurred to the speaker that when one introduced, for purposes of treatment, what was really an infection, one ought to know what other infections were present. One took a patient who was presumably a case of general paralysis; one knew that the syphilitic infection was present, but there might be half a dozen toxæmias operating in that case. Another case might be without additional toxæmias. The remedy was applied indiscriminately from this point of view. One case got better; another did not. Unless one knew exactly what toxæmia each case was suffering from before the remedy was applied, the results could not be correctly assessed. He would like to see a series of cases, in which the poison was purely spirochætal, treated by malaria; and another series in which there were other toxæmias (septic for instance) similarly treated, and the results compared. This might answer the question why the remedy did good in one case, and did not in another.

No. 2 was put in because of Dr. Smyth's paper. That gentleman had described cases of general paralysis in which the infection spread, not *viâ* the lymph-stream, but *viâ* the blood-stream, which was not necessarily in the same direction as the lymphatics. Some would say that these cases were not general paralytics, but cases of brain syphilis, and would respond to ordinary anti-syphilitic measures.

Dr. HAMILTON MARR said he had heard one of the speakers say that the diagnosis of general paralysis was quite an easy one—in fact Prof. Robertson said no disease of the nervous system could be diagnosed with such certainty as general paralysis of the insane. He, the speaker, took a diametrically opposite view. His own experience during the war was that out of 10 cases diagnosed as general paralysis, probably 9 were syphilitic pseudo-paralysis. He did not know that the profession had gone much further in their

discoveries since Krafft-Ebing laid down the dictum that general paralysis was due to "civilization and syphilization."

With regard to clinical diagnosis, two very important points made one suspicious that a case was not one of general paralysis, namely, the presence of hallucinations and the presence of "bulbar speech," as against the staccato and slurred speech of general paralysis. Of all methods of distinguishing between cerebral syphilis and general paralysis—and Sir Frederick Mott had agreed with him in this—the best was the colloidal-gold test. Even if the patient had hallucinations and bulbar speech, and if it was then found that the cerebro-spinal fluid reacted strongly to the colloidal-gold test, he would decide in favour of general paralysis. But even in those cases he did not refrain from anti-syphilitic treatment. The results justified this, for many such cases recovered.

The speaker did not regard the Wassermann test alone as pathognomonic.

Dr. F. A. PICKWORTH (Birmingham) said it was generally admitted that syphilis of the brain was an essential factor in the ætiology of general paralysis, but in the present state of our knowledge it would be a pity if other pathological investigations were neglected. The long period between syphilitic infection and the onset of general paralysis suggested that other factors were important. Abnormal agglutinin formation had been noted in general paralytics, suggesting intestinal infection as an accessory factor, and sphenoidal sinusitis (of which two specimens were demonstrated) as another.

He also pointed out the relation of the main discussion to similar problems in general medicine. Typhoid osteitis was not usually regarded as typhoid fever, although *B. typhosus* was the infecting organism. A clinical enteric fever was not called typhoid fever if the bacteriologist's report indicates a paratyphoid organism. Undoubtedly, pathological methods would eventually replace clinical diagnosis, and in this lay the hope of preventive medicine, but such could find general acceptance only when quite free from misunderstanding as to the value of these findings.

Dr. W. F. MENZIES (Cheddleton) said that it was with peculiar pleasure that he contradicted the President's summary of the discussion last time. He turned to p. 3: "This comparison made me feel reasonable doubt as to whether the malaria treatment had very much effect on the course of any cases."* Could anyone have reasonable doubt who had tried it? All their cases in North Staffordshire had already been most carefully treated; all the

* *Vide* p. 27.

syphilitic cases in the Stoke-on-Trent Venereal Disease Clinic were treated with tryparsamide and other remedies, and the Medical Officer of the Clinic told the speaker that he had begun directly after the war, *i. e.* 11 years ago, and that he could honestly say that he had never done any good by these methods to any general paralytic, whereas interstitial syphilis cases improved greatly.

He asked whether, in the old days, the President ever saw any eight successive cases of general paralysis improve though they were not treated at all. The speaker never did. If one in five or six improved without treatment, it was considered very good. The death-rate was 98%. But things were different now; there was disappointment if a malaria-treated case did not improve, even if a number of them could not be sent out—since they were not received until the disease was advanced. At that stage clinical diagnosis was easy; but it was recognized to be too late for malaria treatment to bring recovery. He had a case which began about five years ago, and the man was still at work, but he confessed that the best most of them did was to become useful dements.

He was anxious to get some information about the pathology—the gross, not the minute pathology. It was interesting to note, in cases of syphilis, the different parts of the aorta which were atheromatous. In syphilitic cases in which the main disease had fallen on the heart, where there was double aortic disease or something of that kind, the atheroma affected especially the aortic valves and the ascending arch. In many toxæmias it was localized to a spot close to where there was an abscess. In the last two years he had had two cases which were most instructive. Neither was a case of general paralysis. One had an abscess in the pulmonary glands, and there was a large local atheromatous patch, about 2 inches long, in the aorta, just opposite to where the pus had been secreted. Another case died of prostatic disease. In him a foul abscess had been going on for two or three years, and in that case the atheroma was confined to the lower end of the aorta, just where it divided. Clearly those were not blood affections; they must be lymphogenous—must be carried by the lymph-stream back from the abscess into the walls of the arteries. Could it be that the whole of the syphilitic infection was lymphogenous, not hæmatogenous at all? He was beginning to think so. In most cases of general paralysis the atheroma of the aorta was very widespread, but there was a tendency for most of it to occur in the splanchnic area, not in the thoracic aorta; whereas in cases of interstitial syphilis the tendency was for the thoracic descending aorta above the diaphragm to be affected. This was not a universal rule, because in many cases, not only

of general paralysis, but in cases of old syphilis, the whole aorta was atheromatous. But it was wonderful how often in interstitial syphilis it was the thoracic aorta which was the more affected, while in general paralysis it was the abdominal aorta. It seemed to suggest that the general paralysis infection was in the splanchnic area, and that it was lymphogenous.

He could not answer the question as to spirochætes in the brain. A fortnight ago he had an acute general paralytic, who died 14 weeks after his single bout of malaria with one rigor. The appearance of the organs was such as might have been those due to a malarial death. There was a large, dark red spleen, liquid blood, engorged kidneys, yet every second day in the last fortnight of that patient's life the blood was examined for malarial bodies and not one was found. After death, blood taken from the spleen did not show malaria parasites either. What was that death due to? The brain in that case was interesting. In his Presidential Address in 1920, he opposed the theory of Prof. Bolton that the prefrontal area wasted because it was the last developed. He, the speaker, contended that the reason was geographical, from the flow of the cerebro-spinal fluid, as one speaker (Dr. Lord) had already said. The case he had just referred to was one of very acute general paralysis of the insane; he had died after being delirious for only a few weeks. He had a narrow track of infection of the meninges, and there was some cloudiness where the cerebro-spinal fluid flowed up over the hemisphere, spreading in a fanwise direction from the cisterna magna and Sylvian fissure. It was not the prefrontal area which was affected, but the intermediate pre-central. He would like to be given some information on those points.

Dr. G. W. B. JAMES (London) said this discussion was being held at a very opportune moment, because the Psychiatry Section of the Royal Society of Medicine were, that week, having a two-day debate on the prognosis and treatment of general paralysis of the insane. In that discussion, which began two evenings ago, there arose some points which were worthy of notice by this Association.

The first, which was introduced by Sir James Purves-Stewart, was the question of the name "general paralysis." The speaker agreed with Sir James that the name was a particularly bad one. Sir James Purves-Stewart suggested the name "progressive syphilitic meningo-encephalitis."

General paralysis was surely decided and determined as a progressive syphilitic disease. There was scarcely any disease known to medicine occurring in a man of 40 to 45 years of age in which

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General paralysis was surely decided and determined as a progressive syphilitic disease. There was scarcely any disease known to medicine occurring in a man of 40 to 45 years of age in which

accessory factors would not be present, and general paralysis was no exception to that rule. If one examined every man of 40 or 45 present that day he did not suppose one would fail to find some infection—his teeth, his tonsils, his accessory sinuses, his intestines, his genito-urinary system. And it was this septic factor which seemed to him to be so much over-determined. For general paralysis there had been introduced a satisfactory treatment by pyrotherapy, and it seemed to the speaker to be becoming increasingly important for the practitioner to be able to diagnose it at the earliest possible stage. One often heard, even to-day, of cases of a fracture or a suspected fracture, in which the medical man attending it omitted to carry out an X-ray examination, with the result that in some cases a prosecution for criminal neglect resulted. It seemed to the speaker that this question of general paralysis and its diagnosis might well become something of the same sort, *i.e.*, it might come to be considered neglect on the part of general practitioners to fail to do lumbar puncture and venepuncture when any case showed any sign or symptom which might be considered due to general paralysis, treatment at an early stage being so absolutely essential for success. He put forward this medico-legal point as one which might profitably be discussed.

With regard to the treatment itself, there were two schools—the blood-to-blood school and the mosquito school. His own view was that the blood-to-blood malarial infection was the better because one did not get so often a preliminary rise of temperature before the rigors commenced and malarial relapses after the treatment. The blood-to-blood infection was, in his experience, more easily controlled than was the mosquito infection.

Dr. A. A. W. PETRIE (Banstead) said he, too, wished to ask some questions. A very important question was, What criteria should be taken for submitting a patient to what was really a dangerous form of treatment? There seemed to be comparatively general accord that in what could be called 100% general paralysis certain pyrexial treatments were desirable. Pyrexial treatments seemed to have been, on the whole, more successful than chemical treatments, though some people spoke favourably of tryparsamide. One speaker suggested that tryparsamide was very good for interstitial syphilis, but pyrexial methods were obviously the best for general paralysis. The question of diagnosis came in, and he agreed with Dr. Hamilton Marr that sometimes that was a difficult matter. Usually one could easily diagnose the more obvious interstitial cases and the 100% general paralysis cases, but there was an intermediate class in which there was great difficulty in diagnosis, and in judging what kind of

treatment to adopt for them. One case, which he well remembered, was sent to the Maudsley Hospital by an eminent neurologist who had no connection with that hospital, diagnosed as delusional insanity. The patient was very self-absorbed and much dissociated. There was nothing to suggest that he suffered from syphilis. Somebody tested the patient's blood, but not with the expectation of finding anything. The Wassermann was strongly positive in both blood and cerebro-spinal fluid, and the paretic curve was present. He had no symptoms of general paralysis, and the question arose whether one had stumbled upon a person about to become a general paralytic, or whether the psychosis was coincidental. The patient was given a course of tryparsamide, and he improved very much mentally and went out. If he had remained well, probably some would have said it was not general paralysis. The speaker heard of him three years later, and his informant said the question whether he was suffering from general paralysis was answered, for he showed every clinical symptom, as well as the positive serological findings.

One, then, came to the opposite extreme—that of the case which showed clinical symptoms of general paralysis, and no change in the cerebro-spinal fluid until late in the disease. Should one give active treatment or not? He remembered a case in which the cerebro-spinal fluid gave a negative result on at least six occasions. The man died of typical general paralysis within six months. At the *post-mortem* the brain was characteristic, and only shortly before death was the cerebro-spinal fluid positive. That was the kind of exceptional case which made one doubtful how to classify general paralysis for treatment. Was it the general opinion that when cases did not present the characteristic symptoms of general paralysis, but were presumably cases of interstitial syphilis, or cases even of tabes which might turn later to general paralysis, such should have pyrexial treatment, or should one treat them merely chemically? Cases with a number of neurasthenic symptoms attending as out-patients were found to have signs of tabes. They sometimes developed later into cases of tabo-paresis. Should one merely give tryparsamide, or deal with them by the pyrexial method?

There was a strong consensus of opinion that malaria was the best available treatment. Whether it was the ideal treatment was another matter, and he thought the search for other methods of treatment should still go on. He had tried some of the other pyrexial methods. Typhoid presented good results, but did not give the intermissions which malaria did. He had quoted a series of cases treated with relapsing fever, and his experience made him say that, though the figures were somewhat comparable with those for malaria, the

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results, on the whole, were not so good, and there was evidence that at times relapsing fever could be even more dangerous than malaria, and was not so easily controlled. In his experience with malaria and relapsing fever he had come across a type of general paralysis in which symptoms seemed to be aggravated by the treatment, and an occasional case seemed to get worse rapidly. That might be a coincidence, as patients might have been going downhill before the treatment commenced. Some declared that malarial treatment was safe, but he thought it would be generally conceded that it was a dangerous treatment, and one was only justified in employing it in cases in which the prognosis was grave. He asked for the opinion of others as to how far, when they were doubtful about a diagnosis, they felt justified in applying pyrexial methods of treatment.

Dr. W. D. NICOL (Horton) said he might be able to answer one or two queries. Dr. Bond raised the question whether spirochætes had been found in the brain of general paralytics who had received the malaria treatment. Dr. Lord had answered that question. At the Maudsley Hospital many brains had been examined, and in only one brain were spirochætes found, and that was the brain of a juvenile general paralytic. The speaker had seen the brains in a number of cases which had had malaria treatment, though only of one or two who died immediately following malaria. Of the others some died 3, 4, 8 months or a year afterwards, and in each case the brain did not have the appearance of the untreated general paralytic. There was no thickening of the meninges, nor was frosting of the fourth ventricle observed.

Dr. James had stated that the blood-to-blood infection method of malarial inoculation was best. He, the speaker, had been associated for four years with Col. James with this treatment, and as a result he was strongly in favour of the direct mosquito infection. Infective mosquitoes were kept at Horton to supply the demands throughout England and Wales. One of the several reasons why he favoured mosquito infection was that one was certain in this way of getting a pure strain of benign tertian. If a strain were used through a series of patients, blood to blood, one did not always know what one was introducing from one patient to another. In this connection he would like to ask a question: If there were a series of patients, in whom the Wassermann was strongly positive, others with the reaction weakly positive, would a possible success be invalidated by introducing the strongly positive blood into a weakly positive patient?

The most important thing in mosquito treatment was the contro

of the malaria. Dr. James had said that blood inoculation was easier to control than mosquito inoculation—a statement which surprised the speaker. He had seen the mosquito inoculation done at Horton and other parts of England and Wales in a large number of cases, and his experience was that if they were watched closely they could be easily controlled. The whole secret of conducting malaria treatment on a safe basis was that when the case appeared to be getting out of control, one dose of 5 gr. of quinine should be given between the sixth and ninth days. After that small dose the malaria parasites disappeared from the blood in forty-eight hours. The patient did not have a remission till fourteen to eighteen days, and during that time his strength was returning. Another great advantage was that the strain of malaria was not lost. The remission was never so severe as the first.

It might be asked, What were the indications for bringing about an abortion of the fever? When should that be done? At Horton they had the decided advantage of a skilled pathologist doing parasite counts. By taking the blood-film and examining twenty-five fields under the microscope, using an oil-immersion lens and a No. 2 ocular, it was taken that if a patient had more than one parasite per field, or forty parasites to twenty-five fields, the malaria should be aborted by the small dose of quinine. It had only been necessary to do this in about 20% of cases. At Horton they had done 140 cases under research conditions, and in only 2 had he seen commencing jaundice. That, he thought, was largely because the malaria had been controlled before toxic effects had had a chance to develop.

Another important point was the taking of the temperature. It was very important that this should be taken every fifteen minutes when the rigors commenced, so as to avoid hyperpyrexia. Many men who had had experience said that albuminuria was in itself dangerous, but the speaker had not found it so. The majority of the cases, after six days of fever, had albuminuria to a slight degree, and he did not think that was an indication for stopping the treatment.

Dr. James also said that in mosquito-induced cases the malaria relapsed to the extent of 60%. Through the courtesy of Dr. Bond the report of the Board of Control on this treatment had been seen, and it seemed definite that mosquito inoculation gave better results than blood inoculation. This might be due to the fact that the malarial process was going on the whole time. Such relapses took place usually about six months later, and they did not cause much inconvenience. The fever being of a true tertian type, and causing little general disturbance, not having the severe character

of the quotidian fever experiences in the primary attack. There was no further trouble after quinine gr. v daily for ten days had been given.

In the case of benign tertian, if one wanted to give them a second course of treatment, it was found difficult to reinfect them owing to immunity. This has been solved by inducing quartan malaria. Last August Col. James was able to get a strain of quartan malaria from Hamburg. It was the least malignant form of the three species of malaria parasites. Some cases at Horton had been treated with it. The quartan strain had some advantages over benign tertian: the patient had fever every fourth day, instead of every second day, and thus obtained more rest between the rigors. The rigors themselves were less severe. The more debilitated type of patient could stand quartan malaria quite well; he could go on six or seven weeks without having anæmia. Many patients who stood quartan well would not have tolerated a week of benign tertian. Quartan malaria also afforded a great opportunity of treating those cases which were immune to benign tertian malaria. A number of cases treated with benign tertian malaria had been disappointing; their physical condition only improved, and not their mental state. Nearly twenty such cases had been repeatedly re-infected with benign tertian malaria and failed. On being given quartan malaria they had run a good course of that disease. It was too early yet to make any statement as to the results of this research, but at Hamburg Prof. Kirschbaum spoke very highly of the results, and claimed 50% of remissions by quartan malarial treatment.

Dr. WALK (Long Grove) regretted he had not been present at the last two discussions on this subject. He had, however, read Dr. Brander's paper, and with regard to the advice not to place too much reliance on pathological findings, he thought that was pushing at an open door. The mistakes in diagnosis mentioned in Dr. Brander's paper had all occurred round about 1910-12, and since then the tendency in medical teaching had been in the direction which Dr. Brander pointed out. Nowadays, with the present teaching, he did not think there was much danger of people placing too much reliance on laboratory findings alone. The great tendency was to correlate those with the clinical symptoms, and if that could not be done, the present teaching was for the clinical findings to have the predominance every time. On the other hand, as far as some of Dr. Brander's statements were concerned, he and some of his colleagues, with whom he had discussed the paper, felt they could not agree. It was felt that Dr. Brander was going too far in

emphasizing the absolute distinction between cerebro-spinal syphilis on the one hand and general paralysis on the other; that he was going further than the clinicians, who worked before the Wassermann test came out, had ever done. And on looking up the views of Sir Frederick Mott on the matter, one did not find that he maintained that one never found any tertiary lesions in patients who had general paralysis. It was agreed that in the majority of the cases no such lesions were found at *post-mortems*, nevertheless in a small number there were evidences of tertiary syphilis found in *post-mortems* on general paralytics.

With regard to juvenile general paralysis, even in the experience of the speaker and his colleagues they had seen cases of juvenile general paralysis who had signs of bodily syphilis as well. Dr. Brander had said that juvenile general paralytics gave a history of heredity only, but never showed signs of syphilis themselves. The speaker had seen cases running with the typical course of general paralysis, all the typical signs *post-mortem*, and yet had Hutchinson's teeth and similar lesions.

His purpose that day was to draw attention to some of the work which had been done, and some of the views which were held abroad about general paralysis and its nosology and treatment, and in particular some of the work seemed relevant to the first case which Dr. Petrie had described, that of the man who showed mental symptoms, and was accidentally found to have a Wassermann-positive blood and fluid. He was treated with tryparsamide, and went out later, and at a subsequent date turned out to be a general paralytic.

The speaker thought that several views concerning the pathology of general paralysis had not been mentioned. Dr. Caldwell had spoken of the neurotropic strain of spirochæte, etc., but there were other views. One he would mention was the view—which held currency especially in France—that the difference was one of reaction on the part of the patient, and that it could be correlated with the question of allergy; that the ordinary forms of syphilis were allergic, whereas general paralysis and aortitis and leucoplakia of the tongue were manifestations which were anallergic. It was held that the divergence showed early in some, and that these were potential general paralytics, and further, that such patients might show transitory manifestations of neuro-syphilis, either transitory nervous signs, or transitory mental disturbances without nervous signs, long before the onset of their general paralysis. It was possible that the case Dr. Petrie mentioned that day was of that kind. And that case illustrated another very important point, one which had come to the fore recently. It concerned the effect of anti-syphilitic

treatment on the development of general paralysis of the insane. Some work had recently been published from the Vienna clinic, which referred to the question of patients who were accidentally found to have changes in their cerebro-spinal fluid, patients who were in the latent period, who had had a primary and perhaps a few secondary lesions. Those patients were in an unstable state in which various factors might precipitate the onset of general paralysis. One such factor was anti-syphilitic treatment. It was said that if one took a patient in that latent period, it was possible to distinguish between potential paretics and other cases, not so much by a single examination of the fluid, but by repeated examinations extending over a long period. Starting from the fact that in the secondary stage 60% of syphilitic patients showed changes in their cerebro-spinal fluid, whereas later the number who showed them diminished until it went down to 20% or 10%, it was believed that patients in whom these reactions were diminishing were not likely to become general paralytics, whereas those in whom it was stationary or increasing would probably develop that disease. Therefore if one had a patient with no signs of syphilis, but who had positive findings in his blood and in his fluid, and he was repeatedly examined, over months and even years, one could show a tendency of these reactions to either increase or diminish, and such a patient should be treated as a potential paretic immune accordingly. Therefore it was possible that in the case that had been described, in which the patient had no obvious signs of paralysis, treatment by tryparsamide might have precipitated the general paralytic psychosis a few months later.

That brought one to the question of the treatment of early syphilis and its effect on the later development of general paralysis, which had recently been raised. Dr. Frost had drawn attention to that at the last discussion, and articles on the matter had recently appeared in the *Lancet*. It referred particularly to the work which had been done in Norway on patients who had been under treatment by Prof. Boeck, of Oslo. He practised until 1910, and he did not believe in mercury in treating general paralysis, laying it down that treatment by mercury and iodide was palliative only, and that it was harmful in that it lowered the patient's resistance. Therefore that authority merely gave them tonics to improve their general nutrition. It had been found since that only a very small proportion of those patients ever developed general paralysis of the insane. Apparently all patients who were under his care, if they had developed general paralysis, would have alternately come to one of two clinics in Oslo, but hardly any did come. Therefore the matter was followed up in greater detail, and it was found that the

proportion of cases who had been under Boeck's care and who developed general paralysis was very small—about one-tenth of the normal figure. The whole question of the effect of treatment on the future development of general paralysis seemed thus to have been raised in an acute form.

The speaker thought that these points were worth bringing up now, and that cases should be observed from that point of view.

Dr. DAVID RICE (Norwich) said he had only a few remarks to make in this discussion, and only in the hope that some others, like himself, who had no laboratory at their disposal, and who worked with a wholly insufficient staff to carry out the malarial treatment of general paralysis of the insane, might be encouraged to do something.

In tryparsamide the profession had, he thought, an agent with which, in the smaller institutions for which he was speaking, the staff could do something. They could make a contribution to the question whether chemical treatment was any good in the disease. For that reason he wished to mention a few cases.

He had had seven cases—5 men, 2 women. The first question which arose was whether the diagnosis was right. Were they treating general paralysis or cerebral syphilis? He would not discuss that for the moment, but those cases were all diagnosed clinically as general paralysis. When it was decided that a case was general paralysis, the blood at least was examined by the Clinical Research Association. There were, among them, six positive bloods, one being reported as having a negative or at least a very doubtful Wassermann and a positive Kahn; his cerebro-spinal fluid was returned as positive. None of the cases were juveniles; they were in the fourth, fifth and sixth decades of life. The shortest duration was one which dated back three months; six weeks before admission, and six weeks in the institution when the treatment was started. One of the female cases was a tabo-paretic. All those patients had ten weekly doses of 3 grammes of tryparsamide. In two cases his colleague found extreme difficulty in getting the material into the vein at all; the only untoward event which occurred was that one woman had much pain after the injection was made, in the neighbourhood of the vein; subsequent injections were made deep into the buttock in her case. Local reaction was practically absent, and there was very little systemic reaction; in no case was there a continuing rise of temperature following the treatment. It was as yet too early to speak positively of the results, especially after what Dr. Petrie had said about the subsequent development of general paralysis. He hoped he would be able

to get hold of some of his cases three years hence, but up to the present there had been definite improvement in every single case. No attention was paid to seizures. One of the men had been bedridden some weeks, and had had many seizures, nevertheless he was given a full course. Another, between 30 and 40 years of age, had had one seizure before the course was started, and he had a very severe one after the first injection. The question of the discharge of that patient was already arising, and the speaker was in a little difficulty about keeping him for further observation. One man, who had been bedridden, was now walking about the ward. The tabo-paretic patient had not recovered her knee-jerks, but she could now walk, whereas previously she could scarcely get about. There were two cases in men in the fourth decade, whose mental symptoms had cleared up very much; they showed better application in what they were doing, and there was a greater readiness to converse, and more sense in what they said.

If, immediately after a course, the cases appeared so promising, it seemed to be in favour of giving tryparsamide a good trial in institutions and places where at present the malaria treatment was impossible.

Dr. G. DE M. RUDOLF (Cane Hill) said Dr. Nicol had raised one or two points about inoculation of malaria by mosquitoes. The speaker's own experience of that method was rather limited, but he had had experience of blood inoculations, and he thought it might be of interest to compare the statements Dr. Nicol made with parallel facts in the blood-inoculation cases.

He dealt with immunity to malaria. The speaker had inoculated over 200 cases, and had not yet found a patient who was immune to blood-inoculation with benign tertian malaria. Some cases had failed to take even after a third inoculation, but after the fourth, malaria had developed. A series of 12 cases, who had not improved sufficiently to be discharged, were re-inoculated with blood. Using the same strain of benign tertian malaria, he found that each of these patients tended to become more and more immune according to the number of inoculations. Eventually two, who had had five inoculations, showed neither parasites nor fever. On reinoculating these cases with a different strain of benign tertian, malaria developed. So that until one had tried a case several times with one strain, and then tried it with other strains as well, one could not be sure it was immune.

The important point about giving quinine in small doses to stop the fever temporarily was that the amount required to do this varied with the different strains. The strain in use at Claybury, which was

started in August, 1923, and was still being carried on, needed two doses of 10 gr. of quinine to stop the fever temporarily. As a rule, patients relapsed in about a fortnight. With the Horton strain it was also found at Claybury, also that 5 gr. of quinine sufficed. If too much quinine were given, the infection would be stopped permanently. Thus, in this method of treatment it was necessary to know the peculiarities of the particular strain employed.

The point had been raised about not being able to use malaria because there was no laboratory available. All that one needed were a microscope, slides and Leishman's stain, now that blood or mosquitoes could be sent anywhere in the British Isles without the parasites dying. The furthest he had posted blood was from London to Dublin, and that consignment took quite well. The injection should be made not more than 30 hours after the blood had been drawn.

One other point Dr. Nicol mentioned he would like to refer to, namely, the method of counting the number of parasites in twenty-five fields in order to control the infection. Dr. Ramsay had been doing some parasite counts at Claybury, and he used ordinary smears, counting the parasites in the film. He started with twenty-five fields, counted those in various parts of the slides, and found, in the end, that to get accurate results one needed to count more like 500 fields of each film. Twenty-five fields were enough for rough clinical work, but the parasites were spread so unevenly in the smears that it was necessary to count many fields in order to obtain an accurate result.

Dr. GLEN DUNCAN (Severalls) said that at Colchester every male patient admitted was subjected to a thorough search for syphilis of the nervous system by neurological examination, by examination of blood-serum, and by a complete examination of the cerebro-spinal fluid, including the Wassermann and Sigma reactions. Taking about 80 cases of neuro-syphilis discovered by those methods, a considerable number could be said to be general paralysis. But there were 30% of cases who could not be described as general paralytics, and a fair number who were in an intermediate position in which he could not decide to his satisfaction whether they should be described as general paralysis or not, and he very much doubted whether anyone else could.

From that, and the results of treatment, he gathered that to attach the label "general paralysis of the insane" to a case tended to hamper not only one's investigations in psychiatry in general, but also one's treatment of cases. He mentioned 50 cases treated with malaria, of whom 41 were general paralytics, and 20 were successful. Considering the duration of the symptoms before coming under

treatment, he found that in those who did well it was (contrary to what was quoted generally and contrary to one's previous impression), twelve months, and in those who did not do well it was eleven months; that was contrary to the prevailing belief that what was needed was the early case. Rightly, the early case was sought for in treating general paralysis by malaria and other means. By that was meant the case which, clinically, gave the impression of being an early one; in other words, there should be more dependence, from the point of view of prognosis, on the severity and rapidity of advance of the disease before coming under treatment than on the duration in months prior to starting treatment.

That brought him to remark on the pathology of this condition. Could the neuro-pathologist say that general paralysis of the insane was a specific definite pathological condition, which could not be confused with any other condition, such as meningo-vascular syphilis? He did not think so. Neurologists told him there was nothing specific to the one condition as compared with the other. When he was a student, neurologists told him there was no such disease as general paralysis, or tabes, or gumma of the brain; that it was syphilis, its locality being the central nervous system. In isolating off certain patients and labelling them general paralysis of the insane, physicians were confusing their minds, and were not doing their best with regard to the treatment. It was that which caused great discrepancies and differences of opinion. From those three points of view—the pathology of syphilis of the nervous system, the duration of the symptoms, and the difficulty in diagnosing intermediate cases—perhaps it would be well to drop the term "general paralysis of the insane," with the present conception of it, and attempt to take a stand on the basis of neuro-syphilis in each individual case, asking to which form of treatment it was amenable, or likely to be amenable.

In reply to a question by the President, Dr. DUNCAN explained that very careful examinations, serological and other, had been made on 80 male neuro-syphilitic patients admitted. In at least 30% of these the condition could not be diagnosed as general paralysis; of the remaining 70% a considerable number exhibited intermediate symptoms.

Dr. McRÆ (Ayr) wished to ask one or two questions. A great many of the remarks made regarding the nature of the pathology of the disease had already been made years ago. The older school raised many of these points which were being raised to-day. First of all, Was syphilis the cause of general paralysis? Was it a special toxæmia? Was it a secondary infection? He was still wondering whether these questions had yet been answered.

One speaker thought that cure depended on the duration of the disease. What had duration to do with it at all? It depended on the degree of toxicity and other factors. How often could the statements of relatives be relied on, or, in any greater degree of certainty, the clinical information afforded by the general practitioner in attendance on the case, as to when the symptoms for which the patient was sent to the mental hospital developed? It was difficult to get any history. It was extremely difficult to get a reliable history. Therefore when one talked about the duration of the disease, the question was whether the given duration was of any value.

The question of the strain of the malarial parasite was raised by one speaker, who had been carrying on a strain for five years. He wondered whether the bacteriologists would agree that that strain at the end of five years could bear, as regards toxicity, the slightest resemblance to its original state. If one carried on the strain long enough the toxicity disappeared. Had the people who were working with strains of malarial parasites any method of standardizing toxicity? Before one could dogmatize one must know the toxicity of the organism. Enough stress had not been laid on that point. One speaker had said that the evidence of cure by malarial treatment was that, after death, no opacity was found on the surface of the brain, and there were no granulations to be found in the floor of the fourth ventricle. But were there ever any granulations or opacity in that case? In other words, was it general paralysis?

Dr. LORD said that the reference to cases to which the speaker had alluded was not a question of cure. The question was asked whether there were *spirochaetes* in the brain, and the reply was in the negative. Only one case had granulations in the fourth ventricle.

Dr. BOND said the remark was made in reply to a question from himself. It was not a matter of cure at all.

The PRESIDENT said he thought that the reply implied cure.

Dr. LORD replied that it could not be so; the cases had died and were not cured.

Dr. DONALD ROSS paid a tribute to the excellent summing up which the President had made on the last occasion. He regretted that there was a slight discrepancy in the remarks attributed to himself. The figures he mentioned in connection with the positive Wassermann—77 and 7—were wrongly given as percentages; they should be total figures out of 400.* His reference to the diagnosis

* This correction was made in the report.—Eds.

of general paralysis in the war had also been misunderstood. What he had meant to say was that in the war cases one was struck by the early appearance of the paralysis following the onset of infection ; it appeared much sooner than had previously been observed.

One speaker had mentioned the views obtaining in France. He would utter a caution as to the views of any one school in that country. He recalled how, at a meeting a few years ago to celebrate the centenary of Bayle, who first described general paralysis of the insane as a clinical entity, a most acrimonious discussion took place, of a kind which was fortunately rare in this country.

The speaker went on to refer to the significance of early signs of disordered behaviour, sudden peculiarities, such as, in one case, in a man previously entirely respectable, a sudden impulse to run about the place pulling all the door-bells and embracing all the ladies. They were all accustomed to see such instances, which should be regarded with grave suspicion in every case, and general paralysis of the insane should be expected later.

Dr. Rice had mentioned the impossibility of applying malarial treatment in small and remote places. Few places were more remote from civilization than Western Argyll, yet malarial blood had been conveyed successfully down there, a thermos flask being used, and injection taking place within an hour of its receipt.

The PRESIDENT then proceeded to sum up the discussion. He said that Dr. Bond had opened by asking the question whether, in cases of general paralysis treated by malaria, where death had followed, the brain had been examined for the presence or absence of spirochætes. He was replied to by both Dr. Lord and Dr. Nicol.

The speaker was rather puzzled by quite a number of Dr. Lord's remarks, and was doubtful whether or not that speaker had read aright Dr. Smyth's paper. Dr. Smyth certainly did not say that general paralysis was a lymph infection,* but he specifically referred to the fact that the parts of the brain affected were those parts which were the last to be developed and were the most unstable portions of the brain. Dr. Smyth in particular referred to the types of cases in which spirochætes could be found and the regions of the brain in which they were when found. In acute confused cases of general paralysis he stated that he did not find the spirochætes. He said that in cases with exaltation and grandiose ideas, with extraordinary behaviour and ordinary physical signs, he did find

* Abstract from Dr. Smyth's paper : " The main course of the cerebro-spinal fluid is upward. Hence, from a purely mechanical aspect, it is probable that spirochætes, having gained access to the subarachnoid space, take the line of least resistance and are carried along the perivascular spaces of the anterior and middle cerebral arteries in the majority of cases, although some might be carried back along the posterior cerebral artery, etc."—Ed.

the spirochætes, and also where they were. These were the cases which had been found to improve under tryparsamide and also under malarial treatment. The speaker had not quite followed Dr. Lord's remarks *re* multiple infections, so he was afraid he must leave them at present.

The next speaker was Dr. Hamilton Marr, who strongly dissented from the remark by Prof. Robertson that general paralysis was an extremely easy disease to diagnose. He must say that in this respect he agreed with Dr. Marr. Dr. Marr had referred to the fact that after the war he found many cases which would have been ordinarily diagnosed general paralysis, but which were really not cases of general paralysis; they were a pseudo-paralysis. This agreed with Dr. Ross's statement that after the war general paralysis appeared to follow early upon syphilitic infection. The speaker also remembered how readily these cases remitted, and how responsive they were to treatment with arsenic and mercury. They were of the type referred to by Dr. Marr.

DR. HAMILTON MARR: It was actually during the war; the cases were sent from the Front.

The PRESIDENT next referred to the statement of Dr. Pickworth that while general paralysis might be and probably was caused by syphilis, other pathological factors intervened which modified the disease. Dr. Pickworth had spoken particularly of infection through the sphenoidal sinus.

He could hardly make any remarks with regard to what Dr. Menzies had said, because he rather thought that Dr. Menzies was endeavouring to extend his (the speaker's) nether extremity!

Dr. James made a most interesting reference to certain branches of the subject that had not been dealt with. He referred to the discussion at the Royal Society of Medicine now proceeding, and mentioned that Sir James Purves-Stewart regarded "general paralysis" as a bad name and suggested some other. Something of that kind had already been said in the course of the discussion, and he thought it was Dr. Duncan who had suggested that the term "general paralysis" be given up. But if the term "progressive encephalitis" were taken they would get into great trouble. Dr. James rightly said that general paralysis was a progressive syphilitic disease, and he referred to the various accessory factors which necessarily existed in all men over forty, and which naturally might be over-rated. Dr. James considered it necessary to make an early diagnosis from the point of view of possible pyrexial therapy. In such treatment Dr. James preferred blood inoculation to mosquito inoculation and gave his reasons. He was replied to later by Dr. Nicol on that point.

Dr. Petrie's remarks had interested the speaker very much. He had specifically asked what criteria were necessary if such a serious thing as treatment by malaria was to be carried out, and he had pointed out the absolute necessity for accurate diagnosis. Dr. Petrie had referred to a case of delusional insanity treated by tryparsamide which was only diagnosed accidentally. Dr. Petrie had indicated how difficult it was to classify cases which were not classical, and he had asked whether one was justified in undertaking such very serious treatment as malarial therapy in cases which were not classical. He used the term "pyrexial methods," because at the Maudsley Hospital and at Banstead relapsing fever had been tried.

Dr. Nicol had replied to the question put by Dr. Bond, stating that spirochætes were found in a certain number of these cases only. When they were not found it might mean that they had never been present or had been present and removed. The question was hardly a fair one. Dr. Nicol also spoke on the question of blood or mosquito inoculation. He (Dr. Nicol) preferred mosquito inoculation and gave his reasons. After listening carefully to what he had said one could at any rate be sure that he had made his statement after very considerable experience, and undoubtedly had reason for what he said. On the other hand, the question whether mosquito inoculation caused relapse or not was brought up later.

Dr. Walk stated that at the present time too much stress was *not* laid on laboratory findings. Unfortunately, a number of up-to-date men to-day were found who did lay too much stress upon such findings. Dr. Walk disagreed with Dr. Brander on the subject of the separation of cerebro-spinal syphilis from general paralysis, and he had interested the speaker very much by his statement that the late Sir Frederick Mott had referred to certain cases of general paralysis which exhibited tertiary lesions of syphilis. He (Prof. Shaw Bolton) remembered having disputes with Sir Frederick Mott on this subject, and when he had tried to say that a case was tertiary syphilis and general paralysis, Sir Frederick Mott had said that he must state one or the other—he could not have both. Sir Frederick Mott must have considerably modified his views in that respect. Dr. Walk then referred to certain foreign views, particularly to views held in France, and afterwards spoke of the treatment of early syphilis in Norway. He thought some reference to that would be found in the discussion of last November.

Dr. Rice had referred to the use of tryparsamide in small institutions, stating that it was not easy to employ malarial treatment in a small institution without proper laboratory facilities, and that tryparsamide offered an alternative. He seemed to have got

sufficiently good results to justify him in carrying on with the method. Of course, any sensible individual would be disposed, in view of the large number of methods of treatment of general paralysis now available, to agree that it would be better for individuals to employ the methods they thought best, rather than to try to make everybody treat cases on a pattern, whether correct or not.

Dr. Rudolf had disputed certain statements made by Dr. Nicol, but he need hardly refer to this. One point in Dr. Rudolf's remarks might be mentioned, namely, his reference to Dr. Nicol's method of counting the number of parasites in order to control infection. This seemed to indicate that there might be a certain amount of truth in what Dr. Rice had stated about the difficulty of applying treatment of the kind far away from large hospitals.

Dr. Duncan referred to the very careful examinations, serological and other, which had been made on every male patient admitted, to the number of eighty. He stated that at least 30% of these could not be diagnosed, but were certainly not general paralytics, and of the remaining 70% a considerable number exhibited intermediate symptoms, and it was not easy to state whether they were general paralytics or not. Dr. Duncan thought the term "general paralysis" or any similar term rather hampered the matter by tying one down to some particular treatment, instead of allowing individual cases to be treated, so to speak, on their merits without any label. He wished to make it perfectly clear that this was a syphilis of the nervous system.

Dr. McRae made one or two remarks about the views held by young men thirty or forty years ago. The majority of young men to-day had either forgotten or had never been aware of what was known to their fathers and grandfathers. Of course, to suggest that a case was general paralysis because it died and another case was cerebral syphilis because it recovered did not carry one very far. Dr. McRae had made an interesting remark on the question of whether a strain of mosquitoes could be kept going for years without any alteration of pathogenicity. This was a matter about which the present speaker knew nothing, but from his general knowledge of bacteriology, he would say that it was very likely that transmission from individual to individual, unless one transmitted periodically through the mosquitoes themselves, would result in a decreased value of the strain from the point of view of pathogenicity. On general pathological lines, a strain of the malarial parasite should, before it had been used more than three or four times, be passed through mosquitoes again. Dr. McRae then referred to the important point that general paralysis could not be diagnosed until a certain amount of harm had been

done to the central nervous system, and he asked whether that damage could be made good. He also referred to a remark made by Dr. Nicol that certain cases which had been treated by malaria and which some months afterwards had died were found to have no granulations in the floor of the fourth ventricle and no opacity on the surface of the brain. If Dr. Nicol meant that that was an indication that malaria had removed the opacity and the granulations he would feel exactly as Dr. McRae felt.

Finally Dr. Ross kindly made certain corrections in the summary of his previous remarks, and also drew attention to the fact that although Dr. Rice thought that malarial treatment could not be carried out in remote places, this in fact had successfully been done.

So much for the discussion which had taken place that afternoon. He wished now to consider rather more generally the trend of the discussion, both now and last November. The most important questions which had arisen in the discussion on the two occasions had been, firstly, the diagnosis of the disease, and, secondly, its treatment. Naturally, the question of diagnosis must be paramount. From the point of view of diagnosis there were three separate things to consider. The first of these was the physical signs on which general paralysis was frequently diagnosed. He thought that when they spoke of physical signs they should mean physical signs pure and simple. These signs were of very great importance from the point of view of diagnosis, but they were very frequently confused with mental signs. The second point was as regards the mental signs. In an ordinary early case, which might or might not be general paralysis, one came across exaltation, euphoria, and all sorts of erratic conduct, but these signs, so far as he personally was concerned, were not definite evidence of general paralysis. The only definite mental evidence was the existence of a certain degree of confusion of a particular type—a type which, he thought, was familiar to everyone. Cases which exhibited this type of confusion went on to an inevitable end. Cases without this type of confusion frequently remitted, and remitted under various forms of treatment. If the question of diagnosis was to be taken on the mental symptoms alone, he was afraid it would require a great deal of thought before any of them could set down those mental symptoms specifically, and state that general paralysis could be based upon them. It took quite an effort to separate out the true mental symptoms of general paralysis. The third type of evidence was the serological evidence. There were, he was quite certain, a number of cases of general paralysis which could certainly be diagnosed as such on the basis of physical and mental symptoms, which gave negative serological signs. This

was probably due to the fact that they contained no spirochætes in the cortex, or probably in the body, and had not contained any for a long time, but still showed these mental and physical signs.

The important question which arose here was whether general paralysis must only be diagnosed when the physical, mental and serological signs agreed. If so, the field within which the term "general paralysis" was used was a very limited one. If it was necessary to accept all these three varieties of signs before general paralysis could be diagnosed, cases with negative serological signs must be excluded, even though they gave positive physical and mental signs. Was it necessary to have this trinity of evidence? Could not physical and mental signs be evidence of syphilitic disease of the nervous system, marked serological signs being taken as probably indicating obvious and definite active syphilis, while the absence of such signs might mean either a very early stage of the disease, or possibly a condition in which no active syphilis or syphilis of importance was present, although the secondary results were very marked? At any rate, if it was specifically stated what was meant in the diagnosis, then they knew where they were. If they knew what they meant by general paralysis, they could then go on to the question of what exact physical, mental and serological signs were necessary to establish diagnosis. That, again, was a question which required some consideration. It was only this which had to be done, but the word "only" in this connection was a longer word than "Mesopotamia"!

He did not want to throw any doubt upon the claim for 90% correctness in the diagnosis of average cases of general paralysis. He was merely drawing attention to the various stumbling-blocks which could be found if it was desired to state precisely what was meant by general paralysis, or to indicate precisely how to diagnose with certainty any and every case presented. This was a much more important matter than appeared at first sight. Recent methods of treatment appeared, as a rule, either only to have given good results, or to have been employed, in cases where the diagnosis was, to say the least of it, uncertain. Every effort had been made to apply the treatment to what were called early cases, to cases where a certain degree of uncertainty existed, because these cases were regarded as the most favourable for cure. It was clear that classical progressive general paralysis was a fulminating cerebral dissolution, and not merely a spirochætosis. What could a spirochæticide do in such a case as that? Further, had malaria ever been proved even to be a murderer of spirochætes?

He came now to the question of treatment, and here he desired to refer in some detail to a most remarkable paper by Dr. Richard

B. Wilson, which was published in the last number of *Brain*. Dr. Wilson referred to thirty-eight cases of general paralysis. He did not state that they were fairly early cases. They had run a clinical course fairly typical of paresis. Then he classified them not according to the type or duration of case, the type of general paralysis, or anything of that sort, but solely according to the length of time after malarial treatment at which they died. Some died during treatment, some a fortnight afterwards, some three to six weeks afterwards, some three to five months afterwards, some six to nine months afterwards, some one to two years afterwards, and some three to five years afterwards. Dr. Wilson made some astounding statements with regard to these cases, and he produced some of the most beautiful microphotographs of the cortex that the speaker had ever come across. These were very fine examples of the cortex indeed. The first of his figures gave a most acute, strong, and diffuse infiltration of the cortex, the blood-vessels, etc., which occurred in a case of general paralysis dying during treatment. If he (the speaker) had examined that cortex, he would have said that it signified an extremely advanced general paralysis. When one went through these various photographs one found later on that the cases, as one might expect, if they were not acute, fulminating cases, showed less marked signs in the cortex, and in a couple of years they showed practically no signs of general paralysis. But the astounding thing to the speaker was that in these cases Dr. Wilson should speak of a *restoration* of the architecture of the cortex. He seemed to be satisfied that malarial treatment had removed from the cerebral cortex all those gross physical signs which had been produced by the severe action of syphilis. His paper was simply astounding from that point of view. If it were really established that malaria could cure those neuroglia changes one could almost believe anything, for it was known that these were due to a general action of the syphilis, not to a local attack of spirochætosis. If it were really possible to remove such conditions as Dr. Wilson showed in his earlier pictures, the speaker could not understand why any of them need ever die! All they had to do was to be infected with the malarial parasite, and they would be cured from all the secondary reactions of repair from which the body suffered. If credulity could be pushed thus far, it was not surprising that malaria had been credited by many with more influence than any other systemic irritant or constitutional disturbant. The speaker had seen many cases of general paralysis remit after pneumonia, and even after accident, and constantly after good nursing and fresh air. He would never suggest for a moment that any of the forms of pyrexial treatment or other treatment were of

no effect, but they could not be regarded from the purely specific point of view. It was quite inconceivable that the ordinary euphoric and grossly confused cases which died so suddenly or rapidly, and whose brains contained no spirochætes, could be cured by malaria; besides, such cases never remitted. On the other hand cases which did not exhibit the same marked vicious circle as was exhibited in these fulminating cases might be treated, for they did not run such an inevitable course.

He thought the balance of evidence, as brought out in this discussion, necessitated the reduction of malaria from the altitude of a specific for general paralysis to the mere position of a constitutional irritant. Tryparsamide, on the other hand, appeared to have partly justified its claim as a spirochæticide.

As a last word, he thought they could all say the discussion had been extremely valuable, and had clarified the ideas of many of those who had been present, though it would be unwise to credit it with having brought out any notable contribution to the knowledge of the subject of the diagnosis and treatment of general paralysis. That remained an open question for general future investigation.

Dr. J. L. BASKIN (Berks), whose ill-health prevented his attendance, wrote: "I am sorry I had not the privilege of hearing Dr. Brander's paper, especially as the disease receiving the nomenclature, tallies with the description by Dieulafoy, '*Quelques uns arrivent au terme de leur existence ayant conscience de leur decadence, leur intelligence est affaiblie mais ils n'ont pas d'alienation*' (ninth edition, 1896). This disease, like the gout, shows itself in the very highest of our species—there is no poor man's general paralysis. For years my experience had led me to look behind the erudite opinion of the late Sir George Savage (that general paralysis was commonly found in the husband of the voluptuous type of woman), and on the arrival of the Wassermann reaction and the later Sigma test, I came to the same opinion as Dr. Nathan Raw, 'No syphilis, no G.P.' I may say, modestly, that I have seen an average amount of this disease in my work, first in the Mental Hospital, Belfast, then in the Devon Mental Hospital, but among the higher grade of patients seen in the large private asylum, where I was fortunate in having plenty of leisure to follow up the cases, I came across a good number, and most of them were unusually interesting.

"I remember well the visit of Dr. Mercier to see one case; he disagreed in his diagnosis with both my colleagues and myself, although I had paid attention to this case sufficiently to write a monograph

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He thought the balance of evidence, as brought out in this discussion, necessitated the reduction of malaria from the altitude of a specific for general paralysis to the mere position of a constitutional irritant. Tryparsamide, on the other hand, appeared to have partly justified its claim as a spirochæticide.

As a last word, he thought they could all say the discussion had been extremely valuable, and had clarified the ideas of many of those who had been present, though it would be unwise to credit it with having brought out any notable contribution to the knowledge of the subject of the diagnosis and treatment of general paralysis. That remained an open question for general future investigation.

Dr. J. L. BASKIN (Berks), whose ill-health prevented his attendance, wrote: "I am sorry I had not the privilege of hearing Dr. Brander's paper, especially as the disease receiving the nomenclature, tallies with the description by Dieulafoy, 'Quelques uns arrivent au terme de leur existence ayant conscience de leur decadence, leur intelligence est affaiblie mais ils n'ont pas d'alienation' (ninth edition, 1896). This disease, like the gout, shows itself in the very highest of our species—there is no poor man's general paralysis. For years my experience had led me to look behind the erudite opinion of the late Sir George Savage (that general paralysis was commonly found in the husband of the voluptuous type of woman), and on the arrival of the Wassermann reaction and the later Sigma test, I came to the same opinion as Dr. Nathan Raw, 'No syphilis, no G.P.' I may say, modestly, that I have seen an average amount of this disease in my work, first in the Mental Hospital, Belfast, then in the Devon Mental Hospital, but among the higher grade of patients seen in the large private asylum, where I was fortunate in having plenty of leisure to follow up the cases, I came across a good number, and most of them were unusually interesting.

"I remember well the visit of Dr. Mercier to see one case; he disagreed in his diagnosis with both my colleagues and myself, although I had paid attention to this case sufficiently to write a monograph

owing to the grandeur with which this patient expatiated on his 'fleet of yachts' and 'stables.' Now, without further digression, may I stress what (in my opinion) is of the most vital importance, *viz.* the view that treatment should be started at the earliest opportunity? I feel so strongly on this that before waiting for a Wassermann or Sigma I should, on the clinical signs alone, plus, of course, a provocatively corroborative history, start treatment on the patient's first visit to my clinic or study, to be followed later by the systematic and most approved methods of practice.

"I find that in this opinion I am in harmony with many who have had much experience in medicine, especially Sir Frederick Mott, Dr. Soutar, Dr. R. M. Stewart and others, but I have decided for instant action, on account of two very similar and important cases that I have seen during the last few years.

"One of these cases turned out not to be general paralysis, and the second seems likely, also, to be an unusual case; in it the physiological characteristics appeared to mask the restricted pathological findings (*i.e.*, Wassermann, Sigma). I will not take up time here by going deeply into the diagnosis of this case and its treatment, but when a healthy-looking man, equally active and athletic, develops a septicæmia followed by focal myelitis, as this case did, immediate treatment with salvarsan intravenously (avoiding the colloidal form—so productive of anaphylactic shock) is called for. This treatment can, of course, be reinforced by mercury inunction or vapour. But let me emphasize the avoidance of iodides (although the action of intramine may be enhanced by iodides as stressed in the Hunterian lectures of Mr. Macdonagh) from the baneful effects of iodides which I have seen in these cases, I recommend their avoidance.

"I have never seen fatal results from salvarsan in early cases without concluding that the dose had been insufficiently graded, too large a first dose or insufficient attention to blood-pressure (which is of great import), and lastly, the state of the kidneys and heart. I agree with Dr. Shaw that there is here one variety of spirochæte; but, like the bacillus of tuberculosis, long incarceration in nervous tissue with poor oxidation may in the course of years not only change its character in certain directions, but its toxic products acting on this environment may lead to apparent variation, acting in a vicious circle.

"I agree with Dr. Brander's remarks that the loss of expression, tremors, spasticity, etc., may be due to changes in the basal ganglia or substantia nigra. There is no doubt that many cases may have been carriers of the spirochæte, which, locked away in tissue, has started a period of recrudescence due to some trauma, toxæmia or other cause.

"May I say that I think a duty rests on the specialist to keep accurate registration of these cases, as advised by Lt.-Col. Lord."

CLOSE OF THE DISCUSSION.

Dr. LORD said that the meeting would desire to express its great thanks to Prof. Shaw Bolton for having on two occasions summarized so ably their views on this subject. He had clarified the minds of all of them of many difficulties in regard to this subject.

Dr. MENZIES seconded the vote of thanks for the President's most able summary, but with regard to what he had said about malarial therapy, the old Biblical phrase occurred to him, "Had Zimri peace, who slew his master?"

The vote of thanks was accorded by acclamation, and the discussion then terminated.

Clinical Notes and Cases.

Habit-formation. By OWEN BERKELEY-HILL, M.A., D.M.Oxon., Lieut.-Col. I.M.S., Medical Superintendent, European Mental Hospital, Ranchi, Bihar and Orissa, India.

IN every mental hospital one of the most trying duties of the medical and nursing staff is the correction in certain patients of habits which, apart from their intrinsically disagreeable nature, exert a retarding effect on rehabilitation. Among such habits the most common are those which have their roots in auto-erotic, anal-erotic and exhibitionistic phantasies, such as masturbation, copious salivation, collecting rubbish, and disregard for the proprieties in respect to the excremental functions. In order to ensure that patients who have bad or disgusting habits may be brought and kept under special observation and treatment I have this year devised a chart called the "Habit-formation Chart." Altogether fifty-eight of these charts were issued in the course of the current year among an average population of two hundred European and Eurasian patients. In column 1 of the chart is recorded the nature of the disagreeable habit or habits (for a patient may have more than one bad habit at a time). In column 2 is recorded the prescription (or prescriptions) which appear likely to give the best results in each particular instance, *i.e.*, when the age, sex, personal traits and the nature of the mental disorder of the patient have been taken into full consideration. The habit-formation chart is then sent to the ward sister, who takes measures to ensure compliance with the instructions. At the end of each week the effects (if any) of the treatment are noted by the ward sister in column 3 and the chart passed on to the occupational therapists for any notes they may wish to make, for the closest co-operation between nursing sisters and occupational therapists is highly desirable. These charts are now ready for inspection by the medical superintendent during his weekly review of the occupational therapy reports. The results which have so far followed this procedure have been highly satisfactory. Out of a total of 58 patients treated along these lines, 41 patients have been cured of their bad habits. In a number of cases strict personal supervision by the nursing staff has proved sufficient to effect a cure. On the other hand, a tendency to collect rubbish and stuff the

pockets with it has usually been checked by sewing up the pockets, or by the confiscation of bags, etc., devoted to the conservation of undesirable odds and ends. The inculcation of smoking or of chewing gum has helped considerably to check, at least in non-smokers, the habit of copious spitting. Other cases of spitting have been treated by small doses of atropine and morphine. In some cases disciplinary measures, such as debarring the patient from attending dances, cinema shows, etc., have effected a cure. In this hospital, where every patient is at liberty to walk in and out at any time in the day, the deprivation of this privilege ranks among the few severe disciplinary measures, and so far has not been utilized in this connection. Apart from any special measures directed against the bad habits of individual patients, it is perhaps of some interest to mention that a general improvement of behaviour has been apparent throughout the hospital ever since the abolition of any attempt to segregate the sexes in different sections. Ever since male and female patients have been allowed to occupy the same ward the standard of individual behaviour has been distinctly raised, and most of the acts connoting a lack of proper feelings of shame have become very uncommon. It is in some ways fortunate that the mental hospitals in India, whether for Indians or Europeans, have never been subjected to any outside control other than that of a senior administrative medical officer of the province in which they happen to be situated. The history of psychiatry in India affords ample evidence that the public, official and unofficial alike, have always reposed complete confidence in the honour, integrity and professional knowledge of medical superintendents of institutions. No suggestion has ever been made for the creation of any accessory measures for supervision, such as exists in England in the Board of Control. While this unqualified confidence in the men in charge of mental hospitals in India may have, from time to time, led to some slackness or inefficiency, no medical superintendent of an asylum or mental hospital can ever have had cause to complain that his efforts to promote the advance of psychiatry were hampered by official interference.

HABIT-FORMATION.

Name _____ RECORD. Date _____

Habit.	Methods adopted to correct.	Result.	Remarks.
1	2	3	4

An Echinococcal Cyst of the Liver infected with B. typhosus. By
G. W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M.Eng.,
Deputy Medical Superintendent and Pathologist, Dorset
County Mental Hospital.

L. C.—, æt. 67, who had been a patient in the hospital for some months, was taken ill with what was thought to be a central pneumonia. She was restless and violent, and resisted any attempt to examine her, so that it was quite impossible to obtain any definite physical signs. Her respirations were 26, pulse 86, and temperature varying round 102° F. Her blood on November 13, 1928, gave a count of 7,450 leucocytes; the Schilling hæmogram and polynuclear count prior to and during her illness are shown in the following table :

Date.	Basophils.	Eosinophils.	Neutrophils.				Lymphocytes.	Monocytes.	Polynuclear count.					Weighted mean.
			Mycocytes.	Metamyelocytes.	Band forms.	Multilobed forms.			I.	II.	III.	IV.	V.	
November 7, 1928	5	5	...	...	...	56	26	18	9	39	47	4	1	2.49
November 13, 1928	...	...	...	1	31	43	19	5	69	30	1	0	0	1.30
November 17, 1928	...	...	...	1	20	43	33	3	63	33	4	0	0	1.41

Owing to the large number of cells in groups I and II in the polynuclear count a bad prognosis was given. Her blood had been examined in the course of routine examinations 6 days previously, on November 7. The presence of a monocytosis could not be explained at the time. After 5 days' illness she died without showing any material change.

Post-mortem.

The autopsy, made twelve hours after death, showed little abnormality for a woman of her age. The lungs were perfectly healthy. The heart showed severe sclerosis of both aortic valves and also some sclerosis of the mitral valve. The heart muscle was pale. All vessels were thickened, and atheroma of the aorta was well marked. There was nothing abnormal in the head. The stomach and the whole length of the intestine were healthy. The liver showed a cyst containing thick cheesy pus, lying alongside the gall-bladder. The liver and gall-bladder were removed *in toto* as a museum specimen. Both kidneys were sclerotic, with adherent capsules. The spleen showed some diffuse fibrosis and slight perisplenitis. As the infection of the cyst was taken to be an ordinary secondary infection, no attempt was made to culture the contents of the gall-bladder. A loopful of pus was removed from the centre of the cyst, taking care to avoid contamination, and plated on McConkey's medium. Culture yielded *B. typhosus* and *B. lactis aerogenes*. Hooklets were found in fair numbers.

The infection of an echinococcal cyst with *B. typhosus* would appear to be a distinct rarity. The patient was obviously a typhoid carrier, and it is a great pity that the bile was not cultured. An interesting feature was the absence of eosinophilia and the

presence of a monocytosis. The severe shift to the left of the polynuclear count indicates that the infection of the cyst by *B. lactis aerogenes* evidently reacted severely on the bone-marrow. Cases of infection of an echinococcal cyst with *B. coli*, *B. lactis aerogenes*, *B. proteus*, streptococci and staphylococci have all been described. Peyre (1) describes the infection of an echinococcal cyst with a Gram-negative bacillus of the Salmonella group. In this case the cyst was not discovered until it discharged through an operation incision. Abadie (2) has described a suppurating dermoid cyst of the ovary containing typhoid bacilli.

My thanks are due to Dr. P. W. Bedford, Medical Superintendent of the Dorset Mental Hospital, for permission to publish this case.

References.—(1) Peyre, "Hydatid Cyst and Salmonellosis," *Presse Méd.*, 1928, xxxvi, p. 35.—(2) Abadie, "Suppurative Dermoid Cyst of the Ovary containing *B. typhosus*," *Bull. et Mém. de la Soc. Nat. de Chir.*, 1928, liv, p. 356.

Medico-Legal Notes.

REX *v.* ROBERT WILLIAMS.

THIS case was tried at the Central Criminal Court on January 9, before Mr. Justice Humphreys.

The accused, a carpenter, *æt.* 28, was charged with the murder of Julia Mangan, who was found in Hyde Park on October 23, 1928, with a wound in her throat. He had also attempted to kill himself. He had been tried at the preceding sessions, when the jury had disagreed. The defence, on both occasions, was that the act had been committed in a state of epileptic automatism.

The accused man's story was that while talking to the girl noises came into his head; it seemed "as if steam was coming out of the sides of his head, and as if a red-hot iron was being forced in behind his eyes." He thought that he saw Lon Chaney (a film actor, whose presentment on the screen would appear to be terrifying) making faces at him. He did not remember using the razor with which the crime was alleged to have been committed. The next thing he remembered was a nurse washing his feet at the hospital. There was, however, evidence that he had said to a constable, at the hospital, "I did it; she was teasing."

Evidence having been given of the existence of a number of cases of insanity in the family of the accused, medical witnesses were called. Dr. J. C. Woods stated that he had examined Williams on two occasions, and had formed the opinion that he was suffering from an epileptic attack at the time of the crime; there were many epileptics who were subject to states of automatism, during which they were completely irresponsible. The "vision" of Lon Chaney might have been a reproduction of something the accused had actually witnessed, or it might have been just a figment of the mind. Dr. W. R. K. Watson, medical officer of Brixton Prison, stated that he had seen no signs of epilepsy or insanity in Williams; he saw no reason to think that Williams did not know the nature and quality of his act, but he would not express a definite opinion, in view of the lapse of time between the date of the crime and his own examination.

No evidence is reported as to any previous epileptic manifestations in Williams; this is a very important point.

The judge, in his summing-up, instructed the jury that if Williams's statement at the hospital indicated that he knew he had cut his own throat, or that of the woman, it was quite inconsistent with epileptic automatism. He could see nothing in the alleged vision of Lon Chaney that would indicate epilepsy. Had the accused seen a terrifying film it was not remarkable that he should recall the experience during a moment of emotional stress.

The jury found Williams guilty, and he was sentenced to death. The judge told the jury, after the sentence, that the Home Secretary possessed power to order the fullest investigation, and that this power would, no doubt, be exercised. Since then the death sentence has been commuted.

AN INTERESTING CASE OF ALLEGED DUAL PERSONALITY.

This somewhat unusual defence was set up in a case tried at the Oxford police court on February 19.

The accused, whom we will refer to as "M." (it seems only fair, in view of the ultimate disposal of the case, to suppress the name), is a school-boy, æt. 17, the son of a clergyman. He was accused of stealing a gold cigarette case, valued at eleven guineas, from the counter of a jeweller's shop. He asked to see some gold cigarette cases, and expressed himself as not satisfied with those which were shown him. The assistant went away to fetch some more cases, and on returning found that M. had left the shop, and that one case was missing. A detective sergeant saw M. in another jeweller's shop, and questioned him about the purloined case. M. said that he had bought it some months before. When told that he would be taken to the police station, M. ran away, was pursued and caught, and then confessed to the theft. Among his possessions at his school there was found a bag full of life-preservers, knuckle-dusters, and bowie knives; these had been bought by him, and there was no allegation that they had been stolen.

The solicitor who appeared for the defence said that M. was subject to obsessions. He had a craze for collecting Chinese images, and tried to make the acquaintance of Chinamen. An obsession for knives and pistols occurred later. The headmaster of the school gave M. a good character for honesty, and said that, apart from the obsessions, he was quite a satisfactory lad.

Dr. Harrison Hall stated that he had examined M., and described him as suffering from dual personality. He would be perfectly normal for a time, and then would become enthralled with the idea that he was someone else.

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M.'s father said that the lad would be placed under skilled medical treatment. On one Good Friday, when engaged in painting pictures of the crucifixion, M. became so obsessed with the scenes that "they had to take his thoughts right off the subject."

The magistrates dismissed the case, under the Probation of Offenders Act.

There would appear to be ample evidence of abnormality in this lad's case. But the existence of true "dual personality" is not so plain, judging from the details given in the report. There may, of course, have been other evidence, of which we know nothing. M.'s conduct in the shop, and when confronted by the detective, reads very like what we should expect in an ordinary case of theft. While not denying the occurrence of dual personality, there can be no doubt that the condition is a rare one. Such a defence, in a criminal case, should be received, and is received, with great caution. That the magistrates acted as they did does not necessarily imply that they accepted this defence. They may have had quite other reasons for their action.

REX v. ELLEN BEATRICE CARVELL.

The accused in this case is a married woman, *æt.* 32, living at Worcester. She was charged with the attempted murder of her two children, *æt.* 3 and 5 respectively, and with attempted suicide. On December 28, 1928, her neighbours heard groans proceeding from her house. They found the doors locked, broke a pane of glass, got through the window, and found the accused and the children lying on the floor of the kitchen, with the taps of a gas stove turned on. The children were on cushions, which were placed on a rug, with toys and halfpence beside them. The accused and the children were taken to hospital. A letter was found pinned to the under-vest of the accused, addressed to the Coroner, and stating that she intended to end her life and the lives of the children on account of neglect on the part of her husband. There was also a letter addressed to her husband, in which she expressed the wish that she might "haunt" him to the end of his days. When committed for trial by the magistrates she was granted bail—a course which is unusual in cases of this kind.

The case came before Mr. Justice Roche, on January 28, at the Worcester Assizes. A plea of "Guilty" was entered, but the judge refused to accept this plea, saying that the accused had never been under observation, and that it was evidently desirable that her mental condition should be investigated. He postponed the trial

until the forthcoming Monmouth Assizes, and directed that the accused should be kept under observation in Birmingham Prison.

On February 8 the case came on again, at Monmouth, before Mr. Justice Roche. The undisputed facts, as outlined above, were related. Evidence was also given that the accused had always been a devoted mother, that she had worried over the fact that she was pregnant, and especially at having been told by a midwife that another confinement would be fatal, and that she was very sensitive about being deaf.

Dr. M. Hamblin Smith, medical officer of Birmingham Prison, stated that she had been under his observation since her appearance at Worcester. Having regard to all the circumstances, he was of opinion that there was good reason to consider that she was insane at the time of the act, in that, although she knew its "nature and quality," she did not know that it was wrong.

The jury found a verdict of "guilty but insane," and the usual order for detention during His Majesty's pleasure was made.

The delay which occurred in the final disposal of the accused indicates the objections which exist to the granting of bail in a case obviously requiring careful observation and investigation.

REX v. JOSEPH REGINALD VICTOR CLARK.

This case is of interest in raising the question of what value should be attached to a confession made by an accused person.

Clark was 20 years of age, and was charged with the murder of a Mrs. Fontaine, to whose daughter he was engaged to be married. The murdered woman had annoyed him by repeating some objectionable remark made against him by a third party. He seized her by the throat with such violence as to cause suffocation. He then made an attempt to throttle the daughter, and inflicted injuries upon her throat with a pointed instrument. He was advised that the only possible defence would be one of temporary insanity, but he appears to have considered that no such plea could be successful. The case came before Mr. Justice Finlay, at Liverpool Assizes. Clark adopted the course (unusual in charges of murder) of pleading "Guilty." The learned judge asked him whether he thoroughly understood that he was pleading "Guilty" to a charge of murder, and whether he clearly realized what was the only sentence which could follow the acceptance of such a plea. Clark having replied in the affirmative, the plea was accepted, and the death sentence was passed.

Clark subsequently appealed, and asked that the case should be sent back and tried upon the indictment. The reasons he set out

in favour of his appeal were that since the trial his perspective had altered. He alleged that he had made his original plea because (1) he felt that he ought to take the consequences of his action, (2) he knew that the trial would prove a heavy strain upon Miss Fontaine, whom he wished to spare further pain, (3) he believed that he was expediting the course of justice, (4) he could not countenance a defence of insanity, although he had lost his head when he committed the assault. On his behalf counsel argued that if an accused person appeared to have an object in making a false confession of guilt, or if he made it through delusion, fear, or simplicity, such confession should not be accepted. Here was, said counsel, a case in which a man had made a confession in order to save pain to others. The *post-mortem* examination had shown that the deceased woman's lungs were diseased, and that the assault had only hastened her natural death.

The Court, however, refused to allow the appeal. Mr. Justice Avory, who presided, said that the point about the diseased state of the deceased woman's lungs was no answer to a charge of murder. There was nothing to justify the Court in interfering with the result of Clark's confession. The Court was driven to the conclusion that no plea of insanity could possibly have succeeded had the case been tried in the ordinary way.

Clark has since been hanged.

Confessions which prove to be false are sometimes made from a desire for notoriety, but such was not the case here. Clark's confession appears to have been deliberate and considered, and there would seem to have been no reason for rejecting it.

Occasional Notes.

THE EVOLUTION OF THE "NERVE" HOSPITAL AS A FACTOR IN THE PROGRESS OF PSYCHIATRY.

IN reflecting upon the work of the modern psychopathic hospital, such as the Maudsley, one cannot fail to be struck with its resemblance to that of the enlightened psychiatrists of Græco-Roman times (500 B.C.—A.D. 500), an era of rationalism in mind-healing. If we had time to linger in the villa and gardens of Asclepiades in the Imperial City about 90 B.C. it would only be to lament that 1,000 years or more of the blackest patch in the darkest age of mankind had to pass before we should see signs of a return to psychiatry free from the domination of superstition and demonology, and obedient to both the dictates of humanity and the institutes of medicine.

The return was no sudden affair. Those practising psychiatry at the Renaissance slowly began to fling in their zeal for the driving out of evil spirits from the bodies of their helpless patients. Superstitious notions had for them gradually lost their hold as a basis of treatment and nothing had yet come along to replace them.

A period of apathy and indifference followed, lasting about 200 years, during which physicians were content to see the mentally afflicted languish in a brutalizing captivity of some kind or other, at the mercy of lay keepers, and receiving little or no medical treatment—certainly none directed to the cure of their complaint.

The reincarnation of psychological medicine really began with the advent of the "moral" treatment of the insane about the middle or so of the eighteenth century. It is well to be clear as to what was meant by "moral" treatment, about which there is some confused teaching. If one refers to the literature of the times one finds that it meant treatment addressed to the patient's mind as distinguished from medicinal treatment. By "moral" was implied mental "default"—something requiring correction. Its earliest forms were those of shock therapy, repression and physical restraint, which were applied in an endless variety of ways. It was designedly mental coercion, much of it experimental, and not merely a senseless

exhibition of cruelty or brutality—at least it was not meant to be such by the respectable physicians of those days. These predecessors of ours had, as we have now, what to them were rational grounds for their treatment (*vide* Guislain's Lectures, 1852).

Conolly, in his *Treatment of the Insane*, 1856, p. 13, says :

“ In medical works of authority, the first principle in the treatment of lunatics was laid down to be fear, and the best means of producing fear was said to be punishment, and the best mode of punishment was defined to be stripes. The great authority of Dr. Cullen (*First Lines of the Practice of Physic*, 1784), certainly one of the most enlightened physicians of his time, was given to this practice, although his theory of madness was that it depended upon an increased excitement of the brain.”

Boerhaave, in his *Aphorisms* (1728), prescribed shock treatment for melancholia, and the rotating chair of Dr. Darwen found many advocates both at home and abroad.

Now the “ non-restraint ” form of moral treatment, which in course of time followed Pinel's dramatic freeing of the patients of their chains at Bicêtre in 1795, was not a psychological conception at all. Out of the practice of treatment by mechanical restraint, and partly as an expression of the inhumanity of those times, there had grown an abominable state of affairs in asylums, both public and private, and this, together with its causes, was ultimately swept away by the nineteenth century wave of Christian love, charity and philanthropy initiated by Tuke, Duncan, Conolly, Shaftesbury, Dorothy Dix and others.

The “ non-restraint ” moral treatment is therefore more appropriately called the “ humane ” treatment. To quote Sankey, writing in 1866 :

“ The aim of the newer system is to cheer, to conciliate the patient, to produce good feeling towards his custodian ; to raise, not to depress him, to fill his mind with the pleasurable emotions of hope, love, thankfulness ; to inspire confidence, and which leads him to obey in order that he may oblige, that he may obtain and retain the affection and friendship of those under whose care he is ; and this result is not only attainable, but is almost universally achieved in English asylums.”

All praise be to those who established this humane treatment. True, it was essentially directed from the heart and not from the head, but it helped to rehabilitate psychiatry as a reputable branch of medicine. The substitution was a slow and not a sudden process, as is commonly thought. Even in 1866, over seventy years after Pinel's reforms at Bicêtre, conditions in public asylums were so bad that it was seriously proposed to substitute sisters of mercy for the lay attendants. In that year there appeared, in the *Journal of Mental Science*, a most terrible indictment of the attendants on the insane in an article headed “ Sisterhoods in Asylums ” (vol. xii, No. 57, April, 1866, p. 44). The question was asked, What obstructs, mars, subverts therapeutic and moral

treatment and the plainest dictates of humanity? In the article one finds an ample reply. Only of late years can it be truly said that love, charity and humanity have come to reign supreme in asylums. Still, from the strictly psychiatric point of view, the best that can be said of the change is that it paved the way for a general return to those rationalistic methods of mental treatment which can be justly described as the glory of the Græco-Roman age of medicine.

That scene we witnessed in the villa and gardens of Asclepiades is now well on its way to be re-enacted in every mental hospital.

Psychotherapy, hydrotherapy, massage, rest, exercise, sunlight treatment, occupational therapy, diversions of all kinds are once again prominent in the treatment of the disordered mind. The dictates of humanity alone no longer dominate the situation. The teaching of every school of psychology, the aid of every branch of medicine and of social work are all being mobilized for this purpose, and in some measure have commenced operations. It is true that some of these new-old methods of treatment are but recent introductions in mental hospitals, and their true value has yet to be definitely ascertained. It can only be said of them at present that they have promised well in individual cases. Of scientific psychiatry, this, however, can be said with certainty: that it has enormously reduced the sum total of suffering, both mental and physical, in mental hospitals. But what of the effect on the general recovery-rate? Has there been any response to scientific psychiatry in this respect?

The fact that the reply must be in the negative is causing some concern, especially to those who have to foot the bill.

The recovery-rate calculated on the direct admissions to county and borough mental hospitals (England and Wales) for the period 1871-1880 was 40·32%; that for the last ten years has averaged 31·1%. It therefore becomes legitimate to ask, Has scientific psychiatry failed?

Now the reply to this question in one important particular was supplied by Sir Frederick Willis when speaking recently at the Annual Meeting of the Tavistock Clinic.

It is not that scientific psychiatry has failed for any intrinsic reason. The success of other branches of medicine has undoubtedly been due to earlier diagnosis and earlier treatment, which has permitted of full advantage being taken of the results of research, and thereby of more direct and effective lines of treatment. This cannot be said of psychiatry. The reason for its failure is therefore extrinsic. Mental patients must come under care and treatment, both within and without the law, at a much earlier stage if modern psychiatry is to have fair play. The net must be widespread, and

every opportunity must be afforded for voluntary treatment without delay, as in the case of other illnesses. The most important time of all is that very early stage when the individual fails to master every-day experiences. A normal response to environment is uncertain, and a definite mental illness may become imminent unless appropriate rest and treatment are forthcoming. In a sense it is the treatment of a normal mind behaving badly for some handicapping reason.

It is more and more being appreciated that psychopathic hospitals of the Maudsley type, mental out-patient departments to general hospitals, with beds for rest and observation, and institutions like the Tavistock Clinic must be greatly multiplied. These are the most pressing needs at the moment, and their provision brooks no delay if a serious reproach to psychiatry is to be removed.

Ancillary to these is better provision for the treatment of established though early cases of mental disorder, especially team-work, which was the subject of the Presidential Address for 1926. In an article in this journal (April, 1923, p. 221), we spoke of the early efforts to establish special hospitals for this purpose, which were to be complementary to the existing county asylums. It was a like stagnation in the recovery-rate during the period of the humane treatment, that inspired Hayes Newington to devote part of his Presidential Address in 1889 to this subject. The same reason led to the appointment of the famous Brudenell Carter Committee which recommended the establishment of a special psychiatric hospital in London for the study and treatment of insanity. It was alleged that the failure to cure mental disorders was largely due to such cases being withdrawn from the ordinary methods of hospital investigation and treatment, which had been so fruitful of good in the case of diseases of other kinds.

The Maudsley Hospital, opened in 1923, was ultimately founded upon later ideals, and spread its net to catch mental disorders at a still earlier stage and added prophylaxis as a great objective.

These ideals first found expression at Brighton in 1905, where the Council of the local dispensary established beds for early cases of nervous and mental breakdown, out of which grew the Lady Chichester Hospital. Admission and discharge were as in a general hospital, and patients paid what they could towards their maintenance. Originally the Maudsley Hospital was intended to receive certified cases only (1908), but in 1915 legislative sanction was obtained to admit also voluntary boarders. A still further growth of the "voluntary" ideal resulted in the decision to reserve the hospital entirely for voluntary boarders and to provide an out-patient department.

It was the public asylums that took up the older ideals of Hayes

Newington and Brudenell Carter, and the hospitalization of these institutions commenced and has made good progress. In the planning of new county asylums (chiefly by Mr. Hine), buildings for the separate and intensive treatment of new admissions and known as "hospital villas" were provided apart from the main asylum, and these have also been added to many of the older institutions.

Psychiatry and general medicine are at last linking up, and the recent affiliation of the public mental hospitals in London with the teaching general hospitals is a good stride in the right direction.

Dr. Edwin Goodall and others have for long advocated the establishment of neuro-psychiatric clinics associated with the general hospitals and with medical schools at university centres, the principal object being the reversion of psychiatry to the main stream of medicine. In an article published in the *Lancet* (September 11, 1920) he showed how mental disorders could be brought into the Dawson scheme, and Dr. (now Sir Hubert) Bond referred to the same subject in his Presidential Address for that year. Clinics of this kind would also serve as reception-houses, and thus differ in certain essentials from hospitals of the Maudsley type. An alteration in the law, on the lines recommended by the Royal Commission, is however, needed before they can come into being.

The new Local Government Act, 1929, however, gives the local authorities an opportunity outside the existing Lunacy Acts, of establishing "Nerve" wards and out-patient departments, and also of making better arrangements for dealing with occurring mental disorder within the existing Lunacy Acts.

In all these directions the Association, as well as many members individually, has taken and is continuing to take an active and important part.

The proposal to establish separate receiving-houses does not in these days find the same favour as formerly. These, of course, may need to be separate buildings, but unless they are also units of general hospitals, voluntary or municipal, it is thought that they will tend to perpetuate the separation of psychiatry from the general stream of medicine.

In 1920, the Tavistock Square Clinic for Functional Nervous Disorders opened its doors. It had for its objectives modern psychotherapy, research and education in regard to a great variety of minor psychopathic states and neurological conditions. It was a novel departure and the pioneer institution of its kind in this country. Difficult cases, especially children, are referred to it for examination and report or treatment from the principal London general hospitals, public health and educational authorities and other bodies, and its lecture courses are well attended.

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The clinic has no in-patient department and only deals with recommended cases.

Ever since its foundation it has had a long waiting list, thus demonstrating the need there is for institutions especially devoted to early treatment and prophylaxis of mental disorders and to the treatment of those persistent minor mental and nervous handicaps which are a burden to many peoples lives.

We would like also to refer to the founding in 1923 of the City and University of Birmingham Joint Board of Research in Mental Diseases ; to the opening, in 1927, of the new Reception Hospital at St. Andrew's, Northampton ; and to the progress made at many of the public mental hospitals in Great Britain and Ireland, especially those connected with medical schools and universities. Space will not permit of this, but those interested will find many references to these in other pages of the Journal.

To return to our main theme.

A great event in the further evolution of psychiatric hospitals of the voluntary type was undoubtedly the opening, on April 10, 1929, of the Jordanburn Nerve Hospital and Psychological Institute at Morning-side, Edinburgh—the outcome of the broad and comprehensive outlook of the Managers of the Royal Edinburgh Hospital, inspired by the creative genius of Prof. G. M. Robertson.

THE JORDANBURN HOSPITAL AND PSYCHOLOGICAL INSTITUTE.

This hospital is a completely new departure, and is distinct from the other institutions under the same management, namely Craig House and West House. It has the status of a general hospital.

The In-Patient Department.

The hospital, a one-storey building, accommodates 25 patients of each sex. Its southern aspect has a verandah which runs the whole length of the building and looks out on a garden of two acres in extent at the foot of which flows the Jordan burn, from which stream the hospital takes its name.

The designation "nerve hospital," which was selected in preference to "psychopathic" or "psychiatric hospital," has the approval of Prof. Grierson, who occupies the chair of English Literature in the University. By the courtesy of Prof. Robertson we are able to publish Prof. Grierson's letter on the subject. He says :

"My only objection to 'nervous hospital' is that the word 'nervous' in general use has acquired the sense of 'timid, easily flustered,' and this might militate against your hospital. The right word would be 'nerve hospital.' The

use of the noun as an adjective is a sound English idiom on which continental grammarians often comment, and the great authority Jespersen makes fun of English doctors for their fondness for inventing long Latin or Greek words when the English idiom is available, *e.g.*, insomnia for sleeplessness, gustatory nerve for taste nerve, and even mental nerve for chin nerve. It is true that once an adjective has been formed from a noun then it becomes unusual to use that noun as adjective, *e.g.*, we say Transvaal Government but English Government, but in your case the adjective nervous has unfortunately acquired a popular meaning or at least suggestion. But that is not fatal, and I should prefer 'nervous' to 'psychopathic,' which is horrible, but I think the noun alone would be quite correct and quite clear."

A fourth of the accommodation is reserved for those who cannot pay for their treatment. Those, however, who can, are expected to pay what sum they can afford towards the cost of their maintenance. There are also wards for paying patients.

The Out-Patient Clinic.

Many cases of "nerves" undoubtedly require rest and quietness and removal from domestic and other sources of anxiety, and the provision of bed treatment for them is essential. Others can receive treatment and still carry on in their usual environment. To meet the needs of these, an out-patient clinic has been built costing £10,000. It also affords facilities for the performance of psychological tests and of investigations required in the educational and social service and by the Courts.

The organization of the clinic is very complete.

1. There is a Department for Psychiatry under the University Lecturer on this subject. With him will be associated four physicians attached to the Royal Hospital at Morningside, one of whom will always be on duty. Two of these four are University Assistants.

2. Connected with this Department is one for Mental Deficiency, under the University Lecturer on the subject.

3. There is a special Department for Neurology. This is expected to grow in importance, and may require to be subdivided into sections for (a) functional neuroses, (b) organic nervous diseases, and (c) epilepsy.

4. There is a Psychological Department—a hand-maiden to all the other departments. A conspicuous feature of its activity will be its research work. The Reader in Psychology at the University is the Director, assisted by two other University Lecturers on the subject.

5. There is a Child Guidance Clinic—perhaps one of the most promising departments of all.

6. There is a Social Service Department, under an Almoner. She will visit the homes of the patients to seek out possible causes for their nervous state. A social service worker will see, so far as possible, that the treatment prescribed is being followed out at home.

The work of the Out-Patient Department is gratuitous. Most of the staff are voluntary workers, and it is hoped that such expenses as are incurred will be defrayed by the public in view of the benefits conferred.

Prevention.

The machinery of preventive medicine is to be mobilized against the occurrence of functional nervous disorders, especially in young people. The Clinic will be available to help the educational authorities in the solution of the many problems connected with the precocious, the difficult and the backward child.

The Hospital is also to serve the public by exploring the psychic origins of anti-social conduct, and it is hoped that judicial authorities, in dealing with delinquents, especially juvenile first offenders, will make use of its facilities for mental examinations, as is recommended by the Secretary of State for Scotland.

Team-Work.

The provision of all the necessary machinery for team-work under one roof gives the Jordanburn Nerve Hospital a unique place in relation to problems of a nervous character. Coordination, the keynote of the whole scheme, is effected under the Directorship of the Professor of Psychiatry of the University of Edinburgh for the time being.

Lecture Theatre.

The Managers are building a Lecture Theatre at a cost of £8,000, which will be ready before the beginning of next year. It will be available not only for academic purposes—for the Classes of Psychiatry in the University and in the Royal Colleges School of Medicine, and for post-graduate and special courses of lectures on psychological and neurological subjects—but also for popular lectures of an educational character.

Pathological and Psychological Laboratories.

So much debt has already been incurred by the Managers in establishing the Hospital, the Out-Patient Department and the Lecture Theatre, that the erection of Psychological Laboratories at an additional cost of about £20,000 has been of necessity deferred. The site for these, connected up with the Lecture Theatre and the Hospital, has, however, been earmarked.

Excellent laboratories, however, for histological and bacteriological researches are already in existence about a hundred yards away from the Hospital.

CONCLUSION.

The City of Edinburgh, through the instrumentality of its Royal Hospital and School of Psychiatry, has thus added one more jewel to the diadem it so proudly wears as a seat of light and learning. It is a city famous throughout the world not only as a great centre of medicine, but for the profusion of its institutions for the relief of human suffering and distress. Jordanburn Hospital and Psychological Institute is a noble addition in the interests of national mental hygiene, and is symbolic of the great progress made in the ideals of psychological medicine during the past thirty-five years.

Of the virility of these ideals one can have no doubt, for they are also responsible for the proposal for the establishment in London, with branches elsewhere, of a like organization under the joint ægis of the Tavistock Clinic and the National Council for Mental Hygiene.

The day may perhaps not be far off when it can be truly said of mental disorders and their prevention that they stand equal, both in practice and theory, with other forms of illness, as they did in the days of Græco-Roman medicine over 2,000 years ago.

J. R. LORD.

Part II.—Reviews.

Difficulties in Child Development. By MARY CHADWICK. London : George Allen & Unwin, Ltd., 1928. Demy 8vo. Pp. 412 Price 15s. net.

In no department of thought has the change produced by the Freudian hypothesis been greater than in that of our conceptions of childhood. How far we are entitled to adopt the Freudian theory as our guide will be considered later.

Children, in former days, were taught that they owed gratitude to their parents for the gift of life. Normal childhood was always represented as a period of perfect and undisturbed happiness. Quite apart from any views which we may hold on the psycho-analytic theory, it is obvious that this conception of childhood is due to adult forgetting (it is not necessary to employ the term "repression"). Those of us who will take the trouble to recall, and who are honest enough to analyse the memories of our own childish experiences will realize that childhood, far from being a time of complete happiness, is a period of constant struggle for adjustment. This struggle between what we desire to do and what we are able to do is inevitable, and has, indeed, advantages. But the struggle is often made unnecessarily and damagingly difficult by reason of the ill-judged actions of the adults who deal with the child. The subject-matter of this book is a description of some of these mistakes, of their evil results in after life, and of the way in which they may be avoided.

Miss Chadwick is an orthodox Freudian. She accepts the full psycho-analytic theory, including the Œdipus complex with all that depends thereon; and she points out that this complex has two sides. From this point of view she describes some of the errors, often quite inadvertent, of which adults are guilty in dealing with the children who are so dependent upon them. Cruelty to children need not be of the gross physical variety. There may be psychological ill-treatment, there may be psychological neglect. Whatever may be our opinion about Freud, we can see that the manner in which an infant's nutritional demands are met may have a marked effect upon that infant's character. Common sense, as well as convention, demands that a child should have early and systematic training in cleanliness; but this training can be given without the introduction of the idea of shame and guilt. Bad habits of various kinds must be checked, but this can be accomplished by means other than the severe and summary methods which once were popular.

The fact is that we are inclined to expect too much from children,

many of our demands being not only too extensive, but also inconsistent. We desire that our children should exhibit unquestioned obedience and complete docility towards ourselves, at the same time expecting them to learn to display firmness and independence in other situations. We rebuke children for showing curiosity about our doings, while refusing to allow them any mental or psychical privacy. We condemn them for speaking hastily, while we are often guilty of hasty speech to them. Miss Chadwick discusses certain types of parents, the jealous, the over-conscientious, the sadistic, the untidy, and the over-indulgent and sentimental, the last-named often being those who have themselves been starved of love. The deleterious ways in which these parents may affect their children are described. The dangers of an over-development of that fantasy world into which children often go in order to escape the tyranny of adults are pointed out, as are the bad results produced by the threats which adults only too often make to children. The ill-effects produced by being an only child are noticed.

The book advocates a policy of greater liberty for children, but not a policy of licence. Children must be trained, but they possess equal rights with their parents; they must have freedom to develop, and such freedom must not be accorded only when convenient to adults. Child training has hitherto partaken too much of the old tribal system, the traditional influence of the "old man of the tribe" has been unduly prominent.

The book should be read with interest by all; it will be read with satisfaction by some, with annoyance and pain by others. The reader's attitude will depend upon his personal complexes. In its analysis of human motives the Freudian view is, beyond all question, humiliating. But regarded from the scientific aspect no real pain should result from a fearless facing of the facts, if such they be. The psycho-analytic hypothesis is, when all is said, a theory. Like other theories, the test for its acceptance or rejection is whether it provides an adequate explanation of the facts. Like other theories, it has been, and still is, subject to expansion and to modification. It may be that too sweeping statements have been made by some of Freud's followers, that undue generalizations have been made (as is the case with parts of this book) in connection with the psycho-analytic theory. Time and experience will correct these. But the nature of much of human conduct is not affected by the analysis of the motives which produce that conduct. Parental love still exists, and is still admirable, whatever may be its origin. Freud's is a normal, and not a pathological psychology; but it must not be forgotten that this book deals largely with pathological parental conduct. It is a warning to parents, but it is not intended as a description of the conduct of every parent. As the author herself says, "The wisest of parents are those who thoughtfully look ahead, while remembering their own childhood, know and understand the mind and impulses of the child, guide it and love it all the while."

Great advances have been made in our care for the physical welfare of children. There are indications that their psychical

welfare is now being appreciated as of, at least, equal importance. Parents are exhibiting a desire for instruction in this department of their duty. It is to be hoped that the existing infant welfare centres will be developed in this direction. It is also to be hoped that the care of children's mental welfare will be undertaken by members of our profession; but this will not happen unless we take pains to become acquainted with all the current work on this subject.

M. HAMBLIN SMITH.

Éducation, Dégénérescence et Prophylaxie Sociale. Par HENRI DAMAYE. Paris: Librairie Felix Alcan, 1927. Crown 8vo. Pp. vii + 266. Price 12 fr.

This little book is the fifth of a series by the same author, dealing with the social aspects of neuro-psychiatry. Dr. Damaye is an ardent advocate of mental prophylaxis, and his books are obviously intended for the enlightenment of the public as well as the medical practitioner.

The author insists that there is nothing distinctive about the ætiology or pathogenesis of mental disorder. The mechanism is the same as in disorders of the other organs and tissues of the body and obeys the same laws. Thus, whether the brain or any other organ of the body be affected, there are two main ætiological factors, *viz.*, (1) the constitutional or atavistic causes, and (2) the accidental or personal causes. Among the constitutional causes may be mentioned severe acute or chronic infections and intoxications in the parents or ancestors, *e.g.*, syphilis, tuberculosis, alcoholism, etc. Other factors mentioned are traumata and emotional disturbances in the mother during pregnancy, premature birth, difficult labour, etc. The chief occasional or personal causes referred to are infections and intoxications, emotional disturbances, head injuries, etc. The constitutional factor may produce an actual degenerative lesion in the cell; but more commonly it produces a congenital weakness, so that the cell is in a state of biological inferiority. In consequence less resistance is offered to intoxications and the ordinary nutritional defects of everyday life. The ultimate cause of this constitutional cellular lesion or weakness may be traced to some pathological condition in the parents, the grandparents, or great-grandparents, or to the accumulated defects of the ancestors. Should the inherent weakness in the cerebral cells be only slight, it will require a correspondingly more powerful occasional cause in order to produce the clinical picture of mental disorder. These milder degrees of cellular weakness, moreover, permit of reparation after the occasional cause has ceased to operate. On the other hand, atavistic causes, accumulated through several generations, tend to produce actual degeneration of the cellular elements and to give rise to the constitutional psychopathic syndrome. Occasional causes only produce mental disturbances when there is already a predisposition from atavistic

causes. This fact was eloquently demonstrated during the late war, when it was found that, in spite of being exposed to a combination of personal or occasional causes, only those soldiers who were already predisposed became mentally affected.

These few points are sufficient to emphasize the supreme importance of the constitutional element in the causation of the psychoses and psychoneuroses.

The only means of successfully combating the constitutional causes is by physical and mental prophylaxis. With regard to the infections, intoxications and organic diseases which constitute the main causes of degeneration, these belong to the domain of physical prophylaxis, and, as such, are already being dealt with in a progressive manner. One of the chief objects of mental prophylaxis proper is to disseminate the knowledge of neuro-psychiatry and biology. The individual must be taught not only the nature of mental and nervous disorders and the causes liable to produce them, but also the means of combating those causes. If the present generation were to be enlightened on these matters, the mental outlook for future generations would be more hopeful.

Dr. Damaye maintains that too much time in the schools is spent in teaching the classics and mathematics. He complains that no instruction is given in biology, no enlightenment on sex matters where this is called for, no warning against venereal disease or against infections and other avoidable maladies.

Unfortunately so much space is devoted to a criticism of French laws, customs and institutions that it is doubtful whether the book as a whole will appeal to many English readers.

NORMAN R. PHILLIPS.

Clinical and Experimental Studies in Personality. By MORTON PRINCE, M.D., LL.D. Sci-Art Publishers, 1929. 9½ in. by 6½ in. Pp. xvi + 559. 25 illustrations and diagrams. Price \$5 net.

The slowly (but surely) coalescing "worlds" of academic psychology and of psychiatry alike will welcome this collection of the more important writings of one of the most distinguished authorities on the subconscious aspects of personality. For forty years Morton Prince, free to study, has been investigating these obscure phenomena, and what he considers the best of his writings in brief form are herein included, except for a few recent articles. Lectures delivered in courses at Oxford, Cambridge, London, Edinburgh, Harvard and California Universities are likewise unrepresented. Although in his seventy-fifth year (and the average man looks older at sixty-five), Prof. Prince retains his scientific productivity to a very large degree, as his recent interesting paper read before the American Psychological Association in New York amply testifies. Not long ago he presented his *Journal of Abnormal and Social Psychology*, a prosperous "going

concern," to that Association, under the actual editorship largely of President Henry J. Moore, of Skidmore College, Saratoga.

After a characteristically frank and enlightening preface and historical retrospect of seven pages, with reminiscences of Weir Mitchell, Janet, Freud, William James and Waterman, the book lists the twenty papers which compose it, divided into four groups, Problems of Psychopathology, Problems of Personality, Problems of the Co-conscious, and Problems of Consciousness. The following are the titles of the papers: "The *Rôle* of Meaning in Psychopathology," "The Psychopathology of a Case of Phobia—A Clinical Study," "The Subconscious Setting of Ideas in Relation to the Psychoneuroses," "Association Neuroses," "Suggestive Depersonalization and Repersonalization, or What is Hypnotism?" "Why we have Traits: An Introduction to the Study of Personality," "Miss Beauchamp: The Theory of the Psychogenesis of Multiple Personality," "My Life as a Dissociated Personality," "An Introspective Analysis of Conscious Life," "Experiments to Determine Co-conscious Ideation," "Experiments in Psycho-galvanic Reactions from Co-conscious (Subconscious) Ideas in a Case of Multiple Personality," "Some Problems of Abnormal Psychology," "An Experimental Study of Visions," "Conscious Images," "An Experimental Study of the Mechanism of Hallucinations," "The Theory of the Co-conscious," "The Subconscious" (contributions to a symposium), "The Mechanism and Interpretation of Dreams," "Why the Body has a Mind, and the Survival of Consciousness after Death," and "Hughlings Jackson on the Connection between the Mind and the Brain."

An appendix consists of a hitherto unpublished article written twenty years ago and refurbished as one of his lectures in his Department of Abnormal and Dynamic Psychology at Harvard; it is entitled "History of the Discovery of Co-conscious Ideas." There is next in the volume a list of names referred to, and last of all an ample subject index. The book is well printed and bound.

This work, then, consists of the essentials of Morton Prince's psychology, using the term in its broadest sense; to review it critically would be as laborious as it would be needless and presumptuous. Among others, Prof. W. S. Taylor's work, *Morton Prince and Abnormal Psychology*, has done this expositing very well. The saner and the more conscientious of Prof. Prince's followers will continue their gratification, knowing that analysis of the subconscious or co-conscious can be successfully made without recourse to the Freudian exaggerations. "Of course there is much, very much, in Freudian psychology that every experienced investigator accepts, but this 'much' is not specially Freudian, but is common dynamic psychology" (Preface). In England, probably more generally than in New York, this basic opinion will be concurred in.

He relates in regard to the considerable extent of his *Dissociation of a Personality* (1906) that he purposely, with malice aforethought, constructed it in the form of a dramatic story of great length in order to secure readers "outside of the psycho-analytic school,"

whereas "as a scientific account it well might have been condensed within the compass of fifty pages. I think my little ruse was successful."

In the Preface he also briefly traces the struggles of the dynamic point of view from Janet's classic studies of hysteria in 1887. He says that, even in 1906, when he founded his *Journal of Abnormal Psychology*, there was so little understanding of what it would discuss that some of his outstanding colleagues in the medical profession said that he was about to launch a "spook journal." Those of us who lived in Boston at that time can perhaps well guess who some of these distinguished neurologists and alienists were! "Now," he says, the "Freudian tide is slowly receding, and a safe and sane dynamic psychology is coming into its own again."

The scientific world will certainly welcome this volume into its book-shelves.

GEORGE VAN NESS DEARBORN.

The Psychology of Mental Disorders. By ABRAHAM MYERSON, M.D. New York: The Macmillan Company, 1927. 16mo. Pp. vii + 135. Price 6s. net.

This is a plain spoken and clearly written little book, well planned for its purpose, which is to stimulate an intelligent but non-professional interest in the realities of mental disease. There is a praiseworthy absence of camouflage, and no attempt to anæsthetize the public by the use of such terms as "nervousness," "nervous breakdown," etc., into thinking that the mind is only affected in a condition known as lunacy or insanity.

Too long has this farcical attitude been maintained by fashionable physicians and dilettante social workers who really know better. The mental hygiene movement arose to dispel such insincerities and not to perpetuate them.

Myerson treats his public fearlessly, and seeks to make it definitely acquainted with the truth of the matter. It is a book of rare honesty, which, if read, will do much to dispel popular ignorance on an important subject.

It must not be thought, however, that this is merely a book of propaganda. On the contrary, it is a condensed but readable form of the author's psychiatric views and teaching presented in his larger works, and of educational value to the medical student—in fact it would be difficult to find a more concise, yet comprehensive, introduction to psychiatry.

Myerson in his discourse steers clear of metaphysical or *a priori* conceptions. Mind is a manifestation of life, a function of the organism, and disease of the brain is the cause of disease of the mind. He pays regard more to facts than to tradition, and there is a detached wholesomeness in his attitude rarely to be found in psychiatric writers.

One finishes the book distinctly encouraged in the belief that mental disease is not a hopeless problem, *i.e.*, something to be borne with patience and resignation, but one to be bravely tackled in all

its relationships—a problem, in the first place, for medical science, and of hardly less importance to those interested in normal mental hygiene, economics, industry and the law.

Part I states the problem and then deals with the fundamental concepts of psychiatry.

Parts II and III deal with the symptomatology of the major mental diseases together with their causes. Part IV is devoted to the minor mental disorders (psychoneuroses). Part V criticizes Freud's psycho-analysis as not having the note of a true science.

Which of us, not entirely befogged with this form of meta-psychology, will not feel that there is much truth in the following quotations :

" There have been writers before him (Freud) who stripped the inner covering from the thoughts and motives of men and women, but none who has gone at the job with such a grim and relentless completeness. . . . I am not at all convinced that this inner life (of primitive, seething desire which civilization represses) is unconscious—all one has to do is to watch the covert glances of men and women, to say nothing of the shallowest glance at one's own mind, to know that the unacceptable continually flits into consciousness in its nakedness, and is with more or less difficulty thrust out."

" Whether he has contributed anything very lasting to the study of mental disease is a matter time will settle, but that he has contributed to human thought in a lasting way every candid observer must enthusiastically affirm."

Part VI deals with crime, and is based upon personal acquaintance with inmates of prisons. There is much in it of psychiatric interest, but the entourage is of course American. The author's views on heredity and mental disease are stated in the next part, and are the result of a research conducted by him for the Commonwealth of Massachusetts. They were the subject-matter of a book already reviewed in this journal. Of their importance there can be no doubt. Myerson placed heredity in its true perspective. An excellent chapter on mental hygiene closes the book.

There is not a glib or stale statement to be found in it ; interest freshens with every page, and our final word is that 6s. will be well spent in its purchase.

J. R. LORD.

The Opium Problem. By CHARLES E. TERRY, M.D., and MILDRED PELLENS. New York: The Committee on Drug Addictions in collaboration with the Bureau of Social Hygiene, Inc., 1928. 9½ in. by 6 in. Pp. xvi + 1042. Price 22s. 6d. net.

This study was undertaken by the authors at the instance of an American Committee on Drug Addiction organized in 1921, and was designed to supply the Committee with information on the following points : extent of the chronic use of opium ; the nature and ætiology of chronic opium intoxication ; how the condition should be treated and avoided.

Though much of the book is chiefly of American interest, the "dope" question is one of world-wide importance, and is receiving attention in every legislative assembly, chiefly at the instance of the League of Nations.

As a recent writer on the subject remarks, "Opium has proved one of the greatest blessings and also one of the greatest curses known to mankind," and its control is thus a matter deserving of the closest attention of sociologists.

A comprehensive work such as the present one cannot fail to be of the greatest value to those on whom has fallen the solution of this difficult problem.

The sociological side of it is a big one, and no attempt can be made here to describe or criticize the book before us in this respect. We leave that to other pens, but our impression is that our authors deal with it most ably, and little, if any, ground is left uncovered.

The historical and medical sides are, however, of interest to psychiatrists, especially the latter. The use of opium as a therapeutic agent dates from very early times, the first known mention of it being in the language of the Sumerians, the non-Semitic people who inhabited Mesopotamia three or four thousand years before the Christian era. The use and abuse of opium from those days onwards is the subject of two chapters headed respectively the "Development of the Problem," and "Ætiology." The general conclusion is that, as regards the abuse of opium, the greatest predisposing factor is the make-up of the individual. Further studies in this direction are recommended by the authors.

The general nature of chronic opium intoxication, the pathology of the somatic and psychic changes involved, tolerance, dependence, symptomatology, types of users and treatment are all dealt with historically. For instance, in the chapter on treatment, after a brief introduction, the views and practices (supported by appropriate extracts of their writings) of the following physicians are given: George B. Wood, 1856; Alonzo Calkins, 1871; Horace Day, 1872; A. Stillé, 1874; E. Levinstein, 1875; J. B. Mattison, 1876-93; H. H. Kane, 1880; C. W. Earle, 1880; D. Jouet, 1883; William Pepper, 1886; A. Erlenmeyer, 1886; R. Burhat, 1884; B. Ball and O. Jennings, 1887-1909; Paul Sollier, 1894; William Osler, 1894, and 37 others, in a chapter of 111 pages—a good example of the thoroughness with which our authors have performed their task.

This book is chiefly a work of reference as far as the general reader is concerned, but for those studying the question, either medically or sociologically, it is a work they cannot well afford to be without.

J. R. LORD.

Aids to Psychology. By JOHN H. EWEN, M.R.C.S., L.R.C.P.
London: Baillière, Tindall & Cox, 1929. 6½ in. by 4½ in.
Pp. vii + 163. Price 3s. 6d. net.

This is a recent addition to a popular Students' Aid Series, and like its companions, amounts to a very useful note-book which most students would otherwise create for themselves during a course of reading for an examination or for reference in future literary work.

In both these respects the usefulness of these Aids would be much enhanced if they were interleaved here and there to permit of additional notes.

Aids to Psychology maintains fully the reputation that the whole series has gained for reliability and helpfulness, and can with confidence be recommended to those studying for a diploma in psychological medicine, which one gathers from the preface is the author's main purpose. Among others the author makes use of the well-known psychological works of Stout, McDougall, Woodworth, James, Dumville and Hart—a good selection.

The value of these Aids lies chiefly in the fact that they correlate the views of many authorities on any one point, and lead to a better comprehension and grasp of the subject. This, fortunately, is achieved in an able manner by Dr. Ewen; otherwise such a compilation would become frankly a cram-book and one not to be recommended.

J. R. LORD.

How to Stain the Nervous System. A Laboratory Handbook for Students and Technicians. By J. ANDERSON, Head Laboratory Assistant at the National Hospital, Queen Square, London; with an introduction by J. G. GREENFIELD, B.Sc., M.D., F.R.C.P., Pathologist to the same hospital. Edinburgh: E. & S. Livingstone, 1929. Crown 8vo. Pp. 137. Price 5s.

The want of an up-to-date small handbook of this description has long been felt in every mental hospital laboratory, and this one can be commended without reserve in every respect. It is not overloaded like some of its predecessors with methods of doubtful utility or of historic interest only, but utilizes those in every-day use at the National Hospital, and other hospitals of approved reliability. It is thoroughly practical in every chapter. These comprise fixing and cutting the brain and spinal cord, celloidin sections and staining methods, frozen sections and methods in which they are used, paraffin sections and some special methods in which they are used, special methods for staining fat, iron and calcium, and miscellaneous directions and information.

The useful plan is adopted of first describing a method in general terms, and then giving a *résumé* which gives specific instructions step by step.

J. R. LORD.

Mental Hygiene. By DANIEL WOLFORD LA RUE, Ph.D. New York: The Macmillan Company, 1927. Large crown 8vo. Pp. x + 443. Illus. Price 10s.

We had prepared a lengthy notice of this book, but, on reviewing the completed document, it became apparent that we had gone far beyond the scope of an ordinary review, and discussed the trends of mental hygiene literature at so wide an angle that the merits or otherwise of our author's contribution occupied a secondary rather than a primary place in what we had written. The time, however, has been usefully spent, for the scope and character

of mental hygiene literature generally urgently demands treatment if the mental hygiene movement is not to suffer.

It is a case of "save me from my friends." Enthusiasm tends to outrun discretion; theory is mistaken for fact, and superficial knowledge of the subject is resulting in diffusiveness, verbosity, confused thinking, sensationalism and inaccuracy. This wider treatment is only postponed.

There is no doubt that Dr. la Rue has given his subject the closest study, and a discriminating reader of his book will be rewarded by a rich harvest of valuable information and practical guidance on mental hygiene.

In his preface, addressed to "Dear Fellow Student," our author says: "I have tried to include that which is most interesting and important for you to know in order that you may school yourself and your children or pupils in the ways of the healthy mind and thus contribute to the mental health of the community." The book is therefore addressed to teachers and parents.

Heading each chapter is an exercise, and the paragraphs that follow are of the nature of an exposition of the points thus raised. At the end of each chapter are to be found class exercises, points for further study, topics for special investigation and report (authors are recommended), and a list of references.

The book is written professedly from the psycho-physical angle to impress upon the reader that man is a bio-mental unit. The result is a predominance of physiology. The author early adopts the hypothesis of the identity of experience with brain activity.

For him the psyche is a function of the brain. Later he states that "body causes mental changes and mind causes bodily changes." He rejects every form of psycho-physical parallelism. He apparently finds it not inconsistent to be at one and the same time a materialistic monist and a psycho-physical interactionist. In this he follows the example of Aristotle, whose realism was a monism of substance and a dualism of body and mind. A better statement of this relationship is that all mental processes are dependent on physiological processes. The brain is thus the seat of the psyche, but mental phenomena are dependent upon the harmonious working of the whole organism in all its parts.

We commend this view-point to the author's consideration; the adoption of it will not interfere with the metaphysical views of anyone. It would also pave the way for a more psychological treatment of his subject. To explain thought and behaviour in physiological or a psycho-physical language can never be really illuminating.

It may, when we know something more about the physiological basis of mind, answer the question "how?," but never "why?" For this, though recognizing man's limitations in this respect, we must look to modern psychology and sociology, especially in regard to those dynamic factors, the instincts, accepted by many as the prime movers of all human activity. The conditioning of these by education and the social organization is the basic principle underlying practical mental hygiene.

The author, however, manages to include a fair amount of dynamic psychology of a common-sense and practical kind notwithstanding its physiological bias.

His psychiatry is surprisingly good considering that his personal experience of the mentally afflicted may, as a layman, be small.

The ignorance of the layman betrays itself here and there. Among the questions mental hygiene should help to answer we find: "Is an insane person conscious of pain?" "Why does the physical strength of a madman increase, and why does not the mind grow stronger when the physical organs act so powerfully?" "Will hard thinking on one subject drive a person insane?" "Are we all insane at times?" etc.

The effort to write up mental hygiene in language other than psychological and sociological has led to a coining of new terms, a strange phraseology, and the statement of pure speculations as facts.

It is somewhat appalling to think of our young people being taught to believe and utter these physiological speculations and crudities, and the disaster that might overtake good literature by the substitution, for instance, of "phreno-mens" for brain, "phreno-mental energy" for the vital impulse, "the stream of transmission" for the flow of ideas, "neurograms" for ideas and experiences, and the introduction of other strange and totally unnecessary terms.

Dr. la Rue's decided preference for physiological explanations seems to have rendered him blind to the fact that physiology, like other sciences, distinguishes between its facts and its hypotheses.

He has no justification for preaching the mnemonic principle of Semon's or Prince's registration of thought and other experiences by "neurograms" as if these were physiological facts. Even as hypotheses they are by no means generally accepted—in fact they are certainly opposed to the modern conception of dynamic mind. As Bleuler says, "concepts are not fixed; they are easily supplemented or transformed by subsequent experiences."

All mental processes are pattern actions or reactions, but the mind acts as a whole and in every part and synthesizing of experiences in the psychic personality, which means a constant moulding, trimming, educating, adding new experiences, so that the psychic organization (or if you like it, the neural organization subserving not physiological, but psychic functions) is always up-to-date and efficient, and not mouldy and clogged with an accumulation of useless and cast-off hypostatized "engrams" or "neurograms." Such fixation of engrams, neurograms or, as the psychologist would say, constellations or complexes of ideas, etc., not being amenable to mental synthesis or digestion are, according to modern psycho-pathology, the basis of the psycho-neuroses and of much abnormal behaviour, even amounting to serious mental disorder (*vide* Hart's *Political Complexes*).

Our author's psycho-physical treatment of the subject leads him astray at times. He says that fatal diseases do not, in general, prove fatal until they attack the brain. Our clinical experience would point to the contrary.

Surely Dr. la Rue has heard of the tripod of life? People die ultimately of cerebral, circulatory or respiratory failure—usually circulatory.

Again, he says that mental illness or defect, like that of the body, may be either partial or complete. Even one only of his brain "centres" of mental function or "traits" may be affected. This, of course, is still a legal fiction. Partial insanity, as far as it concerned psychiatrists, died years ago.

Our author's adoption of "phreno-mens" centres for character "traits" leads him to express his belief in phrenology—such is the lure of the "bio-mental" conception of the psyche. It is an unusual experience in 1929 to have to say that phrenology finds no support either physiologically or clinically. It had its period of usefulness, but this was chiefly posthumously. As a science it disintegrated and died, and its resurrection, even as an hypothesis (which in fact occurs in this book) can serve no further useful purpose and can only lead to absurdities. Of all things, character implies whole-mind actions and reactions.

One good feature of the book, which from beginning to end is healthily constructed despite its imperfection, is that one finds in it no support for behaviourism or for the theory of psychic determination. It breathes free-will. Speaking of the vital urge or *horme*, or, adopting his own terminology, "phreno-mental energy," the author says, "The stream of transmission, considered in relation to the forces that support it and the forces that control it, is the heart of the human personality—call it by what name you will."

The "capital consciousness" engendered in the "stream of transmission" of "phreno-mental energy" perceives, remembers, imagines, feels and acts "or sets the body into action to secure life, liberty, and the pursuit of happiness," and integration centres, prevent any centre from running away with the personality or any from being submerged, giving the whole a co-operative, dominant purpose. Education means integration, and one who is not efficiently integrated is not educated.

Translated (as much of the book has to be to understand it) into ordinary language, the author means that thought and social sense—the highest psychic realm—in man occupy the master position, enabling man not only to react but to act back to stimuli both from within and without.

We doubt very much, however, whether anyone can come up to Dr. la Rue's standard of self-mastery implied in rules for mental hygiene which the exigencies of space prevents us from quoting.

One's clinical experience is that mental, nervous, and especially autonomic nervous activity are adversely affected by conscious attention and interference, and not uncommonly results in disorganization or paralysis of function. The great weight of such rules should be to promote environmental conditions likely to stimulate healthy but automatic reactions. Self-analysis can readily be carried too far and excite a morbid frame of mind. For knowledge of our possibilities and imperfections we should trust to what the practical experiences of life teaches us, rather

than to introspective methods, and if in doubt or difficulty we should never fail to seek the advice of those competent to give it.

Our final word is that if Dr. la Rue will relieve his book of its overload of physiology and adopt a terminology which is understood the world over, in whatever language it is translated, the wisdom and good teaching there is in it will be more apparent, and thereby have greater force.

J. R. LORD.

Western Australia: State Psychological Clinic. Annual Report for the Year 1927-28. Perth, 1928. Pp. 24.

A few months ago we commented upon the report of the first year's work done at this institution. The report for the second year has now arrived. The excellent start made appears to have been well maintained, an increased number of cases having been dealt with. One result of this increase has been to accentuate the difficulty caused by insufficiency of staff. It is pointed out that much of the psychologist's time is occupied in routine tasks and calculations, which could be as well performed by a junior assistant. The proper development of the clinic, especially in the direction of treatment, has thus been hindered.

There was a noteworthy increase in the percentage of children of superior intellectual endowment who were brought to the clinic for educational and vocational guidance. Such children are likely to become community leaders, and expert advice in their cases is much to be desired.

Passing to the other end of the intellectual scale, an attempt was made to estimate the number of mentally defective children in the State schools. The percentage of such children was found to be 2.2. No provision for special schools has yet been made. As a result, the progress of 50,000 average children is delayed and impeded. The projected legislation to deal with the problem of mental deficiency has not yet been enacted. The case of a troublesome and dangerous epileptic boy of eleven years of age is mentioned. The only way in which he can be dealt with is by being certified as insane.

A commencement has been made in the psychological investigation of prisoners. The number so dealt with is, at present, far too small to justify any general conclusions. It may, however, be noted that deficiency in "poise, foresight, and self-control" was more frequent than ordinary intelligence defect.

One of the most interesting parts of the report deals with the results obtained by the use of the Pressey emotion tests (with certain necessary modifications of vocabulary). These tests provide the most promising method yet devised for the estimation of emotional abnormality. It should, perhaps, be explained that one of these tests requires the subject to cross out, from a long list of words, everything which he has ever dreaded, or worried about, while another test requires him to make a similar selection of likes and

interests. The employment of these tests serves to identify a group of children who fail to progress satisfactorily at school, in spite of average intellectual ability, the evidence of abnormal "fears" being of special moment. Such children are unlikely to make adequate social adjustments in after life. Too little work has, as yet, been done with these tests in this country, and further investigation is much to be desired.

We congratulate Miss Ethel T. Stoneman, the psychologist in charge of the Clinic, upon this valuable and balanced report.

M. HAMBLIN SMITH.

The Kingdom of the Mind. By JUNE E. DOWNEY, Ph.D. (Young People's Shelf of Science Series.) New York: The Macmillan Co., 1927. Crown 8vo. Pp. 207. Price 8s. 6d. net.

The title of this book, as of the series to which it belongs, happily suggests the subject-matter, for it is an attempt, and, it may be added, a successful attempt to bring psychology within the reach of the schoolboy or schoolgirl. In doing so it avoids any didactic tendency, and endeavours to make the subject attractive and recreative as well as informative. This, after all, is the secret of success if a book is to stimulate the interest of those for whom it is written. The ground covered is wide, for the matter ranges from the impressions gained through the various sense-organs and the way in which these impressions are obtained, through such subjects as memory and the importance of a training in memorizing, imagination, thinking and methods of reasoning, to the question of self-knowledge and self-deception. The methods of presentation, both in the headings of the chapters and in the instances and examples chosen, are characteristic of the United States, but the book will be found to be acceptable to youthful citizens of other English-speaking countries. The style is vivacious and conversational, and the diagrams and illustrations are well chosen.

G. A. AUDEN.

Part III.—Epitome of Current Literature.

1. Neurology.

A Study of the Spinal Fluid Pressure in the Differential Diagnosis of Diseases of the Spinal Cord. (Arch. of Neur. and Psychiat., July, 1928.) Stookey, B., and Klenke, D.

The authors describe the lumbar manometric test as a routine procedure whenever disease of the spinal cord is suspected. The method is really an accurate application of Queckenstedt's test, with modifications. They find that laminectomies are far more frequently performed for the removal of spinal cord tumours as the result of this procedure than they were before its adoption.

G. W. T. H. FLEMING.

The Cerebral Circulation. IV. The Action of Hypertonic Solution. Part I. (Arch. of Neur. and Psychiat., July, 1928.) Wolff, H. G., and Forbes., H. S.

The authors injected intravenously hypertonic solutions of dextrose, urea and sodium chloride and observed a constriction of the pial blood-vessels. They consider that the increased osmotic tension of the blood is the chief factor in causing the vaso-constriction. The diameter of a pial artery alters independently of blood-pressure and of intracranial pressure. They point out the importance of changes in the osmotic tension of the blood in regulating the cerebral blood supply.

G. W. T. H. FLEMING.

On the Question of the Significance of the Two Principal Systems in the Cerebellar Cortex [Zur Frage nach der Bedeutung der beiden Hauptsysteme in der Kleinhirnrinde]. (Psych.-Neur. Wochens., No. 34, August 25, 1928.) Pötsl, O.

Cerebellopetal impulses reach the Purkinjè cells by two paths: directly, *viâ* the climbing or tendril fibres, and indirectly *viâ* the moss fibres and the granule-cells and their axons. The dendrites of the Purkinjè cells spread out in a sagittal plane and are embraced by the tendril fibres, while the axons of the granule-cells ramify in a coronal plane. The author reviews the various explanations that have been offered for this arrangement. He finds that there is no definite evidence that the two systems represent impulses originating in different sources. He supports the suggestion that every afferent impulse undergoes fractionation in the cerebellar cortex, and reaches the Purkinjè cells along both paths. He draws

an analogy between this process and the mechanism of reciprocal innervation in spinal reflexes. The relaxation of the antagonist muscles at the same time as the agonists are contracted is brought about by the interposition of an additional intercalary neuron in the reflex arc, through which a portion of the impulses to the antagonists are made to pass. The granule-cells of the cerebellum appear to play a similar part as intercalary neurons. Every impulse thus reaches the Purkinjé cells along two planes in space, and at two successive moments in time, and the result would appear to be a transformation of the irregular incoming impulses into an orderly pattern, correctly orientated in space and having a phasic rhythm in time. The author discusses possible mathematical formulæ for expressing this rhythmic activity, and also touches on the question of compensatory activity by the thalamus and cerebral cortex in cases of cerebellar agenesis.

A. WALK.

Physiological Herniations of the Brain. (*Arch. of Neur. and Psychiat.*, July, 1928.) Brockbank, T. W.

Physiological herniations are found in about 20% of *post-mortems*. According to the author they occur in about 38% of cases of brain-tumour. The size of the herniations varies from the microscopic up to (rarely) 1 cm. in diameter. They are of the colour and consistence of cortical tissue and consist of glial tissue with an occasional atypical nerve-cell, probably embryonic in nature, but possibly of degenerative origin as suggested by the presence of a mild satellitosis.

G. W. T. H. FLEMING.

Macrocephalia Resp. Macromelia Paræsthetica. (*Journ. of Nerv. and Ment. Dis.*, August, 1928.) Ratner, J.

The author describes in cases of hyperpituitarism a feeling that the head is growing until in some cases it appears to the patient to fill the room. In other cases the arms appear to grow in a few seconds until they appear to touch the opposite wall of the room. In some cases these symptoms were undoubtedly hypnagogic hallucinations. Ratner's symptom appears to resemble the *pseudomelia paræsthetica* of Bechterew. It may be observed in other endocrine-vegetative disturbances, and is apparently produced by irritation of the proprioceptive fibres that transmit the sense of position. Increase of intracranial pressure is one of the most important causes, whether due to increased secretion by the choroid plexus, to retention of water owing to diminution of salts of calcium in the brain, to meningitis serosa, to an angio-neurotic œdema of the brain, to "Reichardt's *Hirnschwellung*," or to other factors.

G. W. T. H. FLEMING.

Cerebellar Symptoms Produced by Supratentorial Tumours. (*Arch. of Neur. and Psychiat.*, August, 1928.) Grant, F. C.

In the presence of marked intracranial pressure clinical evidence commonly indicative of a cerebellar lesion may be present although the tumour lies elsewhere. Many well-recognized cerebellar

symptoms—nystagmus, asynergia, ataxia, positive Romberg sign, tinnitus, deafness, suboccipital tenderness and occipital headache—may all be present in a cerebral lesion. Masked by these symptoms there are always cerebral symptoms. To localize the tumour in these cases it is essential to perform bilateral puncture of the posterior horns of the ventricles. If there is still doubt, a ventriculogram must be made.

G. W. T. H. FLEMING.

Tumours of the Nervus Acusticus. Signs of Involvement of the Fifth Cranial Nerve. (*Arch. of Neur. and Psychiat., August, 1928.*) Parker, H. L.

In 52 out of 53 cases of proved tumours of the eighth nerve there were some signs of involvement of the fifth nerve, second in importance to those of eighth nerve lesion. Paræsthesia was common, and in 5 cases antedated the symptoms of involvement of the eighth nerve. Disturbance of the corneal reflex was present in 51 cases. Objective signs, such as anæsthesia and weakness of the muscles of mastication, were less marked. Pain occurred in only 4 cases.

G. W. T. H. FLEMING.

Acute Toxic Encephalitis in Children. (*Arch. of Neur. and Psychiat., August, 1928.*) Grinker, R. R., and Stone, T. T.

The authors describe cases in children, in which an acute toxic encephalitis was revealed on histological examination. There was no evidence of actual microbial invasion of the brain. The stress of the toxic agent was directed against the ganglion-cells and the vascular system. The toxin is believed to act *viâ* the blood-stream. The proliferation of the glia-cells in these cases of endogenous toxæmias was mostly of the cytoplasmic and oligodendroglial type and represented the fixed type of Abbau. The clinical course was: rapidly developing symptoms of diffuse cerebral involvement, often associated with meningeal symptoms, early stupor, hyperpyrexia, and death in from 3-4 days. The spinal fluid was usually normal. Two cases recovered. The encephalitis followed acute infections of the upper respiratory tract, acute otitis media, acute mastoiditis, pneumonia, scarlet fever and septicæmia.

G. W. T. H. FLEMING.

Circumscribed Suppurative (Non-Tuberculous) Peripachymeningitis. (*Arch. of Neur. and Psychiat., July, 1928.*) Hassin, G. B.

The author describes a case of epidural abscesses and peripachymeningitis secondary to an extensive furunculosis of old-standing due to *Staphylococcus aureus* and with the clinical picture of a transverse myelitis. There was scattered degeneration of the white columns of the cord confined to the lower thoracic region. The changes were similar to those found in so-called pressure myelitis produced experimentally. The author thinks that if recognized early the condition is suitable for surgical treatment.

G. W. T. H. FLEMING.

The Treatment of Neurosyphilis by "Inoculation Malaria" in the United States Veterans' Bureau. (Journ. of Nerv. and Ment. Dis., August, 1928.) Mats, P. B.

346 patients each received 2·3 c.c. of malarial blood intravenously. 23·99% were greatly improved, 41·04% were improved, 22·83% remained unimproved, 7·51% deteriorated, and 3·47% died. The author considers that the beneficial effects are the result of a non-specific stimulation by the malarial infection with accompanying tissue response, characterized by hyperæmia and increased permeability of the capillaries of the brain. 5·4% of the number inoculated failed to develop the infection. The manic and exhaustive types of paresis were more amenable than the demented type. Besides paresis the cases included tabo-paresis, cerebrospinal syphilis and tabes. Subsequent to the treatment the cytology of the spinal fluid was benefited in 81·72%, the blood Wassermann became negative or was modified in 72%, the spinal fluid globulin became negative or was reduced in 70%, the fluid Wassermann became negative or was modified in 60%, and the colloidal gold curve was modified in 54·48% of cases.

G. W. T. H. FLEMING.

Compression of the Spinal Cord due to Ventral Extradural Cervical Chondromas. (Arch. of Neur. and Psychiat., August, 1928.) Stookey, B.

The author describes a group of primary extradural ventral chondromas producing compression of the spinal cord and presenting a definite clinical entity previously unrecognized. The more typical and recognizable forms give rise to unilateral spasticity, focal atrophy and fibrillary twitchings in the homolateral muscles of one or two segments at the level of the neoplasm, with changes in pain and temperature on the opposite side of the body. According to the position of the tumour, three syndromes can be made out, the syndromes of bilateral ventral pressure, of unilateral ventral pressure and of root pressure.

The chondromas arise from the intervertebral discs usually in the mid-cervical region; their size is about 1·5 cm. by ·5 cm., and sharply circumscribed, and they cause discrete though definite pressure on the ventral column of the spinal cord.

Hemilaminectomy and a transdural approach is considered the operation of choice.

G. W. T. H. FLEMING.

Compression of the Spinal Cord in Hodgkin's Disease. (Arch. of Neur. and Psychiat., July, 1928.) Blakeslee, G. A.

The author describes a case in a young man of compression of the spinal cord due to Hodgkin's disease. The general symptoms of Hodgkin's disease had receded several times during the previous few years under X-ray treatment, and some improvement of his spinal symptoms also resulted, but a considerable residue of spasticity and other neurological signs remained.

G. W. T. H. FLEMING.

symptoms—nyctagmus, asynergia, ataxia, positive Romberg sign, tinnitus, deafness, suboccipital tenderness and occipital headache—may all be present in a cerebral lesion. Masked by these symptoms there are always cerebral symptoms. To localize the tumour in these cases it is essential to perform bilateral puncture of the posterior horns of the ventricles. If there is still doubt, a ventriculogram must be made.

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G. W. T. H. FLEMING.

Acute Toxic Encephalitis in Children. (*Arch. of Neur. and Psychiat.*, August, 1928.) Grinker, R. R., and Stone, T. T.

The authors describe cases in children, in which an acute toxic encephalitis was revealed on histological examination. There was no evidence of actual microbic invasion of the brain. The stress of the toxic agent was directed against the ganglion-cells and the vascular system. The toxin is believed to act *viâ* the blood-stream. The proliferation of the glia-cells in these cases of endogenous toxæmias was mostly of the cytoplasmic and oligodendroglial type and represented the fixed type of Abbau. The clinical course was: rapidly developing symptoms of diffuse cerebral involvement, often associated with meningeal symptoms, early stupor, hyperpyrexia, and death in from 3-4 days. The spinal fluid was usually normal. Two cases recovered. The encephalitis followed acute infections of the upper respiratory tract, acute otitis media, acute mastoiditis, pneumonia, scarlet fever and septicæmia.

G. W. T. H. FLEMING.

Circumscribed Suppurative (Non-Tuberculous) Peripachymeningitis. (*Arch. of Neur. and Psychiat.*, July, 1928.) Hassin, G. B.

The author describes a case of epidural abscesses and peripachymeningitis secondary to an extensive furunculosis of old-standing due to *Staphylococcus aureus* and with the clinical picture of a transverse myelitis. There was scattered degeneration of the white columns of the cord confined to the lower thoracic region. The changes were similar to those found in so-called pressure myelitis produced experimentally. The author thinks that if recognized early the condition is suitable for surgical treatment.

G. W. T. H. FLEMING.

The Treatment of Neurosyphilis by "Inoculation Malaria" in the United States Veterans' Bureau. (Fourn. of Nerv. and Ment. Dis., August, 1928.) Mats, P. B.

346 patients each received 2·3 c.c. of malarial blood intravenously. 23·99% were greatly improved, 41·04% were improved, 22·83% remained unimproved, 7·51% deteriorated, and 3·47% died. The author considers that the beneficial effects are the result of a non-specific stimulation by the malarial infection with accompanying tissue response, characterized by hyperæmia and increased permeability of the capillaries of the brain. 5·4% of the number inoculated failed to develop the infection. The manic and exhaustive types of paresis were more amenable than the demented type. Besides paresis the cases included tabo-paresis, cerebrospinal syphilis and tabes. Subsequent to the treatment the cytology of the spinal fluid was benefited in 81·72%, the blood Wassermann became negative or was modified in 72%, the spinal fluid globulin became negative or was reduced in 70%, the fluid Wassermann became negative or was modified in 60%, and the colloidal gold curve was modified in 54·48% of cases.

G. W. T. H. FLEMING.

Compression of the Spinal Cord due to Ventral Extradural Cervical Chondromas. (Arch. of Neur. and Psychiat., August, 1928.) Stookey, B.

The author describes a group of primary extradural ventral chondromas producing compression of the spinal cord and presenting a definite clinical entity previously unrecognized. The more typical and recognizable forms give rise to unilateral spasticity, focal atrophy and fibrillary twitchings in the homolateral muscles of one or two segments at the level of the neoplasm, with changes in pain and temperature on the opposite side of the body. According to the position of the tumour, three syndromes can be made out, the syndromes of bilateral ventral pressure, of unilateral ventral pressure and of root pressure.

The chondromas arise from the intervertebral discs usually in the mid-cervical region; their size is about 1·5 cm. by ·5 cm., and sharply circumscribed, and they cause discrete though definite pressure on the ventral column of the spinal cord.

Hemilaminectomy and a transdural approach is considered the operation of choice.

G. W. T. H. FLEMING.

Compression of the Spinal Cord in Hodgkin's Disease. (Arch. of Neur. and Psychiat., July, 1928.) Blakeslee, G. A.

The author describes a case in a young man of compression of the spinal cord due to Hodgkin's disease. The general symptoms of Hodgkin's disease had receded several times during the previous few years under X-ray treatment, and some improvement of his spinal symptoms also resulted, but a considerable residue of spasticity and other neurological signs remained.

G. W. T. H. FLEMING.

Central Neuritis: Its Ætiology and Symptomatology. (*Arch. of Neur. and Psychiat.*, August, 1928.) Pearson, G. H. J.

The author studied 31 cases of central neuritis amongst more than 1000 consecutive autopsies. He suggests that a better name for the condition would be primary cytolytic degeneration. He thinks that the condition is due to some subtle disturbance of metabolism which produces starvation and auto-metabolism of the cell. There is a full discussion of the literature.

G. W. T. H. FLEMING.

2. Psychology.

Internationale Zeitschrift für Individual-Psychologie. November-December, 1928.

This number contains the following papers :

Neurotic Play-acting [Neurotisches Rollenspiel]. Adler, A.

This gives the case-history of a patient suffering from a phobia and anxiety neurosis. Adler had only one consultation with him, as the patient could not come to Vienna for treatment. The man was cured. A year later he called upon Adler; he had lost all his neurotic symptoms and had not acquired any fresh ones.

Objections to Individual Psychology [Die Einwände gegen die Individualpsychologie]. Wexberg, E.

This is the conclusion to the discussion on individual psychology held at the Third Congress for Psychotherapy at Baden-Baden in April, 1928. The author deals here with some of the objections that were raised to individual psychology at the Congress. He defends his views against Schilder's attack on the theoretical position of individual psychology and replies to Schultz-Hencke's difficulty that individual psychology emphasizes the "wherefore" and psycho-analysis the "whence." Other objections by Hattingberg and Oswald Schwarz are answered. As to his own position the author says that his psychotherapy tends to give the patient insight into the untenability and erroneousness of his life-plan, untenable or erroneous not on ethical, but on logical grounds. Only the direction, *i.e.*, the region from which the recovering neurotic has to get away is given. "Every one of us is neurotic in so far as his life goes on still constrained by his ego, every one of us is healthy in so far as he has succeeded in freeing himself from self, to find a centre outside his own ego."

The Fear of Woman in Mythology, Folklore and Literature [Die Furcht vor der Frau, in Sage, Märchen und Literatur]. Brachfeld, O.

The fear of syphilis is derived from the fear of woman, since gynæcophobia existed before the first occurrence of the disease. Among Germanic races death is generally represented as male, in

the Romance races as female, and in Romance languages the word is of feminine gender. Discussing the views of commentators of Calderon's plays that the death-skeleton was symbolic of man held by mortal sins, the author inclines to the view that it is expressive of intense gynæcophobia. The so-called "Dances of Death" (*danses macabres*) may possibly be traced to the same origin. Wedding and Death in Spanish romances and fairy-tales and the Don Juan myth are treated on similar lines.

Individual Psychological Reflections on Tolstoy [Individualpsychologische Betrachtungen über Tolstoi]. Polak, Else.

This paper reviews Tolstoy's life and writings and interprets them in the light of Adler's individual-psychological teachings. The paper is interesting in so far as the story of the life is told and on account of the warmth and enthusiasm with which it is told. There is much picking and choosing and twisting to make the facts fit the theory. The unbiased psychologist will fail to be convinced by these futile outpourings of a kind which are flooding the sectarian press.

Religious Redemption and Individual-Psychological Healing [Religiöse Erlösung und Individualpsychologische Heilung]. Neumann, F.

Individual psychology and religion have some common ground and objects and a discussion of these becomes, therefore, unavoidable. There is no such thing as a purely psychic illness in the sense of an inner conflict of the isolated soul. All such illnesses are only understandable as a disturbance of social relationships. In the place of the "Logic of Life" as Adler calls it, *i.e.*, the objective order of life of mutual relations, there has appeared the "Logic of Power," of attack, of the predominance of the individual principle over the social principle and this causes the social and psychic illness. The immanent goal of religion is the redemption of the ego from the meshes of selfishness and the realization of a world of love; the goal of individual psychology is the healing of the psychic sick through the realization of a world in which the feeling of community reigns. The therapist points out to the patient the causes of his sickness. To this explanation and understanding is added encouragement, which leads to an amelioration of the social relationships and with it to psychic healing and bodily cure. Then begins the final function: the return of the newly oriented subject into the community of those who are already individual-psychologically advanced.

A. WOHLGEMUTH.

Psyche, October, 1928.

This number of *Psyche* contains the following articles:

"*Eolithic Art*" (Editorial).

This article raises the question whether the flints which bear some alleged resemblance to animals have not been produced by ordinary geological crunching, water-pressure, fire, frost and similar

natural processes. It might also have been added that possibly much depends upon the imagination of the examiner, as it does in the case of the interpretation of ink-blots.

Treatment without Certification. I. D. S.

A strong argument against compulsory treatment.

On Word Formation. Lockhart, L. W.

An interesting paper on how words (nouns, verbs, etc.) should be derived one from another.

Word-values. Palmer, H. E.

This paper discusses the difficulties of serious students of foreign languages in the choice of the right word.

The Creative Theory of Evolution. Claremont, C. A.

This paper is decidedly of interest to the psychologist as an example of emotional thinking or rationalization. The following quotation will give an idea of the trend of the paper: "Of course, our theory merely insists upon the *order* of the necessary time-sequence, and says nothing about its spread; but, for that matter, neither does Genesis, if the latitude be permitted, of which many believers avail themselves, in the interpretation of the word "day." We have, on the other hand, sufficiently substantiated evidence of instantaneous, or supra-normally rapid healings of organic lesions at Lourdes; and hence it is not for us to set limits to the speed at which such creative agency as may be present can work. Again, we are not told that God ceased all work of a creative kind after the first Sabbath." Probably the writer is not acquainted with the writings of Hering, Richard Semon, Eug. Rignano, Samuel Butler, and others, or else the quotation from Starling's *Physiology* about the growth of nerves would not have caused him the difficulty it evidently did.

The Evidential Value of Certain Mediumistic Phenomena.
Dingwall, E. F.

The writer, after referring to certain papers that have been read before the British Association and the Society for Psychical Research on cross-correspondence and telepathy, points out of what nature the evidence ought to be in order to be satisfactory and convincing, and then gives examples of what is as a matter of fact accepted as satisfactory by votaries of the occult.

Day-Dreams in the Spanish Ballads. Aitken, Barbara.

Translations of a number of popular Spanish ballads are given and each is "analysed" in the wonted psycho-analytic fashion.

The Individual and the Community. Schiff, C.

This paper discusses the individual, the community and many other things besides, as understood by an "Adlerian Individual-psychologist."

Gold; An Anthropologist's View of the Economic Problem.
Demant, V. A.

"Gold is the supreme symbol of man's unconscious fixation to the idea of scarcity, which is the psychological basis of economics as now misunderstood." The writer begins with a description of barter and gives a too brief history of it, leading up to our present monetary system; he touches only very superficially upon the *scarcity theory of gold* and the *commodity theory of money*, and is not likely to influence economists very greatly.

Artistic Activity. Bruen, Curtis.

The meaning of artistic activity is described. The paper is well written and interesting, and should be read by those interested in æsthetics.

The Linguistic Barrier in Literary Intercourse. Eldridge, S.

After enlarging upon the disadvantages accruing from the fact that but very few people are able to read satisfactorily foreign languages, the writer suggests an endowment to train and employ professional translators to translate all important works.

A. WOHLGEMUTH.

3. Clinical Psychiatry.

External Influences as Precipitating Factors in Schizophrenia and Manic-Depressive Insanity [Auslösung der Schizophrenie und des manisch-depressiven Irreseins durch äussere Einflüsse]. (Psych.-Neur. Wochens., No. 35, September 1, 1928.) Bratz, E.

As referee to the German Pensions' and Insurance Tribunals, the author has laid down as a general ruling in dealing with cases of insanity that "schizophrenic processes depend on congenital disposition and that their causation by external influences must be regarded as a doubtful possibility only." He agrees that further investigation into this question is necessary and considers that the most profitable line of research is the study of cases of uniovular twins. He has collected the views of several authorities on biology and genetics. The general conclusion reached so far is that it is possible for one of a pair of uniovular twins to develop a psychosis, while the other remains normal, but that this occurs as a result of severe organic damage only, never from mental stress alone; further, the psychosis is probably always a reactive depression, not a true manic-depressive insanity nor a schizophrenic process.

A. WALK.

Pathological Restriction of Consciousness [Pathologische Einengung der Bewusstseins]. (Psych.-Neur. Wochens., No. 35, September 1, 1928.) Scharfetter, H.

Voluntary choice of action is impossible under three conditions: when there is insufficient time for more than one thought to come

to consciousness; when consciousness is clouded, so that ideas and perceptions are blurred and afford no basis for judgment; and lastly when, in spite of available time and clear consciousness, a large proportion of the relevant ideas are completely excluded from becoming conscious. This last condition is termed "restriction" of consciousness. The subject shows no confusion and his mental processes take place normally in so far as they enable him to follow the particular course of action which dominates his mind, while all other mental processes are inhibited. Two cases illustrating the condition are described at length; both are patients who made an attempt at suicide by drowning. The first patient was a melancholic with ideas of self-reproach. She stated: "At the time I could think of nothing else. The thought of the effect it would have on my parents never entered my head; nor did the idea that it might be difficult to jump from a crowded bridge in daylight without being stopped; the only thought present in my mind was that I could not go on living." The second patient had not meditated suicide and had no reason to do so; following an alcoholic bout he was crossing a bridge when he "felt he must jump in." Here again no restraining thought of any kind appeared in consciousness. The author discusses the relation of the condition to hypnotic states and points out its medico-legal importance.

A. WALK.

Pathological Analysis of the Symptoms of Alzheimer's Disease [Zur hirnpathologische Analyse der Alzheimerschen Krankheit]. (Psych.-Neur. Wochens., No. 36, September 8, 1928.) Grünthal, E.

In a well-marked case of Alzheimer's disease the author found the following symptoms, which are obviously of focal origin and can be referred to involvement of the parieto-occipital cortex:

1. A peculiar disturbance of vision: the patient found great difficulty in fixating and in altering the direction of vision, and peripheral vision was greatly impaired.

2. An inability to perceive the meaning of large figures or letters. Small letters were identified correctly, but large ones, as well as pictures and geometrical figures were not recognized.

3. Optic ataxia: inability to control the movements of the hand by the eye, e. g., in drawing or in following an outline with the pencil.

4. Disturbance of tactile localization: inability to refer stimuli to their correct position, to point out her own eyes, ears, etc., when asked to do so, or to distinguish left from right.

At the autopsy the typical changes of Alzheimer's disease were found, including senile plaques and fibrillary and fatty changes in the nerve-cells and neuroglia, and these changes were far more pronounced in the parietal and occipital areas than in other parts of the brain. The author believes that focal symptoms are present in the majority of cases of senile and presenile psychoses, although they may be obscured by the general mental deterioration.

A. WALK.

A Peculiar Form of Involuntional Psychosis with a Preponderance of Negativistic Phenomena: Dysphrenia Antitonica [Eine besondere Form von Involutionspsychose mit vorwiegenden negativistischen Erscheinungen: *Dysphrenia antitonica*]. (Psych. - Neur. Wochens., No. 19, May 17, 1927.) Van der Scheer, W. M.

This syndrome is found in women between the ages of 44 and 56. There is first a stage of agitation and restlessness, with anxiety and apprehension and the formation of delusions in keeping with the mood. The delusions are always of impending destruction—the patient is about to be burned, the world is coming to an end, etc. At the same time there is a senseless resistance to every form of attention or treatment, and negativistic tendencies are marked. The patient will, for instance, refuse food offered her, but will steal it from other patients. These negativistic symptoms become the dominant feature. Every external stimulus produces a marked reaction, and this is invariably a negative one. All questions put to the patient are answered negatively, and all suggestions for treatment are refused. The patient becomes more and more resentful of interference and inaccessible; at times she appears confused and perplexed, but the intensity of the symptoms diminishes gradually, and the patient settles down into a state of chronic dementia. In this stage stereotyped attitudes and degraded habits may be noticed, though katatonic symptoms are absent. The characteristic resistiveness persists throughout.

The author discusses the resemblance of the psychosis, in its early stage, to that of agitated melancholia, and later to katatonia. The clinical picture does not, however, exactly correspond to either of these conditions. The resistiveness appears to depend on a general attitude of suspicion and distrust, and this in turn may depend on confusion and failure of apprehension, such as may be caused by a chronic intoxication. Apart, however, from any theory of causation, the author believes the syndrome to be a distinctive one, and to be aptly designated by the name "dysphrenia antitonica."

A. WALK.

Mental Conditions in the Aged. (Arch of Neur. and Psychiat., August, 1928.) Rhein, F. H. W., Winkelmann, N. W., and Patten, C. A.

The authors selected 100 cases out of 500 and carefully studied the vascular pathological changes. Based on these autopsy studies they divide the mental changes of the aged into four groups:

The first group, in which the larger vessels showed the predominant change with a more or less uniform appearance of gross areas of softening, is to be distinguished clinically by either mental or neurological symptoms of comparatively sudden onset in persons who have been known to be either entirely healthy or else definitely arterio-sclerotic. Hemiplegia is the commonest organic symptom, and the usual mental picture is that of deterioration. The authors call this type arterio-sclerotic deterioration, taking it definitely out of the heterogeneous group of "senile dementia."

In the second group, in which the small vessels are mainly involved, the patients are usually admitted to the psychopathic

wards when they come to the hospital. They have gradually become demented, the relatives applying the term "second childhood" to the condition. While a definite history of "apoplexy" cannot be obtained, as a rule, an exhaustive anamnesis will show that there are more or less sudden attacks from which the patients made only a partial recovery. Though these attacks are only of a minor type, the dementia shows a definite increase in degree after each of them. Anatomically, few of these cases show gross areas of softening, and even the large vessels may appear practically normal. Microscopic examination, however, reveals multiple miliary areas of softening scattered throughout the brain. In view of the character of the onset and the clinical course, this group should be designated progressive arteriolo-sclerotic psychosis.

In the third group, which is a combination pathologically and clinically of the other two, there occur both deterioration and dementia, sudden apoplectiform attacks and minor mental attacks with both gross and microscopic areas of softening. This group should be called arterio-sclerotic dementia.

In the fourth group, in which the vessels show only a fibrosis, the changes are comparable to the involuntional changes found in other organs of the body. The patient preserves his mental faculties to the end, and death is usually brought about through some visceral disease. There is no marked dementia or deterioration, and areas of softening are not found on either gross or microscopic examination. There may be, however, some reduction in mental energy qualitatively and quantitatively, but this is definitely proportionate to the senile changes that are found elsewhere. The condition in this group consequently should be termed senility.

The group showing marked "senile plaques" is to be discussed in a later communication.

G. W. T. H. FLEMING.

Recurrent "Attacks" other than Migraine and Infantile Convulsions preceding "True Epilepsy." (*Arch of Neur. and Psychiat.*, September, 1928.) *Levy, D. M., and Patrick, H. T.*

Amongst 500 private patients with essential epilepsy, the authors found 64 cases in which recurrent attacks other than migraine or infantile convulsions preceded the true seizures for periods varying from one week to about 40 years. The forerunners of true epilepsy are in general characterized by their sudden and momentary character and the absence of any uniform cause. The "dizzy spells" (Group 1) are compared with similar symptoms in the psychoneuroses, in alcoholism, in various organic diseases of the nervous system, and with objective vertigo. These attacks are momentary in character and have few accompanying symptoms; they increase in frequency, and confusion and change or loss of consciousness are now superadded. Group 2 consists of momentary abdominal symptoms. Six of the 13 recurrent attacks in Group 2 later became the aura of the epileptic seizure. Two cases of recurrent attacks of pallor in Group 3 were suspected of being pre-epileptic, because they were momentary and were followed by sleep or confusional states. Two of the three sensory attacks in

Group 4 were followed by dribbling, disturbance of speech or change of consciousness, and two became auræ of the ensuing epilepsy, the "pre-epileptic" phases, lasting ten and fifteen years respectively. Here again the attacks were characterized by suddenness and brevity.

Of the three recurrent attacks in Group 5, one became an aura, another continued along with major convulsions. In one of the 5 cases in Group 6, screaming occurred during sleep and was followed by limpness. The outbursts of temper in 4 cases of this group differed from "ordinary temper" in the suddenness, brevity and apparent lack of cause or motivation; and also in their combination with other symptoms, such as infantile convulsions, *pavor nocturnus*, vomiting spells, and in 1 case, "transient bewilderment." Of the eleven attacks in Group 7, four became clearly integrated with the epileptic seizures. In every case the attacks were characterized by suddenness and brevity. This group contains various types of sudden change in consciousness and in the emotional state. It appears especially significant. The attacks in Group 8 showed progressive brevity and change of consciousness, demonstrating perhaps a relationship between these two factors. Of the three "attacks" in Group 10, two continued independently after the major convulsions began, and the remaining one became an aura.

In each of the ten groups are cases in which the relation to epilepsy is clearly seen. They may be regarded as partial or pre-epileptic attacks. Their main features are suddenness, brevity and apparent absence of antecedent cause and of relationship to physical conditions.

G. W. T. H. FLEMING.

Tryparsamide Treatment of Paresis. A Clinical Report of One Hundred Cases. (Journ. of Nerv. and Ment. Dis., September, 1928.) Jaenike, R. C., and Forman, G. W.

These authors find that beneficial results occur in indirect ratio to the duration of the symptoms before treatment is instituted. By long-continued treatment, clinical and serological cures were produced in 5% and physical and mental improvement in 38%. Eye complications occur in a small percentage of cases. The manic type of paresis yields the best results.

G. W. T. H. FLEMING.

4. Pathology.

Punctures of the Brain. The Factors concerned in Gliosis and in Cicatricial Contraction. (Arch. of Neur. and Psychiat., July, 1928.) Penfield, W., and Buckley, R. C.

The author made punctures of the brain with both a hollow needle and a blunt brain needle. When the blunt needle was used, a closed track containing a connective-tissue core firmly attached to the overlying dura remained. The track was surrounded by a moderate gliosis in the cortical grey matter, but in the white matter gliosis did not occur and there was even a decrease in astrocytes. Occasionally the lower end of such a track was found open. When the hollow needle was used, a gaping track resulted, containing

little connective-tissue, and slightly attached to the overlying dura. The track was surrounded by a moderate gliosis in the cortical grey matter, while in the white matter there was an absence of gliosis or even a decrease in astrocytes. Round the closed tracks the astrocytes send in their large expansions concentrically—about the open tracks these expansions are tangential to the canal. Both needles cause the same amount of hæmorrhage. When a hollow needle or cannula is used it causes much less gliosis, less distortion and fewer superficial adhesions.

G. W. T. H. FLEMING.

Acute Pathological Changes in Neuroglia and in Microglia. (*Arch. of Neur. and Psychiat.*, July, 1928.) *Cone, W.*

The author describes in great detail the pathological reactions of neuroglia and microglia in acute diseases of the central nervous system. Astrocytes and oligodendroglia react by degeneration in the same way as nerve-cells. Microglia responds by forming first rod-cells and later compound granular corpuscles. It is not primarily affected by toxins and diseases which cause the acute degenerative changes in nerve-cells or neuroglia. Astrocytes and oligodendroglia change quickly after death; microglia resists *post-mortem* alterations.

G. W. T. H. FLEMING.

Glia Response in Chronic Vascular Disease of the Brain. (*Arch. of Neur. and Psychiat.*, July, 1928.) *Globus, F. H.*

The glial changes in cerebral arterio-sclerosis are not specific for this disease, they are simply due to a disturbed blood-supply. An even higher degree of hyperplasia is found in the macroglia in other chronic inflammatory or degenerative lesions of the brain. The transformation of the protoplasmic astrocytes into the fibrous type is not specific for cerebral arterio-sclerosis, but is found in other conditions, and is described by Cajal in general paralysis. The dense glial sclerosis round thrombosed blood-vessels or in scar-forming areas is only an expression of a general healing or reparative process, and is found wherever pronounced vessel changes occur. In partially ischæmic zones the astrocytes undergo atrophy, and in areas of softening they manifest regressive changes terminating in complete disintegration. In the process of disintegration they may assume the morphological features of the so-called amœboid cells of Alzheimer or may simulate gitter-cells. The Hortega cells, which function largely as scavengers, are, of course, increased in numbers throughout the substance of the brain. In certain circumscribed areas these cells aggregate, forming small rosette-like collections resembling senile plaques. Hortega cells mobilized near localized massive destructive processes often take the form of the giant microglia cells of Cajal. Others undergo regressive changes with final formation of compound granular cells, gitter cells. The changes in the oligodendroglia consist of a generalized hyperplasia and mild hypertrophy. Astrocytes of both types are mainly concerned in the process of repair, while the Hortega cells are essential to the metabolic activity of the brain-tissue and are phagocytic in character.

G. W. T. H. FLEMING.

Studies in Epilepsy. V. The Fibrin-Content of the Blood. (*Arch. of Neur. and Psychiat.*, August, 1928.) *Lennox, W. G.*

The author made measurements of blood and plasma fibrin in 100 epileptic patients of both sexes. Previously Besta had found a decrease in fibrin ferment in all but 8 of 45 epileptics examined, and Dienst had stated that the blood of epileptics was deficient in antithrombin.

Of the author's cases, 34 showed an increased plasma fibrin. In 7 of these there was an ascribable possible cause, in the remaining 27 the cause was not apparent. The author does not find definite evidence that persons who are subject to seizures show any abnormality of protein metabolism. It is possible that elevation of blood fibrin may be a more delicate indicator of protein destruction than other measurements cited. Possibly there may be an irritative lesion in the liver; the author thinks that the hepatic function in epilepsy needs investigation. Possibly there is some relation between the increased amount of fibrin and the viscosity and clotting-time of the blood. All these questions open up avenues of research into sedimentation velocity, concentration of other plasma proteins, etc.

G. W. T. H. FLEMING.

The Acetic Anhydride—Sulphuric Acid Test for General Paralysis (Boltz Test). (*Journ. of Nerv. and Ment. Dis.*, August, 1928.) *Myerson, A., and Halloran, R. D.*

The authors used this test in 25 cases of general paralysis and in 50 cases of organic disease of the nervous system. They conclude that the Boltz test is not specific for general paralysis, that only products rich in aldehyde should be used, that the test is positive in the presence of protein and the colour is a rough index of relative quantities, and that in a series of cases where the blood-serum was studied it had no specific value.

G. W. T. H. FLEMING.

The Cellular Structure of the Cerebral Hemispheres of Lenin. [*Die Zytoarchitektonik der Hirnhemisphären Lenins*]. (*Psych.-Neur. Wochens.*, No. 39, September 28, 1928.) *Mingazzini, G.*

Prof. Mingazzini gives an account of work that has been carried out during the last two years by Prof. Vogt, on the microscopical examination of the brain of Lenin. The work is far from completed, but some provisional results have been given in a semi-popular lecture, reported in the Russian papers. Vogt has found that the pyramidal cells of the third layer (he recognizes in all seven cortical layers), were in Lenin's case larger and richer in protoplasmic processes than usual, and states that such a development would account for Lenin's great mental vigour, his increased powers of association, his strong sense of reality, etc. The author comments on the materialistic tendency of Vogt's conceptions; he recalls the old controversy between Virchow and Haeckel on the function of the pyramidal cells, and points out the uses and limitations of anatomical research of this nature.

A. WALK.

Part IV.—Notes and News.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

QUARTERLY MEETING.

THE usual Quarterly Meeting of the Association was held on Thursday, February 14, 1929, at the British Medical Association House, 19B, Tavistock Square, London, W.C. 1, under the presidency of Prof. J. Shaw Bolton, D.Sc., M.D., F.R.C.P.

THE MINUTES.

The minutes of the previous meeting were taken as read, and were approved and signed by the President, having already appeared in the *Journal of Mental Science*.

OBITUARY.

The PRESIDENT said that he had to announce the deaths of three members of the Association.

Dr. John Valerian George Brosnan Tighe.

The first was Dr. Tighe, Medical Superintendent of the Gateshead Mental Hospital at Stannington, and Secretary of the Northern and Midland Division since 1927.

He was for many years a medical officer at the North Riding Mental Hospital, Clifton, Yorks; he went to Gateshead in 1913 when that institution was opened, and had been a most successful Superintendent; indeed he really had been Gateshead. On January 21 he was "found dead" in bed. No one had known that he was not in good health. When the speaker last saw him, in July, he appeared to be taking a good deal of care of himself, so one could only conclude that he had some illness of which he did not care to tell anyone. He had no relatives and no particular friends, consequently no one knew much about his private life. That was all most regrettable, but fortunately for the Northern and Midland Division Dr. J. R. Gilmour was able to take over this Divisional secretaryship.

All who knew Tighe appreciated him as a loyal friend and pleasant colleague, but he was a man whom it was difficult to know, as he was so shy and reserved. He would be greatly missed as one who had taken a keen interest in the work of the Association. During the two years that he was Secretary of his Division he had worked hard for its success. The Association sent a wreath to the funeral at Stannington Churchyard, where a large crowd of mourners gathered to pay a final tribute to his memory, though, on account of the distance, not many members of the Association were present.

Dr. Tighe had a fine war record, and attained the rank of lieutenant-colonel.

Dr. Hugh Frank Bodvel-Roberts.

Another deceased member was Dr. Bodvel-Roberts, who joined the Association in 1904. Dr. Worth would say a word about him.

Dr. REGINALD WORTH (General Secretary) said the late Dr. Bodvel-Roberts had been a Medical Officer at Napsbury for a considerable number of years and was Senior Assistant at the time of his death. He started his psychiatric career late in life. At one time there arose the question of his appointment as Medical Superintendent, but his age proved a barrier to this ambition. He was an agreeable colleague, and was well liked at Napsbury and would be much missed.

Dr. Donald Graham Campbell.

Dr. DONALD ROSS said he could not say much about him, because, like Dr. Tighe, he was somewhat seclusive. He was a medical practitioner at Elgin, and was Assistant Medical Officer (non-resident) of Elgin District Mental Hospital. He was a very efficient medical officer, and managed his hospital well and took great interest in the education of the nursing staff. Dr. Campbell was a son of the manse, in Argyllshire, and lived close to the residence of Sir John Sibbald. He was a charming and well-read man, and during the war rendered distinguished service; he rose to the rank of colonel. His death, at a comparatively early age, was due almost entirely to ill-health contracted in the war, which, indeed, led to his retirement from active practice. He joined the Association in 1909.

The PRESIDENT: I feel sure it will be your wish to direct the General Secretary to send appropriate letters of condolence in your name to the relatives in the case of Drs. Campbell and Bodvel-Roberts.

The meeting rose and stood in silence for a brief space of time as a mark of respect to the deceased.

THE REPORT OF THE COUNCIL.

The PRESIDENT said the Council had had many interesting matters before them, of these only three need be mentioned:

Mr. F. Sully had been appointed Parliamentary Agent by authority of the Annual Meeting.

The Council had received with regret the resignation of Dr. G. W. B. James as Honorary Secretary to the Parliamentary Committee, to take effect in July.

It had been intimated from New Zealand that there was a desire to form a branch of the Association there. With this object in view, New Zealand had been advised to first form a Colonial Division.

Through the kindness of Prof. Spearman, the tenth Maudsley Lecture would be delivered in the Botanical Theatre, University College, London, on Wednesday, May 22, following the usual Quarterly General Meeting, which, with the Council meeting, would be held at the same place.

The Committees would meet at the British Medical Association House at the usual time on the previous day.

ELECTION OF NEW MEMBERS.

The PRESIDENT nominated as scrutineers for the ballot Dr. Ross and Dr. James. The following were unanimously elected members of the Association:

GLAISTER, JOHN NORMAN, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Northumberland House, Finsbury Park, N. 4.; 26, New Cavendish Street, W. 1.

Proposed by Drs. Frederick Dillon, B. Hart and F. R. King.

ANDERSON, JOHN COLQUHOUN, B.Sc., M.B., Ch.B.Glasg., Dipl. Psych., Senior Medical Officer, Royal Asylum, Montrose; "Sunnyside," Montrose, Scotland.

Proposed by Drs. C. J. Shaw, Neil T. Kerr and W. M. Buchanan.

HANDLEY, RICHARD, M.B., Ch.B.Manch., D.P.M.; Boothroyden House, Rhodes, Manchester.

Proposed by Drs. David Blair, G. W. A. Watson and J. Ernest Nicole.

STEPHEN, KARIN, M.A.Camb., M.R.C.S., L.R.C.P.Lond., Clinical Assistant, Cassell Hospital, Swaylands; 50, Gordon Square, W.C. 1.

Proposed by Drs. M. E. Franklin, R. Worth and J. Ernest Nicole.

STEPHEN, ADRIAN LESLIE, B.A., M.B., B.S.Lond., Barrister-at-law, Clinical Assistant, Maudsley Hospital; 50, Gordon Square, W.C. 1.

Proposed by Drs. M. E. Franklin, R. Worth and J. Ernest Nicole.

MILLER, EMANUEL, M.A.Camb., M.R.C.S., L.R.C.P.Lond., D.P.M., Clinical Psychologist, West End Hospital for Nervous Diseases; 28, Wimpole Street, W. 1.

Proposed by Drs. Noel H. M. Burke, R. Worth and J. Ernest Nicole.

MARSH, REX GODFREY BLAKE, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.

Proposed by Drs. G. F. Barham, F. Paine and H. W. Parnis.

DISCUSSION ON GENERAL PARALYSIS.

The adjourned discussion on general paralysis was then resumed (*vide* p. 271), at the conclusion of which the meeting terminated.

DIVISIONAL CLINICAL MEETING.

Cheshire County Mental Hospital, Parkside, Macclesfield.

A Clinical Meeting was held at this hospital, by kind invitation of Dr. H. Dove Cormac, Medical Superintendent, on March 21, 1929.

Eight members and two non-members were present.

Dr. DOVE CORMAC read a paper entitled "Light Therapy in Mental Hospitals" (to be published in July) and an interesting discussion followed, in which most of those present took part.

The visitors were entertained to lunch.

Hollymoor Mental Hospital, Birmingham.

A Clinical Meeting of the Birmingham area was held, by the courtesy of Dr. T. C. Graves, at this hospital on March 26, 1929.

Present: Thirteen members. Dr. T. C. Graves presided.

Dr. H. E. BROWN read a paper, showing the actual cases, bearing on the association of sensory disturbances of the scalp and involvements of the accessory sinuses, etc., of the nose.

In all cases there was muscular headache, practically defined by the limits of the attachment of the temporal muscle on the side affected, and apparently due to spasm of that muscle.

Active surgical treatment had led to the disappearance of the headache.

Afterwards Dr. F. A. PICKWORTH showed a number of lantern-slides illustrating sinusitis, and later in the laboratory gave an excellent demonstration of the actual specimens.

A very interesting and extremely stimulating afternoon was spent.

EDUCATIONAL NOTES.

The Royal College of Physicians, Edinburgh.—The Morison Lectures will be delivered by Dr. R. Dods Brown, F.R.C.P., on June 3, 5, and 7, 1929, at 5 p.m. Subject: "Some Observations on the Treatment of Mental Diseases."

The Morison Lecturer proposes to discuss the subject as follows: Some historical notes on treatment. Methods of treatment recently introduced, including those of general paralysis, latent syphilis, dementia præcox, etc. Heliotherapy, actino-therapy, occupational therapy.

University of London.—Advanced Lectures in Psychology. A Course of Two Lectures on the Psychology of Dementia will be given at University College, Gower Street, W.C. 1, by Prof. E. D. Wiersma, Professor of Psychiatry in the University of Groningen, at 5.30 p.m. on May 29 and 30, 1929. The lectures will be delivered in English, and illustrated with lantern-slides. Admission free, without ticket.

THE MENTAL AFTER-CARE ASSOCIATION.

ANNUAL MEETING.

The Mental After-Care Association held its Annual Meeting on Tuesday, March 19, 1929, at Bridewell Royal Hospital, New Bridge Street, London, E.C. 4, by kind permission of the Governors. The President, Col. Sir Charles Wakefield, Bart., C.B.E., presided.

In opening the proceedings he said: I have pleasure in once more presiding at the annual meeting of this excellent cause. We are glad to have many of our

well-trying friends with us, and I particularly extend a welcome to Mr. Hawkins, the son of the founder. (Applause.) The Mental After-Care Association necessarily does good by stealth. It is, in fact, extremely unfortunate that we are to some extent precluded from giving the general public "chapter and verse" for our work. We must, however, cheerfully accept the situation. It is fitting, therefore, that we should from time to time remind the generous public that we are privileged to render very valuable assistance to many thousands of most deserving people. Our work takes its place as essentially a part of the curative process in mental illness. Cases vary widely. Sometimes there is the need for small material help: clothing, tools or equipment have to be found. More frequently, however, our task is the more delicate one of endeavouring to put new heart into men and women who are, it may be, timid, and who shrink from putting themselves to the test. We stand as a bulwark between those who have benefited by medical treatment and the outside world; we are able to afford them a breathing space, during which they are encouraged to face the world in a normal way. The call for our intervention is steadily growing. Last year we dealt with nearly three times as many cases as came to us only a few years before.

Our efforts are not now limited to after-care. We have found that it is possible for us to give useful help in the early stages of mental trouble. During the past year, out of over 2,000 cases helped, nearly a hundred were taken by us in the early stages, and successfully treated without having to enter an institution. I consider this a most valuable feature of our activities, and it gives us an additional claim for recognition and support.

We have been very fortunate in receiving the personal help of the Prince of Wales, whose instinctive sympathy with such efforts as these endears him to all Britons. The Prince spoke in support of our work at the Mansion House a year or two ago, and his advocacy won for us many new friends. (Applause.) I should like to use this opportunity in order to renew our appeal through our present subscribers, and through the kindness of the Press. We should welcome any personal inquiries. Our funds are administered carefully, and we try to carry out our mission in a spirit of understanding and sympathy. Miss Vickers and her helpers have considerable experience in dealing with many difficulties. They have frequently had the happiness of success in cases where a wrong method of approach might have led to tragedy. To bring sunshine once more into a darkened mind is one of the triumphs of medical science. It is our privilege to act as pilots in the final stages of this frequently most difficult task. It is a duty of which we are proud, and the cause is one for which I am glad once again to appeal to public generosity. (Cheers.)

Dr. R. PERCY SMITH, Chairman of the Council, submitted the Annual Report for the year ending 1928, which is as follows:

This Association is now approaching its Jubilee, and is happy to be able to look back on a record of ever-increasing work and usefulness. The progress for the last seven years speaks eloquently as to this, for in 1921 the cases dealt with amounted only to 874, whereas those of the past year total over 2,000, which is the highest figure we have yet attained.

The Council is ever desirous of enlarging the scope of its activities by associating itself with more and more areas, until its ideal is reached of establishing active after-care work in connection with every mental hospital throughout the British Isles.

Every year we approach a little nearer to this great objective. Already we work in direct co-operation with ninety-four mental hospitals, which represent more than half the mental hospitals in England and Wales, and in the past year we have broken new ground by dealing with cases from British Columbia and Bulawayo.

We may make the proud claim that every area in which we have established our work has gladly retained our services and constantly "asked for more."

Nor do we desire to limit our activities to the care of recovered and recovering patients. This Council is very sensible of the great national and humanitarian work that is urgently needed in preventive and early treatment of incipient cases of mental breakdown among the poorer classes. For those there is, at present, almost no provision throughout the country. It is one of our aims to receive such early cases into suitable cottage homes, where, with rest, change of environment, and the care of a sympathetic and understanding matron, they will have the best

chance of recovery without having to pass through the observation ward of an infirmary or being sent as certified patients to a mental hospital. Already a proportion of our work comes under this heading, ninety-seven cases being received for early care in the past year. Cases of this type are constantly referred to us from those general hospitals with out-patients' departments for early nervous and minor mental disorders, and from other sources.

In addition to the provision of "homes" for after-care and early care cases, we follow up recovered and recovering patients; visit their own homes, at the request of the medical superintendents, with a view to reporting on their suitability to receive cases "on trial" or discharged, and keep a friendly eye on patients when they are sent back to their own homes "on trial" or discharged from mental hospitals.

The existence of a friendly person who understands the patient's point of view, and who can explain it to the well-meaning but often extremely unwise and ignorant relatives and friends, helps to tide the patient over a most critical period and prevents an incalculable amount of human suffering.

In the last few years we have had many requests to help patients with small means, but for whom there is no suitable accommodation at the price which they are able to pay. This is work which we are always happy to undertake, and numerous cases from registered mental hospitals, from the private wards of mental hospitals, nursing homes and other sources have passed through our hands.

Some persons may hesitate to help us because they consider that after-care work should be, and ultimately will be, done by the local authority; but the very essence and object of our work is to prevent patients having to pass into the care of local authorities. That our work can best be done by a voluntary body such as the Mental After-Care Association was emphasized by the Royal Commission on Mental Disorder, who say in their Report: "After-care is a service which, in our judgment, can well be performed by voluntary agencies; and while the closest touch should be maintained with the mental hospitals, it should not be an integral part of the official machinery."

In the course of our work we frequently come into contact with voluntary bodies interested in various aspects of social service, such as various branches of the Charity Organization Society and the Voluntary Associations, British Legion, Soldiers' and Sailors' Help Society, Church Army and various police court missionaries, the Royal Medical Benevolent Society, Metropolitan Association for the Blind, Jewish Association for the Protection of Girls and Women.

We are especially desirous of promoting co-operation and co-ordination with other bodies dealing with every branch of mental hygiene.

It is hoped that the new Local Government Act and the Mental Treatment Bill which is to be drafted shortly will lead to considerable improvements in the facilities for dealing with those suffering from mental disorders. It is urgently to be desired, and this Council will use every means in its power to ensure that there shall be an extension of both the after-care and early care services. At present the only official grants are those made to patients "on trial" by the Mental Hospitals Committees. The work of early and after-care has, at present, no direct recognition from the Ministry of Health, and no mention is made of it in the existing Lunacy Act—an omission that it must be our aim to have rectified.

The Royal Commission on Lunacy and Mental Disorder, referring to this, made the following recommendation: "A considerable extension of after-care work is urgently needed, especially in the provinces. We recommend that local authorities should be empowered, as is proposed in the Mental Treatment Bill, to provide for the after-care of patients directly or through voluntary agencies."

Further, it will be recalled that the National Council for Mental Hygiene, in its annual report for 1926, published the following clauses on the subject of after care:

"We submit:

"(a) That there should be one entirely distinct and separate organization for dealing with after-care work for patients convalescing from mental disorder.

"(b) That the organization should be controlled from one centre, to which all information would be sent, and where records would be kept and be available for private information.

"(c) That the existing Mental After-Care Association, having regard to its long experience of this work, would most usefully fulfil the objects we have in view.

"(d) That this Association should be developed on its present voluntary basis with branches and voluntary workers throughout the country, and that its statutory support and employment by County and Borough Authorities (as recommended by the Royal Commission) should be promoted.

"(e) That all information obtained by the Central Association for Mental Welfare and all voluntary associations affiliated to it in regard to convalescing mental patients should be referred to the Mental After-Care Association, and that the voluntary workers of these bodies should be invited to co-operate in regard to after-care directly with the Mental After-Care Association when dealing with cases other than mental defectives from mental hospitals."

We have, therefore, the assurance of the support of these two important and expert bodies in furthering aims which we believe to be of the utmost value to the community.

Then follows a long list of grateful acknowledgments of donations and help in all directions, description of the work of local branches, etc.

He moved the adoption of the Report.

Mr. S. J. FRASER MACLEOD, K.C., seconded the motion. From small and unpretentious beginnings, he said, the Association had steadily and systematically done its work. With the Royal Patronage of the Prince of Wales, who took the greatest interest in the work, with the assistance of the energetic, sympathetic and generous President, Sir Charles Wakefield—(cheers)—and with the aid of its officers, its admirable secretary and the energetic staff, they might hope that in the near future the work of the Association would be extended throughout the length and breadth of the country. The character of the work was such that they must all feel it was deserving of their assistance and support, and induce their friends to subscribe to its funds, and, by propaganda and every other legitimate means, increase the resources. (Applause.)

Sir MAURICE CRAIG, C.B.E. (the Treasurer), in presenting the accounts, said that the balance of expenditure over income was only £130, as against £708 in the previous year. The donations were £600 more than last year, and they had £174 more from the Queen Adelaide Fund, the Council of which had given them as much as £928. Payments from friends of the patients were this year £468 more than in any previous year. On the other hand, the subscriptions had fallen by £96. They totalled £490, and the donations £2,000. Investments produced £503. The total revenue was £8,831. The average expenditure on the 2,090 cases was £3 19s. 7d. per case, as against £3 17s. 8d. in 1927 and 1926. The ratio of administrative expenses was, he believed, lower than that of any other charitable institution, *viz.* 7.18%. There was no association in which more was done for the amount of money. (Applause.) They had no overhead charges. There was no other Association doing such work as theirs.

A. O. GOODRICH, Esq., J.P., L.C.C., in seconding the adoption of the accounts, said he was a business man, and he wished that he could carry on his business with working expenses of only 7%. He believed that an insurance company without any agents, and doing its business by post, could not do its business under 10% expenses. In London they had chargeable to the London County Council something like 20,000 patients, and eleven large mental hospitals. The Association was a great blessing to them, and had never refused its help. That was a grand thing. The Association looked after a discharged patient until they found him a job. He had never come across a better staff than they had at the Mental After-Care Association. (Cheers.) The staff volunteered to run the "Help Yourself" scheme, got up by the Stock Exchange. They sold nearly two thousand magazines at 2s. 6d. each, the result being that the Association received £150, the proceeds of the sale. They could not have done that unless they had their heart and soul in the work they were doing. (Cheers.)

Sir ROBERT ARMSTRONG-JONES proposed the re-election of officers. He found, he said, that that was the forty-fifth year since the Association had met under the auspices of the Bethlem Royal Hospital. It was founded in the house of Sir John Bucknell, the father of Mr. Justice Bucknell. It was a happy coincidence that the President of the Association and the President of the Bethlem Royal Hospital were on that occasion united in the same distinguished personality—that of Sir Charles Wakefield. (Cheers.) Among his predecessors was the great Lord Shaftesbury. None of them had surpassed the present President in tender solicitude for the mentally ill. The certified insane were not decreasing in number,

and the need of the Association increased year by year. The prospects of a person leaving a mental hospital after a mental breakdown were cheerless, and often pitiful. Unless a person got help from such an Association as theirs he might succumb, and perhaps become permanently incapacitated. It was an unexpected and very serious shock to the family life.

The Rev. F. H. A. HAWKINS seconded the motion, which was carried.

Dr. J. R. LORD, C.B.E., said that although he rarely attended After-Care meetings—feeling that the movement was in good hands, and having complete confidence in the late Dr. Henry Rayner and his successor, Dr. R. Percy Smith—he had nevertheless taken a keen interest in the after-care movement, and the After-Care Association had always had his loyal support and admiration.

Horton Mental Hospital was one of the first, if not the first, to take full advantage of the Association's offer to make environmental reports in regard to every case to be allowed out on trial or discharged. This had been done for Horton by the Association in every case (with one or two exceptions) since the beginning of 1925. Included were Section 79 and some private patient discharges. What he wanted to stress was that the work had been done exceedingly well. Guided by such information the period of trial was much more likely to be successful and the chances of relapse on trial or on complete recovery much lessened.

This work alone would, in his opinion, justify the existence of the Association—so much importance did he attach to it.

Of equal importance was the environmental report made by the Hospital Visitors and other social workers on the admission of patients, a movement commenced at Horton in 1922, but the line of inquiry and the information required were essentially different. For both, the workers needed special training.

In the case of the hospital visitor the case was looked at from the point of view of diagnosis and treatment, and in the case of the after-care visitor the point of view of inquiry was the patient facing the world again.

His views on this matter and on how after-care work could be best undertaken had been clearly stated in his address on June 9, 1926, to the Surrey Voluntary Association for Mental and Physical Welfare, which he would read :

“ It should be noted that she does not, as a rule, undertake ‘ after-care ’ work. This is done by the workers of the After-Care Association, and it is very advisable that it should continue so, as it is a job for which special training and knowledge is required.

“ After-care is best centralized in an organization which can direct the operations throughout the land and keep in touch with employers over a wide area, and also maintain convalescent institutions, rest-houses or hostels, which are absolutely necessary in dealing with cases not quite fit to be given entire freedom. Such a central association can follow up cases, however widely they scatter on complete discharge. Local branches or after-care societies can materially aid the parent association in this work.”

He was glad to say that the National Council of Mental Hygiene had afterwards endorsed these views, as was seen by the Report.

The next matter was that he had a long experience of the Association's Homes, and had never once heard a complaint about them. Patients had universally expressed their gratitude for all that had been done for them. This was a remarkable fact, and showed that these homes must be exceedingly well managed.

A third matter was the publicity given in the Report regarding what the late Sir Frederick Mott called “ pre-care ” in mental cases. He hoped that this side of the Association's work would develop, as it would help to solve a great difficulty which the National Council for Mental Hygiene felt existed. That Council had recently urged the establishment of hostels for patients suffering from incipient mental disorders and “ nerve ” conditions while undergoing treatment at the psychiatric out-patient departments of general hospitals. The proposed hostels would be costly, and the co-operation of the After-Care Association was desirous in the interests of economy.

He begged to propose a vote of thanks to the Governors of Bridewell for the use of the Hospital on that day. It was appropriate that they should meet there, for was it not the home of the Elliott Charity, which provided after-care for those broken down by attendance on the mentally afflicted ? (Applause.) He had also to propose a vote of thanks to Sir Charles Wakefield, a great humanitarian, for presiding and for providing tea. (Loud applause.)

SCOTTISH ASYLUMS PATHOLOGICAL SCHEME.

THIRTY-FIRST ANNUAL REPORT FOR THE YEAR 1927.

[Abridged.]

During the year valuable work, both in routine examinations and in research, has continued to be performed in the Laboratory, and the Board again express their appreciations of Dr. Reynolds's services.

From the accounts it appears that the revenue for the year amounted to £1,865 14s. 1d. and the expenditure to £1,176 4s. 7d., leaving a credit balance of £689 9s. 6d., or a surplus of £38 18s. 9d. on the year's working. The Medical Research Council renewed their annual grant of £200 to defray the expenses of the Pathologist's special research work.

At the Annual Meeting Dr. C. J. Shaw was unanimously elected Chairman for the ensuing two years in place of Dr. Douglas McRae, whose term of office had expired, and the Executive Committee was appointed, consisting of Dr. Shaw, *Chairman*, Dr. R. B. Campbell, *Honorary Secretary and Treasurer*, Profs. G. M. Robertson and J. Lorrain Smith, Drs. W. D. Chambers, W. M. Buchanan, Douglas McRae, and Ex-Provost Stark.

Dr. Reynolds has continued to conduct his course on neuropathology at Edinburgh University. He hopes in the coming year not only to extend the scope of the course, but to bring it into closer touch with the clinical teaching of neurology and psychiatry than has been possible hitherto.

The routine work of the Laboratory has increased, and the number of specimens reported on was 204. Dr. Reynolds visited a number of the contributing mental hospitals, and the Board emphasizes the value of these visits in keeping up an active relationship between the hospitals and the Laboratory.

The researches carried out by Dr. Reynolds and Dr. Logan Turner on "Paths of Infection of the Central Nervous System" have been concluded. Three further individual studies have been published (*Journ. of Laryngol. and Otol.*, xlii, Nos. 3 and 8, and xliii, No. 1), and a monograph is in course of preparation.

Dr. James K. Slater and Dr. Reynolds have published a paper on "The Structure and Functions of the Interstitial Tissues of the Central Nervous System" (*Edin. Med. Journ.*, February, 1928). This was a preliminary study to experimental work on the healing of lesions of the central nervous system. They have begun the latter work, and the progressive changes in the neuroglia so far demonstrated have satisfied them that the research will be of great value in elucidating the method of healing of lesions.

Several individual cases of disease of the nervous system have been investigated, and some of these will be published in due course.

MEDICAL WOMEN'S FEDERATION.

MEMORANDUM ON THE WORK OF MEDICAL WOMEN IN MENTAL HOSPITALS.

The Medical Women's Federation desires to draw the attention of the public, especially the Committees of Local Authorities, governing mental hospitals, to the great need for the appointment of more medical women on the staffs of mental hospitals.

These hospitals in England and Wales now treat 60,824 male and 77,469 female patients, the medical officers being in the proportion of 503 male to 42 female doctors; in Scotland, 7,998 male and 7,753 female patients, with 78 men and 5 women doctors.

Difficulties with regard to the appointment of women have been raised, but it has been found that these have resolved themselves when the authorities of the hospital have been convinced that for the sake of the patients medical women are needed.

Medical women hold posts in the mental hospital service, public and private, not only in Great Britain and Ireland, but also in America, Austria, Canada, Denmark, France, Germany, Hungary, South Africa and Switzerland.

In advancing this memorandum the Medical Women's Federation wishes to make it clear that they suggest that the appointments of women should be on an equal basis with those of medical men, with equality of pay and opportunities of

promotion and interchangeable duties. The advantage to be gained from such appointments is primarily that medical attendants of either sex should be available for patients.

THE FIRST INTERNATIONAL CONGRESS ON MENTAL HYGIENE.

THE first International Congress on Mental Hygiene, of which Mr. Clifford W. Beers has been elected Secretary-General, will be held in Washington, May 5-10, 1930. The offices of the Congress are situated at 370, Seventh Avenue, New York City.

The Congress is being arranged by a representative committee of psychiatrists, sociologists and educationists from South Africa, Australia, Belgium, Brazil, Bulgaria, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Japan, Luxemburg, New Zealand, Norway, Porto Rico, Russia, Spain, Sweden and Switzerland.

The Chairman of the Committee on Organization of the Congress is Dr. Arthur H. Ruggles, of Providence, R.I., President of the American Foundation for Mental Hygiene and Chairman of the Executive Committee of the National Committee for Mental Hygiene. The Vice-Chairmen are Dr. Samuel T. Orton, of New York City, President of the American Psychiatric Association, and Dr. George E. McPherson, of Belchertown, Mass., President of the American Association for the Study of the Feeble-Minded.

The programme for the Congress will be in charge of Dr. Frankwood E. Williams, Medical Director of the (United States) National Committee for Mental Hygiene, and an Executive Committee. Mr. John R. Shillady has been appointed Administrative Secretary of the Congress.

Leaders in mental hygiene work throughout the world have been anxious to meet for the study and discussion of their common problems. The lack of funds to pay the cost of the Congress has now been met through the gift of the American Foundation for Mental Hygiene.

STUDY TOURS AND POST-GRADUATE EDUCATION INFORMATION SUB-COMMITTEE.

TOUR OF THE PARIS MENTAL HOSPITALS AND CLINICS.

This Sub-Committee, assisted by Dr. Targowla, of Paris, is arranging a tour of the French Mental Hospitals and Clinics to take place from June 3 to 11 (leaving London, Victoria Station, on Sunday, June 2).

The number of official members of the party will probably be limited to about 25; but, as in the case of the recent Dutch tour, members may be accompanied by friends and relatives desirous of visiting Paris, and taking such part in the social side of the tour as may be found possible.

In allotting places in the party the Divisions of the Association will be treated proportionately.

Accommodation is being reserved at the Hotel Bohy Lafayette, at the reduced rate (for *demi-pension*) of about 75 francs a day for each person, member or visitor, which is payable direct to the Hotel.

In order that advantage may be taken of the considerably reduced travelling rates offered by the Southern Railway for a minimum party of 25 (London, *via* Calais, to Paris 1st Class return: £4 18s. 2d.—validity 33 days), those intending to join should notify, at the earliest possible moment, the Hon. Secretary of the Sub-Committee (*see below*), who will purchase tickets. Under these circumstances there are possibilities of reduced fares from the provinces to London, about which he will deal with each person individually. *Should the party be fewer than 25 persons, ordinary fares to Paris will be charged.* As the size of the party must be communicated without delay to the Paris Hotel and to our French hosts, a place in the party (within the number allowed) cannot be guaranteed after May 10.

Particulars of new vaccination regulations will be sent to members of the party with the programme.

Applications to join the party, giving names of accompanying friends and relatives needing hotel accommodation, and *passports* should be sent to Dr. A. Edward Evans, 3, Rotherwick Court, Golders Green, London, N.W. 11.

MR. SPENCER HONEYMAN.

By the retirement of Mr. Spencer Honeyman, all users of the two libraries (the Association's and that of the British Medical Association) lose a sincere friend and counsellor. He was a most amiable and obliging man, and had a wonderful knowledge of the books under his care. His patience and courtesy were unbounded in his efforts to supply references and other literary information, often on information of a hazy description.

The connection between Mr. Honeyman's family and the British Medical Association extends to three generations and dates from 1855.

Mr. Honeyman commenced laying the foundations of the British Medical Association Library in 1888 and became Librarian in 1893, and his enthusiasm over books and his devoted services have led to the establishment of one of the finest medical libraries in the country.

The Royal Medico-Psychological Association's Library passed into his care in 1926, and the Association is grateful for the great interest he has taken in it, especially during its recent re-cataloguing.

The Council, at a recent meeting, directed that a letter be sent to him expressing thanks for his services and regret that for the future they would not be available.

It is surely a remarkable fact that during forty-one years' duty as a Librarian he had never missed a working day on account of sickness or any other cause, and we hope that this record may continue and be a feature of his days of well-earned leisure in retirement.

J. R. LORD.

 OBITUARY.

HUGH FRANK BODVEL-ROBERTS, M.A.Camb., L.S.A., M.R.C.S., L.R.C.P.
 Ordinary Member since 1904.

Dr. Bodvel-Roberts was educated at Rugby, went to Cambridge, and obtained his medical degrees at St. Bartholomew's Hospital in 1903.

Before taking up mental work he had a House Appointment at the Norfolk and Norwich Hospital. He was then appointed as Junior Assistant Medical Officer at Warwick County Mental Hospital, and later to Napsbury Mental Hospital, St. Albans, Herts, on March 5, 1906. He obtained gradual promotion until he reached the position of Senior Assistant Medical Officer, which post he filled until the time of his death.

During the Great War he joined the R.A.M.C., and served both in India and at home.

He was a most pleasant colleague, conscientious in his dealings, and never failed to do his best for both patients and staff.

Although obviously in failing health he stuck to his post to the end and practically died in harness. His loss is much regretted by all who knew him.

He died at his home in St. Albans on October 11, 1928.

THOMAS DUNCAN GREENLEES, M.D., F.R.S.E.,
 Ordinary Member 1886-1921.

We regret to announce the death of Dr. T. Duncan Greenlees, which took place on January 22 at St. Leonard's-on-Sea, where he had lived in retirement for the last few years. The son of Dr. Thomas Greenlees, he was born in Ballantrae, Ayrshire, in 1859, and he had a great love for his native place, which he frequently visited.

His medical studies were pursued at Glasgow University and thereafter at Edinburgh University, where he graduated M.B., C.M. in 1882 and M.D. in 1901. After a short experience of general practice he joined the staff of Garlands Asylum, Carlisle, in 1884. Three years later he became an assistant medical officer at the City of London Asylum, Dartford, and in 1890 he was appointed Medical Superintendent of the Grahamstown Asylum, South Africa—a post which he held for eighteen years. He returned to this country in 1908 to take charge of a private asylum at Fenstanton, Tulse Hill, resigning in 1913.

He held a commission as Surgeon-Captain in the Boer War, and from August, 1914, to July, 1918, he was a Major in the Royal Army Medical Corps and held several important home appointments.

High intellectual attainments, alertness, great force of character and untiring energy combined to make Dr. Greenlees a very capable asylum administrator. He accomplished original work as an assistant medical officer, and in 1885 gained the Bronze Medal and Prize of the Medico-Psychological Association for his essay on "Diseases of the Circulatory System in the Insane." He was the author of important contributions to psychiatry published in the medical journals of this country, South Africa and America. At one time President of the Caledonian Medical Society he also represented South Africa for many years on the Council of the British Medical Association. Outside his medical interests he was an enthusiastic Freemason.

But how faintly do all these chronicles of Dr. Greenlees' career portray the man! What a bright, joyous soul he was! How wonderfully alive: bubbling, sparkling and flowing over with enthusiasm and restless energy! What zest in life! Handicapped though he was by his health, never very robust, and having constantly to fight asthma—his life-long enemy—his energy and high spirits carried him further than most. He never spared himself in serving his day and generation, and delighted greatly in the company of his fellows. He had a keen sense of humour, but with all his sallies of wit and outspoken criticism he was at bottom genial, generous, sympathetic and kindly. There remains for a very wide circle of friends an abiding memory of a rare and most lovable soul.

Dr. Greenlees is survived by his widow, a sister of Dr. E. W. White (a past President of the Association), two daughters and a son, to whom we extend our deep sympathy.

S. R. M.

JOHN VALERIAN GEORGE BROSAN TIGHE, M.B., B.Ch., B.A.O., R.U.I.

Medical Superintendent, Gateshead Mental Hospital, Stannington, Northumberland. Ordinary member since 1901; Secretary, Midland and Northern Division, since 1927.

The sudden death of Dr. Tighe on January 21, 1929, was a great shock to members of the Association, and especially so to the staff and patients at Gateshead Mental Hospital. He was found dead in bed, having to all appearances died in his sleep, and had not told anyone that he was otherwise than in his usual health. It had been noticed, however, by one of his friends as far back as July that he was taking a good deal of care of himself.

There was no inquest.

Though decidedly reserved, he nevertheless was kindly disposed and friendly in his attitude to his colleagues and friends. It was felt by all that he was a man to be trusted and to be relied upon to see a matter through. Everybody seemed to know him, but none very well. Of undoubted ability and shrewdness, he commanded great respect, and this estimation of him led to his appointment as Secretary to the Midland and Northern Division in 1927, which position he held at the time of his death.

He was a keen golfer, and was Secretary of the Golf Club at York for a number of years.

Born a Roman Catholic, he has only been known to attend the Church of England services, and the Rev. A. G. Dodderidge, the Gateshead Mental Hospital Chaplain, officiated at his funeral, which took place on January 26 at Stannington Churchyard, where a large crowd of mourners gathered to pay a final tribute to his memory.

He was a bachelor and had no near relatives living, and none of the beneficiaries under his will was a relative.

He left £250 to the Mental Hospital Canteen and Benevolent Fund, and £250 to the Royal Victoria Infirmary, Newcastle-on-Tyne.

Tighe was born in Tipperary on April 22, 1872, and was the son of T. J. Tighe, Esq. He was educated in the first place at Rockwell College and Queen's College, Ireland. His medical education commenced in 1901 at University College and Mater Hospital, Dublin, and he qualified M.B., B.Ch., B.A.O. Royal University in 1896. He afterwards became Senior House Surgeon at the Mater Hospital. In 1901 he decided upon a psychiatric career, and entered the service

of the Yorkshire Mental Hospitals at North Riding Mental Hospital, Clifton, York, as an assistant medical officer; here he stayed until 1913, when he was appointed Medical Superintendent on its establishment of Gateshead Mental Hospital, Stannington, Northumberland. When this hospital was taken over in 1918 as a neurological war hospital, he became Officer Commanding with the temporary rank of Lt.-Colonel R.A.M.C. This war hospital unit came to an end in 1919 and reverted to its civilian purposes, and Tighe resumed his duties as Medical Superintendent.

He entered into its reorganization with enthusiasm, and, as the President remarked at the last quarterly meeting of the Association, Tighe and Gateshead Mental Hospital were one and the same thing, so much of his personality had he built into its administration.

" Wohlgethan überlebt den Tod."

J. R. LORD.

NOTICES BY THE HONORARY LIBRARIAN.

The following journals are circulated from the Library :

American Journal of Psychiatry.

The Psychological Review.

Journal of Neurology and Psychopathology.

L'Encéphale.

International Journal of Psycho-Analysis.

Journal of Abnormal Psychology.

Mental Hygiene.

Journal of Nervous and Mental Diseases.

Revue Neurologique.

Archives of Neurology and Psychiatry.

Journal of Comparative Psychology.

Mr. T. J. Shields has succeeded Mr. S. Honeyman as Librarian

Dr. W. H. Coupland has presented the Library with a copy of *The Treatment of the Insane without Mechanical Restraints*, by John Conolly, M.D., 1856. He makes this generous gift " pour encourager les autres " and the Library Committee hopes it will not be without avail. As a psychiatric reference library that of the Royal Medico-Psychological Association should be the first in the United Kingdom and very soon could be, if members would contribute only one work each. A copy of the Library catalogue can be obtained from Messrs. J. & A. Churchill, price 2s., post free, from which members can gather the titles of books missing from what should be a historical collection of psychiatric works from the seventeenth century onwards. The Honorary Librarian will be glad to assist members in making a suitable selection of works for presentation. Failing this, the Committee would like to have the first offer of rare psychiatric books which members for some reason or other, find it necessary to sell.

NOTICES BY THE REGISTRAR.

Bronze Medal and Prize for 1929.

Dissertations for the Association's Bronze Medal and Prize must be delivered to the Registrar by April 30, 1929.

Divisional Prizes for 1928.

Papers certified as eligible for this competition must be forwarded to the Registrar not later than April 30, 1929

Gaskell Medal and Prize.

The following Regulation is rescinded on the authority of the Annual General Meeting (Wakefield), 1928 :

" (3) A thesis based on original research, if of sufficient merit, may be accepted by the examiners in place of either the written or the clinical examination or both."

The examination for the Gaskell Prize and Medal and the examination for the Certificate in Psychological Medicine, will be held at the Maudsley Hospital Denmark Hill, London, on Friday, May 31, and (if necessary) Saturday, June 1, 1929.

Applications for entry to either examination to be sent to the Registrar, St. Andrew's Hospital, Northampton, before Friday, May 17, 1929.

There is no fee for entrance to the Gaskell Prize Examination.

The entrance fee for the examination for the Certificate in Psychological Medicine is three guineas.

NOTICES BY THE GENERAL SECRETARY.

Appointments.

PETER KNIGHT McCOWAN, M.D.Edin., M.R.C.P.Lond., D.P.M., to be Medical Superintendent, City Mental Hospital, Whitchurch, Cardiff.

THOMAS REGINALD CARWARDINE SPENCE, M.C., M.B., Ch.B.Edin., to be Assistant in Psychiatry, University of Edinburgh.

ROBERT DURWARD CLARKSON, B.Sc., M.D., F.R.C.P.E., to be Lecturer on Mental Deficiency, University of Edinburgh.

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NOTICE OF MEETINGS.

Annual General Meeting.—July 9-12, in London.

Quarterly Meeting.—May 22, at University College, Gower Street, W.C. 1. Council at 11 a.m., general meeting at 2.30. Tenth Maudsley Lecture at 3.30 p.m. Committees meet the previous day at 19B, Tavistock Square.

South-Western Division.—April 26, at Cliffden, Teignmouth, Devon. October 24.

Northern and Midland Division.—April 25, at the County Mental Hospital, Chester.

Scottish Division.—June 25, Dykebar Mental Hospital, Paisley.

Irish Division.—April 11, at Purdysburn Villa Colony, Belfast.

THE JOURNAL OF MENTAL SCIENCE

[*Published by Authority of the Royal Medico-Psychological
Association.*]

No. 310 [NEW SERIES]
No. 274.

JULY, 1929.

VOL. LXXV.

Part I.—Original Articles.

THE TENTH MAUDSLEY LECTURE: THE PSYCHIATRIC USE OF THE METHODS AND RESULTS OF EXPERIMENTAL PSYCHOLOGY.

Delivered by CHARLES E. SPEARMAN, LL.D., Ph.D., F.R.S.,
*Professor of Psychology in the University of London, at the
Quarterly Meeting of the Royal Medico-Psychological Association,
held on May 22, 1929, at University College, London.*

THE MAIN PROBLEM.

THE subject to be treated by me on this occasion may perhaps seem to some people almost presumptuous. For psychology is not without severe critics. I can hear one of these saying that, before it takes upon itself to teach others, it would do well to put its own house in order. Is it not, by general admission, passing through a "crisis"? Have not half-a-dozen theories arisen, each of which claims to be the "new" psychology, whereby all the older views are now to be finally superseded?

However, the situation is not really so bad as it seems. While a few brilliant persons have indeed been building up these rival theories, the great majority of psychologists—at any rate of those devoted to experiment—have continued to push steadily on with their patient spade-work; they are slowly accumulating the material to which any theory whatsoever is bound to conform in the long run. And what is even more important, the theories themselves, the old as well as the new, are by no means in such deadly antagonism as many of their respective proponents would appear to make out. Every one of these competing schools, I venture to say, has glimpsed some more or less valuable core of truth. Each errs mainly by depreciating the others. Each is

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However, the situation is not really so bad as it seems. While a few brilliant persons have indeed been building up these rival theories, the great majority of psychologists—at any rate of those devoted to experiment—have continued to push steadily on with their patient spade-work; they are slowly accumulating the material to which any theory whatsoever is bound to conform in the long run. And what is even more important, the theories themselves, the old as well as the new, are by no means in such deadly antagonism as many of their respective proponents would appear to make out. Every one of these competing schools, I venture to say, has glimpsed some more or less valuable core of truth. Each errs mainly by depreciating the others. Each is

mainly right in what it affirms, but wrong in what it overlooks or denies. Indeed, no small portion of what is being enthusiastically trumpeted about as revolutionary consists in no more than very old stuff dressed up in new names.

There is yet another and still better plea that I may urge on behalf of the present topic. This is that I do not propose simply to state what psychology has to teach psychiatry—far otherwise. I am at least as much concerned with what psychiatry has to teach psychology. In fact—as we shall see more definitely later on—my chief aim is to bring forward a plan of research by which we may all of us enter into the most intimate collaboration.

Turning from this apology to the essential business of the day, I should like first to take up a definite attitude with regard to the relation between mind and body. Some people loudly proclaim that the body alone is worthy of serious scientific consideration, since it alone has causal significance, the mind being but an idle “epiphenomenon.” Others more argumentatively maintain just the opposite theme; for them the body is but one of the dreams that the mind has created for itself. With neither assertion need we trouble ourselves here. What we do maintain is that each, mind and body, must at first be studied purely in and for itself. The most profound and exhaustive knowledge of bodily structure and function would no more give us the slightest insight into the mind than the most perfect command of the English language would enable us to say a single sentence in French. *Vice versa*, of course, no knowledge of the mind would by itself give the smallest information about the body. If we want to know about both mind and body, we must study *both*, as also the relations between them. Only in proportion as these relations become clear to us can we hope to express either of the two in terms of the other. And to ascertain these relations effectively there is an obvious need that psychologists and psychiatrists should work hand in hand. The collaboration I am proposing is, therefore, no arbitrary plan, but necessitated by the very nature of the case. In the meantime, however, I will on the present occasion confine myself as far as possible to terms of mind, reserving the physiological version for a later time.

Since thus the part imposed upon myself is to represent the mental side of the matter, I would start by reminding you—in order to make clear the general arrangement of my discourse—that psychology, like all genuine science, as contrasted with the mere observation of details, is bound to base itself upon principles.

These latter consist partly in ultimate concepts and partly in ultimate laws. The concepts serve primarily to array the material

into perspicuous classes. The laws then link the concepts together, in relations either of coexistence or of sequence. Now, one conceptual achievement of psychology, though over two thousand years old, is still to this day of such paramount importance that we must employ it as our general basis. I refer to the division of mental processes into three classes, characterized respectively by the concepts of cognition, affection and conation. More popularly—but with proportional loss of exactitude—we may call them knowing, feeling and striving. Between the two latter, indeed, the connection is so intimate that even the best among psychologists have had difficulty in keeping them distinct. But between these and the first or cognitive class of mental process any confusion is far less excusable; for between them there exists a very clear and deep line of demarcation. Failure to observe this line is responsible for many grave aberrations, I believe, both in psychology and psychiatry.

Here a word may perhaps be added to anticipate an objection that is not infrequently raised even against this fundamental division of mental process into cognition, conation and affection. The three, it is said, are not so many independent events, but merely different abstract aspects of one and the same real event, namely, mental experience. Freely granted! But, it must be answered, as much may be said of *all* alleged processes, physical quite as much as mental. We talk, for example, of a portion of matter falling to the earth, or of its growing warmer, or of its becoming charged with electricity; but in reality each particle of matter is making not three, but only one movement all the time.

Having thus abstracted from experience its cognitive aspect, how shall we handle this for the purposes of diagnosing, prognosing and mitigating its disorders? A school with great influence, especially among physiologists, has based itself upon the doctrine of sensationism. It has urged that all our knowing must needs be given in our sensations, and that everything else can merely consist in complex combinations of these. Accepting this view, all disorders of cognition would be reducible to disturbances of one or other of the various sensory characters and properties, such as quality, intensity, reaction-time, duration, feeling-tone, localization, fusion, adaptation, fatigue, besides the relations to the reflexes and the associations. To examine all this systematically, however, would not only involve immense labour, but in the great majority of cases yield little if any useful result. For the doctrine of sensationism has proved itself as inadequate for psychiatric purposes as for anything else. In practice, the sensory examination of a patient must be confined to characters of a particular kind; those

where either he himself has noticed something abnormal or where some other particular ground exists for suspecting some sensory disturbance. Within this very limited field, sensations can, no doubt, sometimes play an important part in psycho-pathology; and whenever this is so, the technique of experimental psychology may be most effective. A conspicuous instance has been supplied by some of the work of Head. However, these experimental methods have long been generally known. They are taught in every good course of practical psychology, and need not further concern us here.

Distinguishable from all this abnormal functioning of the sensory receptors and tracts under peripheral stimulation is their improper excitation by more central influences; this occurs especially in the case of hallucinations. But these phenomena, although so very familiar to us all, do not seem to have ever yet been investigated with the success that might well have been expected. Further discussion of them may for the present be waived.

Passing beyond all this basic, but nevertheless relatively unimportant region of sensation, what do we find that remains? The answer to this question throughout the ages has always been the postulating of "formal faculties." In recent years, it is true, this word "faculty" has been put under taboo. But substantially just the same thing has everywhere been retained, under such names as "powers," "capacities," and so forth. Most widely adopted, perhaps, have been those of "apperception," "attention," "memory," "imagination," together with some such supreme ruler as the "intellect," or "intelligence," or "reason." But a great many other faculties are still being advocated. Indeed, many an author seems to think that he would be lacking in originality if he did not invent an array of faculties for himself. And the real discrepancy between the authors goes much further still than the names given to the faculties would suggest; for under one and the same name each author usually understands something quite different. The most notorious instance has been the faculty of "intelligence," over which there have been squabbles as endless as they were futile—naturally enough, seeing that every disputant used the word with a different meaning.

Still worse than the superabundance and the equivocality of the faculties that have been conceived is the doubt as to which, if any, of them satisfies the most fundamental scientific requirement: that it should indicate, not merely a class, but a functional unity, so that wide-ranging generalities can be predicted from it. Take, for instance, "attention." When talking to some patient, we may notice his roving eye and disjointed replies; we are inclined to infer

that his attention suffers from lack of power to concentrate. We may even take a step further and submit him to an experimental test. Here is one that has been chosen for this purpose by a great (foreign) railway organization, said to be the largest employer of labour in the world; to this test every prospective employee has to submit. The task consists in making the subject look over a list of numbers and tick off those which occur in another list visible to him. Let us suppose that our patient leaves many of the proper numbers unticked. Our diagnosis is confirmed; the patient, we say, is certainly suffering from lack of concentration. But before accepting this verdict as final, let us pause and ask ourselves whether the possibility may not still remain open that this same patient, who is so little fixed by our conversational efforts, or by ticking off the numbers, may nevertheless be capable of both deep and prolonged attention to other matters more to his liking? In that case, our diagnosis would be utterly false. Now, such fears for the diagnosis have unfortunately proved to be only too well grounded. More exact experiment has demonstrated that the power of attending to one thing may—under normal conditions at any rate—have little if any connection with that of attending to others. And what is thus found about the “faculty of attention” may, for all that is commonly known, be no less true of the other alleged faculties also.

Faced by such a formidable obstacle, psychologists have been obliged to change their line of attack. Instead of straining their ingenuity to invent faculties in ever greater abundance and of ever increasing novelty, they were obliged instead to search out diligently which, if any, among them all really do function in a unitary manner. Only when this was discovered would observations and experiments possess a significance stretching beyond the individual occurrence out into the vast stream of general life. Research along this line has in recent years been pursued with extraordinary ardour. And it has eventually been richly rewarded. Evidence has, indeed, been found that the immense majority of the supposed faculties have no real foundation; that is to say, when an individual shows a high degree of any mental power, this gives little or no information about his power for operations of the same form but different material. From this great mass of negative results, however, there have emerged a very few, but all the more precious, exceptions. In these rare cases genuine faculties have been discovered, where the measurements made with one kind of material do afford evidence—itself measurable in degree—with regard to further kinds. My plea here is that these rare genuine faculties, discovered in the case of normal individual differences, should now be tried out on the differences of pathological order.

MEASUREMENT OF G AND S .

Now, the first and foremost of these results achieved in the sphere of normal individual differences is one that finally emerged out of the turmoil about the so-called "intelligence." From the deadlock an escape was found by way of mathematics. Of these we can here only afford space for the briefest mention. After groups of persons had been submitted to tests of ability in various mental operations, the plan was naturally formed of ascertaining how far the ability for any one of these operations tended to go with corresponding ability for the others. And to estimate such correspondence there lay to hand the great mathematical device which we owe chiefly to the genius of Galton, and which goes by the name of correlational coefficients. On employing this device, the observation was made, not only that the correlations had positive values, but also that these values tended to fall into a peculiar arrangement which has been termed a "hierarchy." Following this observation came the further mathematical discovery that when, and only when, such a hierarchy occurs, then each measurement for each ability of each individual can be divided into two factors, the one being constant for all the abilities at issue though largely varying from one individual to another; the other factor varying not only from individual to individual, but also at random from one ability to another. These two factors have been called g and s respectively. It is clear that the g of a person admits of more or less accurate calculation. For if we average the scores which he obtains for numerous mental abilities, then the s 's will tend to cancel each other, since they vary at random. The final average, then, will be determined almost solely by his g , since this has the same value, high or low, every time. From this argument we can at once form a notion of the great principle from which have been derived—too often in an unconscious and unsatisfactory manner—all the current tests that claim to measure "general ability," "mental age," "intelligence quotient" and the like. All consist of subtests so numerous that the s 's mutually cancel one another, leaving a more or less pure g . In this g we attain at last to a genuine faculty, one that really possesses functional unity, is general over an extremely wide range, and admits of precise evaluation.

Moreover, its importance is extraordinarily increased by the evidence, due in large measure to Dr. Bernard Hart, that this g , discovered to be such a dominant factor in the differences between normal persons, is at the same time just the factor predominantly affected in the pathological states known as amentia or dementia.

But here a warning is needed. The fact of our being thus able

actually and unequivocally to measure any person's *g* does not necessarily imply that we know the true nature of what is thus being measured. The case is analogous to that of electricity, which for long admitted of measurement—and accurately too—while all the time there were only very disputable surmises, since rejected, as to what the electricity really was in itself. Accordingly, we need scarcely be surprised to hear that the nature of the *g* is still the centre of much controversy. Indeed, it seems unlikely ever to be settled by any sudden complete inspiration; instead, it is undergoing—once more like electricity—slow clarification step by step.

How far have we got at present? The first great advance with this problem in the psychology of individual differences has been due to a very recent progress made in general psychology. For this latter has succeeded in tracing back the original genesis of all items of mental content to its source, which has been called by the regrettable cumbersome name of "noëgenesis." Previously, the noëgenetic and the merely reproductive processes had remained hopelessly confounded with each other. An especially glaring example in the region of psychological theory is afforded by the whole doctrine which used to be prevalent under the name of "associationism." For an example in the sphere of practical psychology, nothing could well surpass the chaotic condition of our ordinary examinations in schools and universities.

Let us turn, then, to the specific nature of these noëgenetic processes. They appear to fall wholly and exhaustively into three sharply cut classes.

The first may be formulated by saying that a person has more or less power to observe what goes on in his own mind. He not only feels, but also knows that he feels; he not only strives, but knows that he strives; he not only knows, but knows that he knows.

Turning to the second process, this consists in that, when a person has in mind any two or more ideas, he is able to bring to mind relations between them. For example, when I sound two musical tones, those of you who are musical will be able to perceive that they stand in the relation of a musical fifth.

The third kind of process derives from the fact that, when a person has in mind any idea together with a relation, he has more or less power to bring up into mind the correlative idea. Thus, if I sound only one tone, but at the same time say that I want the tone which is a fifth higher, those of you who are musical can at once form an idea of the tone required. A common case of the two latter processes being combined is afforded by the test of

"analogies," a brilliant invention of Prof. Burt. For example :

Rear is to Frønt as Past is to . . .

Black is to White as Clumsy is to . . .

Here, the "black" and the "white" have to create in the person's mind the idea of oppositeness; and then this idea together with that of "clumsy" have to evoke the correlative idea of "skilful."

From this account of the three processes we can at once see the reason for their name, "noëgenesis." For these three alone among all the cognitive operations of which the mind is capable are what may be called self-evident; they do not need illumination from any other source whatever, but are known with direct insight. This virtue is what the first half of the word is meant to convey; that is "noe-," from the Greek *νόειν*. As for the second half of the word, "genesis," this is intended to indicate that these three processes, and no others whatever, are capable of generating in the mind ideas that have never been there before. These three elementary processes enter into the structure of the mind much as certain types of cells make up all the growing parts of the physical organism. Of course, however, as in the case of the cells, these elementary processes do not occur singly but in endless profusion and complexity.

There remains the thorny question of how the *g*, which constitutes a constant factor in all these noëgenetic processes, can be conceived in physiological terms. To me, the most plausible suggestion made hitherto is that it corresponds to some general psycho-physical "energy" of the cortex (or some portion of this) capable of being switched from place to place. Many physiologists, indeed, protest that no such energy is discoverable by them. But when we ask where they have looked for it, it has always been in the *periphery* of the nervous system, and this is just where the mental results show it *not* to be present; so that even the physiologists of this type really provide corroboration. If we turn to those who deal with the nervous system as a whole, a very different view is to be found. Thus Sherrington has spoken as follows :

"One of the most helpful of the assumptions we can use in dealing with the problems of the nervous system is that which regards it as more or less a reservoir of energy."—*Journal of Mental Science*, 1902.

However, this is no more than a working hypothesis, which may at any moment be ousted by any other found to be more convenient. Whereas the *g* itself, together with its noëgenetic character, seems to be as firmly established as almost anything in science.

It is, then, primarily this noëgenetic *g* that experimental psychology has to offer to psychiatry. But, I would hasten to add, the

current methods of measuring it require for psychiatric purposes much modification and adaptation. The hard-worked intelligence tests of Binet, for instance, would be of comparatively little service. One glaring defect in these, as in most other published tests, is the dependence of the result, not purely on noëgenetic power, but largely on previous education. Another defect is that it can only be used once, whereas psychiatric usage requires that one should be able to measure the *g* repeatedly, so as to follow up, for instance, the state of the patient throughout some treatment. Tests of this serial kind do not appear to exist at present, but they can now be constructed, especially if the psychologists and the psychiatrists will unite their forces.

So much for the *g*. A very brief word must suffice for its supplement, the *s*'s. These are the specific factors in ability—those which explain why and how far one person is better at doing one thing and another at another thing. The investigation of some of these *s*'s has supplied, for instance, the foundation for the great work of Head on aphasia. As for the physiological interpretation of these *s*'s, this not only harmonizes with, but is absolutely demanded by what we have already found for *g*. For no energy can exist without engines within which to work. If the cortex possesses a general energy, then the different parts of the cortical structure must supply the different engines. Here, then, is just what is wanted to explain the *s*'s.

PERSEVERATION.

The preceding *g*, however, is not the sole faculty emerging safe and sound out of the great wreckage of such things that has been brought about by the recent procedures and mathematics of experimental psychology. Alongside of *g*, and of still later origin than this, there has arisen another great faculty denoted by the letter *p*.

The basis of this lies in the familiar fact that mental effects tend to outlive their original causes. The latter leave behind what may be called, by analogy with physics, some residual excitement. For instance, when one has heard a melody, one may afterwards be more or less haunted by it. Again, when we try to change from one sort of work to another, we may for a considerable time suffer from not being able to get the former work out of mind. Now, does this phenomenon of "perseveration" or "secondary function," as it has been called, possess any functional unity? Is he who suffers most from haunting melodies likely to be also he who has the greatest inertia in passing from one kind of work to another? Do either of these manifestations of residual excitement tend to go hand in hand with persistence of purpose?

In general, the new experimental methods have answered this question in the affirmative. They have indicated that there does exist a functional unity. Not indeed over the whole range that was lightly assumed by the earlier experimenters before the mathematical treatment of the topic had been developed—for instance, *not* over persistence of purpose. But still the p has been shown to extend over a vast territory of extreme importance. For example, a still unpublished investigation by one of our students, Mr. Stephenson, would seem to show that an increase of perseveration is, after all, the most striking effect of imbibing alcohol. Another of our students, Mr. Pinard, has just discovered that the degree of perseveration in a child is a fundamental factor in rendering him what is called "difficult" to handle. There can be little doubt but that the Child Guidance Clinics, of which we hear so much nowadays—and quite rightly—will soon learn to regard the measurement of p as among their chief means of diagnosis.

Already tests have been invented for this purpose in great variety. One that possesses, at any rate, much historical interest, is the fusion of successively exhibited colours. The longer each colour lags after the cessation of its stimulus, the more it will tend to fuse with its successor exhibited in the same place. Consequently, the lag or perseveration admits of being estimated to some extent by the rate of a revolving disc at which two colours just begin to be indistinguishable.

But let nobody suppose that the nature and range and tests of perseveration have as yet been finally determined. On the contrary, the newest and most exact investigations have had their usual effect of showing the problem to be much more complicated than it appeared originally. Thus, there are some indications—due to Dr. Hargreaves and Prof. Wynn-Jones*—that out of what has up to now been attributed to perseveration, a part is not genuinely such, but consists characteristically in an inhibited flow of ideas—a loss of "fluency." With manic and melancholic states, these two, the genuine perseveration and the mere lack of fluency, would seem to be affected together. But in normal states the two appear to vary independently.

To explain the unitary character of perseveration, we may venture upon the same physiological speculation as before. For if g measures the quantity of the psycho-physical energy, then perhaps p may measure its mobility. But if this or any other explanation is ever to be established on a firm basis, and indeed, if the whole phenomenon is to be investigated in an adequate

* See *Journ. Ment. Sci.*, 1928, p. 653.

manner, this will only be when the efforts of the psychologists are supplemented and supported by those of the psychiatrists.

OTHER INFLUENTIAL FACTORS IN COGNITION.

Besides g and p , there has so far only been discovered one other unitary factor in cognition. This is the phenomenon which has been called by its chief investigator, Prof. Flugel, that of "oscillation." It consists in the fact that the cognitive output of every person never persists at a perfectly uniform level, but continually fluctuates. On applying to this phenomenon the same mathematical technique as to g , it was found that here, too, the function was unitary; the person who presented the largest oscillations for one kind of mental operation tended to have the largest for other kinds also. Accordingly, this new factor, denoted by the letter o , constitutes, together with the g and p , a dominant triad. The o , no less than the other two, can be regarded as an aspect of the person's general psycho-physical "energy," namely, the steadiness with which this is supplied.

As to the importance of the o in states of mental disorder, this is an almost virgin field of investigation, and may bring forth results of unsuspected value.

When we pass beyond this triad, no other factor has been revealed at present which possesses such a width of range. Still there are some which at any rate are broad enough to have great importance, and this may possibly be even enhanced in the case of mental disorders.

A notable instance is the forming of mental "dispositions." Take, for illustration, the classical one of folding a piece of paper. For ever afterwards it will remain more easily foldable at the crease than elsewhere; we say that the paper has acquired a disposition to fold at this place. Upon analogous dispositions, it would seem, depend all our remembrances, all our stored-up knowledge, all our habits, and therefore most, at any rate, of our behaviour. The question at once arises whether this capacity to form dispositions tends to accompany the other kind of retentiveness previously mentioned, namely, the perseveration. Again, is the disposition-forming unitary within itself? Does the person with greatest capacity for it in respect of one thing tend to have it for others also? Do any mental disorders occur which lower the capacity all round? Is it positively correlated with g ? On all these points experimental psychologists are beginning to gather much information. But here, again, the research would be enormously advanced if they and the psychiatrists, instead of working in isolation from each other, could be persuaded to collaborate.

As a further instance may be cited what has been called conative control. What power have we over the course of our own ideas? Here is a topic upon which dogmatic assertions run riot. Only quite recently—thanks especially to Wild and Howard, besides several investigators working under the direction of Dr. Aveling—is really scientific information beginning to accumulate. Once more we urgently need the cooperation of the psychiatrists. As much may be said of the phenomenon of fatigue.

The allusion to conative control calls to mind what may seem to be a singular gap in the preceding account of cognition. For nothing has been said about the procedure known as psychoanalysis, although this is beyond a doubt a contribution of experimental psychology. It was, in fact, invented by Galton. Essentially it is nothing more than associative reproduction freed as far as possible from conative control. Its omission here is merely due to the consideration that it finds such abundant and capable exposition elsewhere.

CONATION AND AFFECTION.

Let us, then, pass from the whole sphere of cognition to that of conation and affection; from knowing to striving and feeling. We come on to ground that in psychiatric practice is by far the more conspicuous of the two. Only in a small minority of cases is a patient sent to a mental hospital, or even to a clinic, explicitly on account of enfeeblement of his cognitive power; though, indeed, the question of such an enfeeblement is likely enough to arise on closer examination of the case. Primarily, he comes for diagnosis and treatment because those about him can no longer tolerate his conation and affection.

The ideal here—a very distant one—would be to test out, however roughly, the actual strength of each of a person's main conations; each "spring of action," or, as is often said nowadays, each "instinct." With the lower animals, indeed, some advance has been made in this direction. For example, a rat has had his mate set before him with an intervening surface which conducted a painful electric current. The experimenter could thus, by grading the current, discover just what degree of pain the rat thought worth enduring to gratify his amorous propensity. Other instincts—for example, the desire for food—can of course be tested in a similar manner, and all the attendant conditions of the case can be endlessly varied. In this way, the psychology of the lower animal conation should make great progress.

With human beings, however, such drastic experiments have not

yet been found feasible. Other ways, much farther fetched, have had to be substituted. For instance, the mating instinct has been excited, not by actually presenting a mate, but only by displaying the nude picture of one.

Again, the instinct of self-preservation has been assayed by noting the subject's reaction when his chair is suddenly lowered so that he thinks he is about to fall. But up to the present, all research in such directions seems to have remained fragmentary and inconclusive.

More effective work has been done, not so much on the special instincts or conations in comparison with each other, but rather on certain influences which bear upon them all collectively. Of paramount importance here has been the discovery—by the same mathematical technique which revealed the g , p and o , that the conative side of the mind also possesses a general factor. This is of such a kind as to favour stability of resolution, evenness of temper, conscientiousness and trustworthiness, while it represses vanity and selfishness. It would seem in fact to be a revival of the very old-fashioned "will" long banished from most psychological writings as an effete superstition. Consequently its discoverer, Webb, has denoted it by the letter w . It probably has a close relation to the general factor of emotionality discovered by Burt.

This w cannot, indeed, be submitted like g to direct and exact experimental measurement. But it can quite well be made a potent means of rendering observation more systematic and effective. Furthermore, some direct measurements are becoming possible, at any rate of some of the single characteristics from which the w is inferred. For instance, no little success has been obtained in measuring the traits of trustworthiness and of truthfulness. These have been employed, for example, in determining the moral effect of attendance at a Sunday-school. Nothing seems to stand in the way of applying them to the sufferers from mental disorder. Other traits that admit of more or less satisfactory measurement are the ease of forming decisions, the degree of effort exerted, the amenability to suggestion, and the reliability of testimony.

So far we have said little of the third and last aspect of mental process—that of affection or feeling. Here the need of psychological experiments is less urgent, since the feelings usually manifest themselves plainly enough. Hard as it is from merely looking at a person to decide what he is thinking about or even what he wants, we can generally see easily enough whether he is happy or sorrowful, excited or calm. But still, experimental psychology does possess a large number of devices and apparatus for the purpose of determining affection in a finer and more accurate manner.

THE PROPOSED JOINT RESEARCH.

We arrive now at the final and vital moment of this address. I have endeavoured to outline what contributions experimental psychology hopes to make to psychiatry. But I have also indicated that they stand in urgent need of being supplemented by the psychiatrists themselves. How, then, can such collaboration be arranged ?

I would suggest that a carefully chosen group of patients be submitted to observation and measurement of every feasible kind—both the kinds already in use and the new kinds which are now being proposed. Having thus secured the data, the next task is to arrange these in an orderly and scientific system ; this really amounts to discovering what goes with what and what follows what. Upon these two questions, in the last resort, depend all diagnosis, prognosis and therapeutics. In order to solve these two questions, the data supplied by observation and experiment must then be submitted to elaboration by the already mentioned mathematical procedures.

But observation and experiment on the needful scale can in general only be carried out with very few patients at any one institution. Consequently there will be required the collaboration of several institutions, perhaps a score, in order to get a sufficient number of cases.

Then, to secure correctness and uniformity of experimental procedure, one or more representatives from each institution should go through a specially arranged practice in a psychological laboratory ; a fortnight might suffice. During this practice, the participants themselves would, I feel sure, be able to add some very valuable amendments to the procedure on their own account.

This is the great scheme which I have to propose. For setting it in motion, a small committee might be appointed to consider it. And for appointing such a committee, nothing could compare in authoritative position with the Association under whose auspices we are meeting to-day.

ON THE EXCITATION PROCESSES OF THE CONSCIOUS AND SUBCONSCIOUS MIND.

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INTRODUCTION.

STUDIES of the mind of man and of the heart of the frog, though normally deeply divided, can be bridged when two postulates are granted. The first postulate is that the quality of excitability, on which nerve-cell activity is based, can be studied in any other excitable tissue; the second is that mental activity, as we know it, depends on the presence of excitable nerve-cells in the brain. The postulates being granted, it becomes legitimate to apply the results of experiments on excitability performed with the frog's heart in explanation of the mode of working of the brain and mind.

In accord with the postulates the paper will be found divisible into two parts: in the first part evidence will be presented concerning the dual nature of excitability; in the second this dualism is applied to mental phenomena.

Excitability is generally defined as the capacity of a living tissue to respond to a change in its environment known as the stimulus, and, as every reader already knows, this capacity varies. At one time the response of a tissue to a particular stimulus may be great, at another insignificant. Many agents also, such as drugs, change excitability, the changes being customarily investigated through the muscle and nerve preparation.

The investigators who have used this preparation have realized that it is impossible for a drug solution to penetrate at once to all parts of a muscle in a bath, and so have allowed a reasonable time to elapse for this penetration before applying their tests to ascertain what the drug has done to excitability. They have thus necessarily directed their attention to end-results, and none to the steps, if any, by which those end-results are attained. Finally, those end-results have been expressed as simple variations in the size of the response which is either increased or decreased.

This experimental method has consequently given a definite conception of excitability. From it has arisen a belief that living tissues possess a source of potential termed "excitability" which is

made dynamic in the response. According also as drugs augment or diminish this supply of energy, so they augment or diminish excitability.

A species of monism, then, is to be regarded as the current general belief concerning excitability. This monism next weaves its pattern into any speculation concerning the functional changes in any living organ, for excitability is the basis of activity.

Inquirers into human conduct, however, have always emerged as dualists, with their dualism so reasonable that the necessary physical basis has next been sought. This search, being conducted on a monistic basis, has led to the conception that there must exist in the brain "higher" and "lower" centres with various inter-relations.

The object of the present paper is to present to those interested in mental phenomena evidence that dualism is a property of every living cell, and to apply the results to the mind. The experiments have been carried out on the perfused hearts of frogs (1-20), and show that living cells possess two independent sources of the potential termed excitability (6, 7, 10), on each of which drugs, etc., may independently act even to opposite ends (6, 9, 13, 16, 17). We find also that an interaction between the two sources gives the excitation process and response (10). Excitation processes and responses thus possess composition as well as size (10).

It should be appreciated that if there be two independent sources of the potential excitability, each contributing its own part to the response, then the customary methods of measuring organic activity in effect measure an alloy in terms of size. Only by accident do they avoid passing base coin into circulation.

It is naturally distressing, even difficult, to any honest man to appreciate the possibility that for many years he has probably been passing base coin into circulation through applying an inadequate test. To have it pointed out that on a particular date a particularly bad coin was passed, I have found received with ill grace. Accordingly, so far as possible, I have cut out actual references to the work of others and made general allusions instead. Also, for simplicity, the paper is illustrated by diagrams rather than records. The diagrams, however, are based on published records, to which reference is given, so that anyone wishing to pursue the matter further may do so.

PART I.

The first diagram shows the manner in which is estimated the contractile capacity of any particular heart on which work is done (2, 3, 11). (See Fig. 1.)

There is a rectangle $AOBD$, and inside it a curved line PQ , which is deemed to represent the activity of a heart perfused with the usual Ringer's solution. The distance OQ expresses a time of six or eight hours, and a vertical drawn from any intermediate point between O and Q to meet PQ would give the extent of a spontaneous cardiac contraction at the time indicated by the point. Three such points are shown, *viz.*, Q_1, Q_2, Q_3 , and three verticals, Q_1P_1, Q_2P_2, Q_3P_3 , of heights A_1, A_2 , and A_3 respectively. These verticals are continued as dotted lines, P_1D_1, P_2D_2, P_3D_3 , to meet the line AD , the dotted portions being of lengths K_1, K_2 and K_3 respectively.

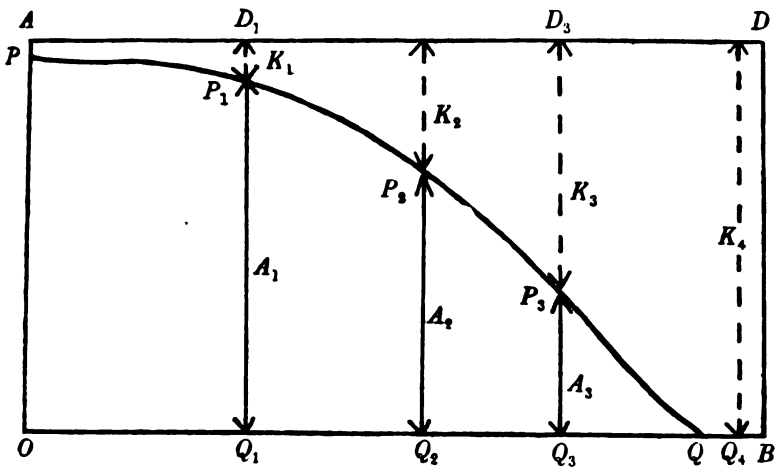


FIG. 1.

Now a 5% KCl solution will make hearts contract, provided contractile material is available, irrespective of their spontaneous activity (I, 4, II). It is assumed that a 5% KCl solution is applied to the hearts at the points Q_1, Q_2, Q_3 and Q_4 , and produces there contractions of heights K_1, K_2, K_3 and K_4 .

We then find—

$$(A_1 + K_1) = (A_2 + K_2) = (A_3 + K_3) = K_4 = C.$$

So far as our diagram is concerned, of course, the relations above necessarily follow from the fact that we first drew a rectangle. But in practice we first find the relations which show we can draw the rectangle.

No heart, no matter what augmenting agency or drug has been used, has yet been found to beat higher than the height OA . Hence this height represents the maximum cardiac contractile effort.

Any vertical drawn on this diagram between the horizontals

and cutting the curved line PQ thus records three values. Its whole length measures the maximum possible cardiac effort, the part below the curved line the amount of contractile material in action, and the amount above the curved line the cardiac contractile reserve.

The diagram also shows that the excitation process fails first in perfused hearts. It represents, indeed, a particular case of the general rule that muscles lose irritability before entering into rigor. Later on the heart would have rigored—a process it could not perform unless it were capable of contraction.

It may now be realized that the maximum contractile effort of a heart is a constant, the value of which is readily ascertained under experimental conditions by using a 5% KCl solution. This value I call C (3, 10, 11). It may be considered to correspond to the figure denoting the horse-power of a motor in that it indicates possibilities requiring other conditions, or accessories, for their realization (8, 10). The diagram also indicates that the experimenter may determine the value of C when he wishes, at the commencement of, during, or at the end of a day's work with a heart. The end is usually the more convenient.

C , as a maximum effort, is also a limiting value which the experimenter with hearts is always liable to meet. If he knows he has met it, he can reasonably account for the results; if, however, he does not know he has run into a stop-block, as it were, his explanation of the resulting phenomena is not likely to be accurate. But only two experimenters, Burridge and Seth (21), have known where the stop-block was, or even that it was there. We know, from their published tracings, that others have run into the stop-block; also, from their explanations, we know they had no inkling before or after that it was there.

In the value C we have, then, knowledge of a limiting factor at present outside the ken of other workers. And great attention has been devoted to it at this stage, because it enters into all the work below. When, for example, divers curved lines are placed inside a rectangle to represent cardiac activity, the rectangle is not to be regarded as a mere ornamental border, but as marking out C , the limit of the cardiac contractions.

We may now proceed to consider the actions of sodium chloride. They are illustrated in the next diagram (6, 7, 17). (See Fig. 2.)

There is the rectangle $AOBD$, and the curved line PQ . Any vertical drawn from the line OB to meet AD shows what the heart could do, and where the same vertical cuts PQ is shown what the heart did do. The heart is presumed to be perfused with a Ringer's solution, and the first level portion of the line PQ to indicate regular

beating. The first arrow, marked H , indicates that a second perfusing solution differing from the first in added sodium, *i.e.*, a hypertonic Ringer, has been substituted for the first. Following that change in perfusing fluid, the beats fall rapidly away in height, as is indicated by the sudden dip in the line PQ . To this dip we assign the value y .

Next the beats of the heart gradually increase in height again, as is indicated by the rise in the curved line PQ , until at last a steady condition is reached with the beats higher than they were at the start. This slow increase of height is assigned a value z .

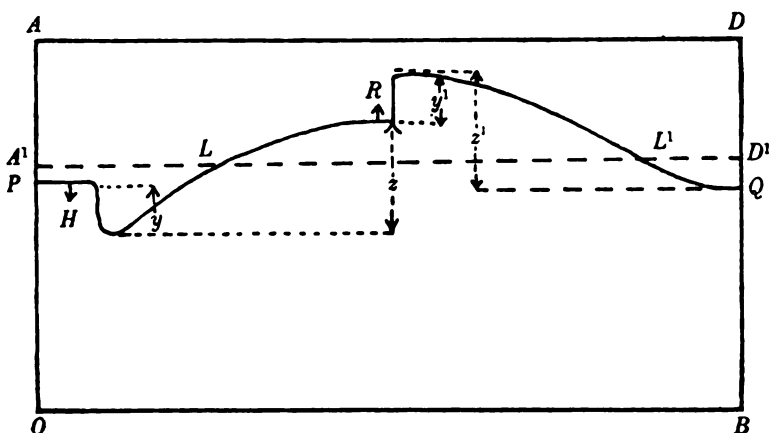


FIG. 2.

After this second steady state had been reached the original isotonic Ringer was perfused again, and following its perfusion the height of the contractions underwent a further increase in height, but this time the increase occurs rapidly. To this rapid increase is assigned a value, y^1 .

Succeeding this second and rapid increase of height is a steady decline, which ceases when the height of contraction is the same as that with which we started. This decrease is assigned a value, z^1 .

When such an experiment has been done, measurement shows (7, 17) :

$$y = y^1 \text{ and } z = z^1.$$

Also it does not matter at what point isotonic Ringer replaces again the hypertonic one ; any two differing changes produced by the first solution are reversed by two different, but equal and opposite to the first, changes after perfusion of the second solution. Since, then, the only factor determining the size of a rapidly produced augmentation after R is the size of a previous rapidly produced

depression after H , and the only factor influencing the amount of a slowly-effected depression after H is the size of a previous slowly-effected augmentation after H , I deduce that the rapid and slow effects are mediated by independent mechanisms. I have suggested that the rapid changes are mediated by electrolytes, or salts, and the slow changes by alterations in the state of colloidal aggregation (6, 7, 17).

We next note that "slow" does not adequately describe the change due to colloidal aggregation, because it may be developed quite rapidly if the developer be of sufficient strength. Its rate of development is really variable, but, however developed, it subsides slowly in its own time, or shows hysteresis, after removal of its developer. Hence it is preferably termed "hysteresial" (6, 7, 17).

Having thus assigned to electrolytes and state of colloidal aggregation these two independent actions of sodium chloride on excitability, a corollary to the assignment is that in electrolytes and in their state of colloidal aggregation living tissues possess two independent sources of that potential termed "excitability." Next, if there be two such independent sources instead of the one generally assumed, it follows that those investigators, who assumed that there was one only, could only by chance have correctly ascertained the actions of a drug or other agency on excitability. This applies in particular to those who have used muscle-baths and waited for equilibrium, for in such waiting they lost sight of the steps.

Investigators who have used the heart have missed these facts from quite different causes. They have lost their objective through over-caution.

Nothing would seem more reasonable in an experiment than to select first the best balanced Ringer solution you can find, and next to perform your experiments on the heart while it is perfectly fresh. Unfortunately the combined effect of such great care is a heart beating very near its maximum.

The dotted line A^1D^1 in the figure is intended to indicate how near to the maximum such hearts beat, and will be noted to cut the curved line PQ at the points L, L^1 . Thus, the man who has taken these precautions automatically loses all parts of the line PQ above the points L, L^1 . Moreover, between the points L and L^1 the heart at each beat butts, as it were, into the stop-block which is not known to be there. And that having been done, one cannot reasonably expect under such circumstances a correct explanation of what was happening. Such an expectation is, of course, realized.

These two actions of sodium chloride just described are not actions solely of added sodium chloride, but of any strength of sodium chloride to which a tissue is exposed, so that, when the

isotonic solution is made hypotonic, two actions follow, and also when the hypotonic solution is made isotonic (6).

Calcium chloride also exerts two independent actions on excitability the opposite of those exerted by sodium chloride (17, 18).

Now at one time there was much controversy among physiologists concerning the stimulus to the heart-beat. Some said it must be calcium, others that it could only be sodium. The basis of the controversy was an assumption that a particular electrolyte must either depress or stimulate. None had an inkling that a particular substance could at one and the same time be both stimulator and depressor, through acting on two independent mechanisms of the tissue. When that has been realized the controversy assumes a different aspect.

Much heat is still generated over alcohol—a substance which also exerts two independent and opposite actions on the tissue's excitability mechanism (13, 16). This again is a controversy among those who consider the drug must *either* raise *or* depress excitability. The pharmacology of alcohol, like that of sodium chloride, acquires a different aspect when it is realized that it can *both* depress and exalt at the same time. Current statements, for example, that large doses of alcohol are depressor are hopeless half-truths. These large doses are strongly stimulant as well as strongly depressor, though to demonstrate such stimulation is admittedly more difficult than to demonstrate depression. By choosing the experimental conditions so as to make use of the stimulant action of such a large dose of alcohol as 40%, I was enabled to keep a perfused heart beating for three days—a record length of time (13).

The reader by now has, perhaps, realized that in matters of excitability Nature is usually an equivocator, saying *both* Yes and No, but with different voices. Those who have hitherto questioned her have expected *either* Yes *or* No as the answer, and so have only listened to the voice which spoke the louder in answer to their question.

Another aspect of these changes is shown in the two fundamental types of cardiac activity of our next diagram (10). (See Fig. 3.)

This time we start out with a heart which is perfused with such a Ringer's solution as is inadequate to elicit a recordable beat. At the point *P* the Ca content of this solution is increased and immediately thereafter recordable beats appear. Next, at the arrow *N*, the added Ca is taken again and the beats rapidly sink back to the threshold level.

At *P*¹ a weak solution of adrenaline is presumed to be swilled momentarily through the heart, which then begins to beat with

quickly increasing vigour, and thereafter slowly to fail again. It should be noted that by the swill through only a few seconds' exposure of the heart to the drug is attained. If the drug were made a constituent of the perfusing solution the augmentation produced could be maintained apparently indefinitely (14). Also, if activity be maintained for some time through the drug the beats after drug removal will fail slowly, *i.e.*, with hysteresis, as in the manner shown immediately above, and under sodium chloride (14). Results similar to these of adrenaline may be obtained from testicular, thyroid, or ovarian extract (19).

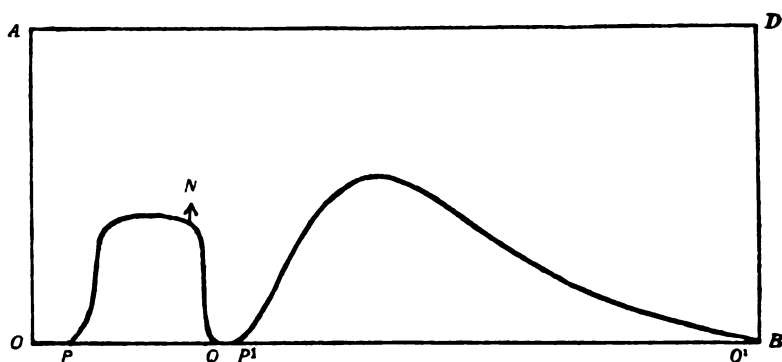


FIG. 3.

Ductless gland extracts produce their effects through alterations in colloidal aggregation (14, 19); it will be appreciated that the effects shown above indicate that above the threshold two different grades of activity may appear, the one coming and going with the utmost speed, *e.g.*, the speed of thought, and the other coming into being at a speed varying with the strength of its producer, and, once produced, fading away in its own time. The isolation shown above, however, is not absolute, for the foundation of the ionic effect was a state of aggregation and the foundations of the aggregation effect were ions (10).

We next observe that these effects can be combined in such a manner that, starting from zero, it is possible to build up a series of beats filling up the whole cardiac field, and to distinguish in those beats a part due to added Ca, a part due to adrenaline, a part due to thyroid, another due to testicular extract, and so on (10). Indeed, for many organs of the body it may well be that ions form the foundations of their activities and ductless glands give the superstructure.

These last points lead us to a consideration of some aspects of

salt balance. Once Ringer had discovered that a mixture of inorganic salts was necessary for cardiac activity, attention was next naturally directed to ascertaining what formula gave the best physiological balance between the different salts. Then, the length of time a heart remained active on a mixture being taken as a measure of the salt balance, it was reasonable to believe that the perfect balance existed in blood, because blood kept hearts longest active. But formulæ derived from blood-ash composition being found defective because they give no true guide to ionic concentrations during life, the search for the perfectly balanced Ringer having the same ionic composition still goes on.

Some time ago I tackled this problem from quite a different aspect, *viz.*, to find out which type of solution enabled a perfused heart to show inhibition as readily as did a blood-containing one. The results indicated that blood, regarded as a mixture of inorganic salts, was a hopelessly unbalanced solution (13). Framing solutions along the lines indicated I next found that such unbalanced solutions acquired entirely new recuperative qualities. Recuperation, it should be understood, is entirely foreign to Ringer solutions, for hearts perfused with them just run down, the best Ringer being the one which lets the heart down slowest. Yet, by disregarding balance, it was possible to frame a solution with such definite recuperative properties that, as a matter of course, I could use this solution to put a heart to sleep, as it were, just before going off to lunch, and, on returning later, to wake it up and find it also to be recuperated (18). And adrenaline added in quite small amounts to such a solution renders it capable of maintaining cardiac activity better than any modified Ringer solution that one can devise (14).

It appears probable, then, that the idea of inorganic balance which physiologists have obtained through experimenting with Ringer's solution should be limited to that solution and not applied to blood, because the latter has at its disposal divers ductless gland secretions, any one of which can shift "balance" to an entirely different sphere.

The conception of blood one obtains from such experiments is that, regarded as a mixture of inorganic salts, it is an unbalanced solution incapable of adequately working the machine. Addison's disease measures this inadequacy (14). These salts are, as it were, a slow fire keeping the machine ready to blaze into full activity on admission of the proper draught, or hormone.

Having thus realized that the much-sought-after and respected balance of a Ringer's solution is an entirely artificial conception, one can approach the problem of devising perfusing solutions from

quite a different aspect. Accordingly we may next consider the two different methods of perfusion set out in the next diagram (8, 9, 10). (See Fig. 4.)

We have again a rectangle $AOBD$, inside which is a curved line PQ and a straight line P^1Q^1 . The curved line PQ , as in Fig. 1, is intended to represent the activity of a heart perfused with a well-balanced Ringer. The cardiac machine is thereby run for a short time approximately "all out," and then the machine slowly runs down.

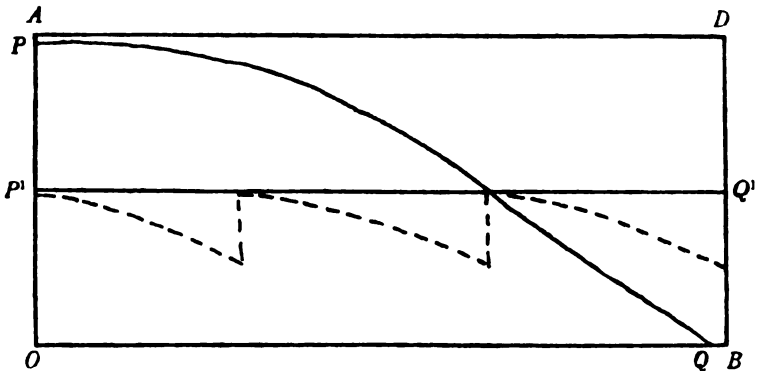


FIG. 4.

The line P^1Q^1 represents a heart beating steadily at approximately half its possible full height. Such steady beating is an ideal only obtainable through using some ductless gland extract (14). We can approximate to it, however, by using a gamut of perfusing solutions which differ only in their Ca content (8, 18). We start out with a Ringer solution of very low Ca content, and subsequently, as the beats fall away with perfusion, their height is restored again by adding Ca to the solution—in practice this addition is made by perfusing another solution of higher Ca content than its predecessor (8, 18). The dotted line beginning at P^1 and ending near Q^1 is intended to represent such fallings away and restorations. The amount of deviation permitted from the line P^1Q^1 is entirely at the discretion of the experimenter.

Now, when the perfusion is begun, the heart possesses a quality which for the present may be called freshness, and, as perfusion proceeds, this "freshness" of course diminishes. With its diminution the beats fall away, such falling away being subsequently compensated by extra Ca.

As the experiments are done, then, two factors are found

responsible for the beat—freshness and calcium. The more there is of the former, the less is required of the latter. Hence, calling the former "Y" and the latter "X" and noting that the line P^1Q^1 is at the level $C/2$, we can put our results in the former at a simple indeterminate equation—

$$X + Y = C/2.$$

We next place limiting values to X and Y . The heart will not beat without Ca; also it will not beat if it has lost all freshness and is dead. Hence, in the equation neither X nor Y can be zero.

We may now further define "X" and "Y." The expression of "X" as calcium is merely a convenient method of expressing the effects of Ringer's solution; it really expresses ions (18). "Y" has been shown elsewhere to be a state of colloidal aggregation plus the quantity and quality of their adsorbed potassium salts (18). We have also found above that it represents a ductless gland complex.

The equation also indicates that some form of combination between ions and colloids, the two independent sources of excitability shown above to be possessed by tissues, is responsible for the excitation and response. And, more than this, that behind a response of a particular size there can lie an infinite series of excitation processes, differing only in the proportion of their two constituents.

For the benefit of the non-mathematical we may here digress to point out that the equation above is equivalent to one giving the number of men and women making, say, a thousand. There are 999 possible combinations of the series making that number. So far as number is concerned, also, each combination is equal, but none could expect that the combination of 1 man and 999 women would behave similarly to the combination of 999 men and 1 woman. Quite in accord with this expectation we find by experiment that the behaviour of hearts is altered by the composition of their responses. For as one proceeds along the line P^1Q^1 and tests the reaction of the heart to drugs, one finds it becoming less and less responsive (18, 19, 20, 21). In other words, a tissue framing responses primarily through ions is less responsive to environmental change than a tissue framing its responses primarily through colloidal aggregation change.

This difference of behaviour becomes emphasized when one compares the results obtained according as one works along the first part of PQ or of P^1Q^1 respectively. The comparison may be made through the drugs strychnine (20) and sparteine (21).

These two drugs were long held in repute as cardiac stimulants by clinicians. The laboratory tests, however, made along the first

part of PQ were believed by those who made them to show definitely that these drugs were cardiac depressants. Accordingly, none suspecting that laboratory tests could mislead, the clinicians were next invited to consider the possible existence of such sources of error in their practice as would lead them to mistake a sedative for a stimulant.

But, on referring to these tests, one found not only that they were made with such huge concentrations of drug as were hopelessly outside clinical realities, but also that even then, if the experimenters had been prepared to consider the possibility that a drug might be at one and the same time both augmentor and depressor, there would have been less enthusiasm about condemning the drugs as being cardiac depressants (20, 21). Monistic interpretation of results, indeed, led investigators to disregard the evidence from the hearts placed before them that these drugs were stimulants (21).

When, however, one worked along the first part of P^1Q^1 , it could be observed without equivocation that these drugs both markedly increased cardiac output and improved the beat when used in such concentrations as were within the limits of clinical possibilities, so that they could do under experimental conditions what the clinicians stated they did at the bedside (20, 21).

On comparing results the cause of disagreement was found to lie primarily in the different capacities of hearts working along the first part of PQ and P^1Q^1 respectively to react to environmental change. Along the first part of P^1Q^1 the heart is at least one million times more sensitive to these drugs than it is along the first part of PQ (20, 21).

These differences in sensitiveness to the drugs would not have mattered if all their concentrations produced similar results, but unfortunately they do not. These drugs chiefly depress at strength and chiefly stimulate at dilution. Along the first part of PQ the heart is possibly unable to react to such dilutions of drug as would show chiefly stimulation. Hence experimenters working there have been compelled to use huge drug concentrations to get any result at all, and the results they did get led them to consider the drugs as depressants.

The only difference in the perfusing solutions required to avoid these marked variations in the capacity of the heart to react to drugs is a difference in their Ca content. We have next to observe however that, the heart-beats along the first part of PQ being greater than those along the first part of P^1Q^1 , the former beats would be considered as those of the more excitable heart. On the other hand, when one considers the capacity to respond to a change in the environment the position is reversed; along the first part of

P^1Q^1 the heart is much more susceptible to environmental change, and so also much more excitable than it is along PQ .

But susceptibility to environmental change is also excitability, so that we have got to the position that the heart with the greater store of excitability, as demonstrated by the size of its beats, is very inexcitable, whereas the heart with a small store of excitability, as demonstrated by its small beats, is highly excitable. Fortunately, however, we know how we got the position, *viz.*, by mixing up the size of the response with susceptibility to change. Our mixing also has been deliberate to indicate how two different investigators of excitability, the one taking size of response as his index and the other taking susceptibility to change, could obtain conflicting results.

We can now appreciate the fact that the excitation process is the formation of an alloy from two ingredients, each ingredient contributing a common factor in size, but of different qualities. This common contribution of size reappears in the response, where it is easily measured. The recording of such changes of size, without reference to a possible dual origin, is in progress wherever experiments are being done. Only by accident can this application of the standard of size to an alloy prevent the passage of base coin into circulation.

PART II.

The gist of these observations on excitability is that a living tissue possesses in its electrolytes and in its state of colloidal aggregation two independent sources of the potential termed excitability. Their interaction gives the excitation process, which in turn evokes the response. Also, any response of a particular size can have behind it any one of an infinite series of excitation processes, differing only in the proportions of their two components. This proportion determines behaviour.

Preliminary to applying these results to mental processes, it is to be pointed out that my experimental work on muscle indicates that the excitation processes and the response take place in different structures. For definiteness excitation processes may be taken as sarcoplasmic occurrences, and the responses as the activity of contractile material evoked by the former (1, 2, 3, 4, 7, 8, 18).

A psychic response I take to be a thought, and accordingly, so far as my muscle work goes, this thought represents the activity, or response, of something other than the material in which the excitation processes preceding it take place. I am not going to attempt to define the responding structure, for that is something for which each individual will have a particular taste. All I can

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do is to point out the necessity of distinguishing the responding organ from that structure which frames excitation processes.

Denoting now the activity of the responding organ as T , we find that activity to result from the interacting of two independent sources of potential possessed by something else. Denoting, next, these two sources of potential as H and L respectively, we express the relations between all three, as in the equation above for the heart, by the simple indeterminate equation,

$$H + L = T.$$

This equation, indicating that thoughts have composition and size, puts us on the track of the moralist's conception of the higher and lower self. But, having found from our experiments above that neither H nor L can be zero, we appreciate that higher and lower selves can no more have separate existences as selves than bronze can exist in either copper or tin. The self is an alloy built up from two components, having no existence as such in either, yet coming into being when the components unite. Myers appreciated such a composite self.

Higher and lower selves thus having no separate existence as such, we have no need to postulate the existence of anatomically separate higher and lower centres mediating them. We appreciate now that they are potentials, and so look to their mediation through the two sources, electrolytes and colloids.

We do not know, however, which mediates the one and which mediates the other. But we can find out through experiments with alcohol.

My experiments with this drug show that it alters the composition of excitation processes in that it diminishes the part played by electrolytes and increases the part played by colloids (10, 13, 16). A response brought under the influence of alcohol may be unchanged, diminished, or increased in size, but, irrespective of such changes in size of responses, the excitation processes evoking them are changed in composition; the part played in them by ions is decreased, and the part played by colloids is increased. Accordingly, admitting alcohol to be inimical to "higher" things and favourable to the "lower," ions must mediate the "higher" and colloids the "lower."

We next draw attention to a parallelism between the production of cardiac excitability change through colloidal aggregation, and the evocation of an emotional response. Just as a cardiac change of colloidal aggregation can be gradually worked up, or produced quickly, according to the strength of the producer (6, 7, 8, 9, 10, 17, 19), so also can one gradually rouse a man's ire, or cause him to fill with wrath explosively. Both changes also, on removal of their

producers, subside in their own time, or are carried on indefinitely so long as their original causes still act.

Emotional outbursts, then, are what they are because they must be what they are, since their physical basis is a change of colloidal aggregation. Also, alcohol effects its exaltation of emotional life by increasing the part played by colloids in excitation processes.

Colloidal aggregation thus supplies to thoughts an affective tone. Noting next that the time of subsidence of such change depends on its intensity and not on its rate of development, one can appreciate that the holding power of a thought depends on the degree of colloidal aggregation behind it. Hence, when thought flits light in fancy there cannot be behind each change much of the colloidal element. The chief component must be the ionic complex.

Reverting again to our equation, $H + L = T$, we are now learning that it indicates that a thought of intensity T can be mediated by a wide range of excitation processes differing only in the proportions of two constituents. We have just learnt that the factor L is a state of colloidal aggregation mediating the thought's affective tone. Correlating this with the fact that a high affective tone cannot go hand in hand with good judging, we note that ions mediate this last. High affective tone and good judging cannot go together because they are mediated by these two constituents of excitation processes, and these processes must be so adjusted that the more you have of the one the less you can have of the other.

Proceeding next from the complex of nerve-cells mediating the activity termed thought, and considering only the individual nerve-cell and its fibres, we appreciate that along a nerve-fibre there can pass an infinite series of nerve impulses of a given strength. Physiologists, by instrumental methods, can only record the strength of these impulses, but the sensorium can also record their quality. These changes of quality, according to our equation, should range from the broadest protopathic to the finest epicritic sensation.

A normally working machine must be presumed to possess some normal balance, whatever that may be, between these two constituents of excitation processes. Each individual probably has his own balance determining his temperament, or whether he shall be hot or cold-blooded. Accordingly, next, we might consider two possible extremes of balance.

An abnormally high state of colloidal aggregation could be maintained either through overwork of the individual's ductless glands (14, 19), or through the circulation of some toxin also capable of enhancing the state of colloidal aggregation. Next, so long as that high state of colloidal aggregation is present, the individual will

show a high emotional tone and correspondingly low judging capacity. Also, unless it be assumed that the mischief-maker acts only on nerve-cell colloids, all organs of the body will show high emotional tone. But outside the brain this high emotional tone will not be recognized as such; a sick mind in a sick body may be recognized, but not that there is similar sickness of mind and body. Such an individual's sick nerves, for example, would convey impulses of abnormally high affective tone; desires normally held in check could acquire too great affective tone to be resisted through the corresponding lack of judging capacity, and so on.

The opposite type to high emotional tone would be based on an excessive ionic element and a deficient colloidal element. His ordinary thoughts would have too little affective tone to give them lingering power, and so they would not linger. So little would they linger that a normal mind would not be able to keep pace with the rate at which they changed from subject to subject. The normal would then call the abnormal rate a "flight of ideas."

Two similar and opposite types are also to be seen in youth and old age. Youth, having at its disposal active ductless glands, can frame excitation processes of high colloidal quality and high affective tone. Old age, on the other hand, with diminishing ductless gland activity, compensates the loss by added calcium, which, additional to intensity, adds resistance to environmental change (6, 12, 13, 14, 15, 17-21). Accordingly youth and old age, having framed excitation processes of equal strength, must yet behave differently because the processes are differently constituted. Youth marvels at the obstinacy of old age; and old age, having lost affective tone with aggregation, can but marvel at the amount of feeling youth displays over matters which, with extra calcium, a riper judgment perceives to be of no concern. A later stage, mental senility, is thus indicated to be a wandering series of over-ripe judgments of too little to judge, for no judgment has then enough of the basis giving staying power.

Youth, on the other hand, depending on its ductless glands for building excitation processes, can but find curtailed the size and affective tone of its thoughts if, for example, the gonads then fail to add their bit.

The obstinacy of old age we thus find to be automatically derived from a process of calcification, for excitation processes framed with a strong calcium component give a machine with difficulty deflected from a set course (8, 17-21). This leads to a consideration of inhibition.

Inhibition, it is to be pointed out, is a specific process not understandable on a monistic basis because in it excitability goes both up

and down (7). Accordingly, the man who believes that excitability must go *either* up *or* down is simply lost when he meets excitability going up and down at one and the same time—so lost, indeed, that of recent years there appeared an excellent study of the refractory mistaken for the inhibited state. Monists cannot account for the rebound, but the dualist finds it self-explanatory.

Material for more correctly appreciating the process of inhibition has been given elsewhere (7). Briefly it may be taken to show that when *A* inhibits *B*, *A* sends to *B* a positive charge, which in *B*'s excitation equation would wipe out *X* and augment *Y*. The positive charge simply protects the colloids against calcium combining with them (5, 9). Ions and colloids cannot then interact, and so there is no excitation; when the positive charge is removed they interact once more and with added intensity until the state of aggregation becomes normal again.

In inhibition, then, *A* attacks *B* and temporarily puts *B* out of action. Next, after *A* leaves *B*, *B*, in the rebound based on altered colloidal aggregation, temporarily works better than before (6, 7, 9). But this true inhibition is of a quite different order from the ability of *B* to deflect *A* from a set path of activity. For, as we saw from our experiments with drugs, the ability of *B* to deflect *A* from a set path depends on the composition and strength of *A*'s excitation processes, as well as on the strength of *B*. Excess of ions in *A*'s excitation processes thus favours the continuation of *A*'s activity without interruption from *B*.

A, then, has two possible methods of dealing with *B*. He may, as it were, raid *B*'s territory and temporarily disarm him, or put up an ionic barrage which *B*, now the aggressor, is unable to penetrate. The first method is inhibition proper; the second method has not hitherto been recognized, and so must be provided with a name. The name I propose is Exclusion.

Inhibition and exclusion are everywhere mixed up in matters psychological, for the material has not been available to distinguish them, and, as with excitability, concentration has been on the end-result, and not on the means whereby the end has been attained. For example, *A*, being a normal person attempting to push *B* out of a room, would have the attainment of the end-result modified by considerations of damage to furniture, damage to *B*, etc. These considerations are termed inhibitions. If, however, *A* were sufficiently abnormal to have entire singleness of purpose, then *B* would be pushed out of the room regardless of furniture or *B*'s person. In this case *A* is said to have no inhibitions, because nothing is allowed to modify the end-result.

On the other hand, when the psycho-analyst finds that *A* can

keep out of consciousness certain ideas, we have inhibition applied to this excluding process.

We have, then, ideas let into consciousness called inhibitions, and the process of keeping ideas out of consciousness called inhibition, and the man who can keep all other ideas out from the one in hand is declared to possess no inhibitions whatever.

It would be more correct to call ideas let into consciousness, modifiers, and ideas kept out, exclusions. The maniac is not a man of no inhibitions, but one of complete exclusions.

Pavlov applied "inhibition" to a quite different phenomenon altogether, namely, the alterations in excitability produced by bromides (15).

True inhibition between different parts of the cerebral cortex, it is to be suggested, may not exist. For an inhibited part could not be brought to mind, since in it ions are prevented from interacting with colloids, and consciousness depends on their interaction.

The brain being now conceived as a complex of active areas, each competing for possession of the field of consciousness, it is to be appreciated that the idea holding the field holds it either because of its very intensity, or its ionic content, or from both causes. An emotional outburst, for example, holds the field through its intensity, whereas ordinary processes hold it through their ionic content. Evidently also the act of concentration, or attention, must somehow or other raise the ionic content of the processes mediating the idea on which one concentrates.

On the basis just given, the supposed "inhibition" of lower centres by "higher" ones would be an exclusion of certain ideas from the conscious field by the high ionic content of the excitation processes holding it. We test the hypothesis through alcohol.

Alcohol, by reducing the ionic element of the excitation processes (13, 16), enables the machine to be more easily deflected from a set course (10). The drug does not abolish inhibitions, but decreases the capacity to maintain a course set through ions. On the other hand, a course set through intensity of colloidal aggregation, or affective tone, need not be deflected, but, on the contrary, even maintained more steadfastly.

What we term higher conduct is thus based on excitation processes of high ionic content. For the ordinary man alcohol decreases his capacity to keep to the narrow path by altering ionic efficiency. Ideas previously excluded from the field of consciousness can now come in and also appear with added affective tone. Next, helped by environmental stimuli, they could well hold the field by intensity.

Incidentally it is of interest, perhaps, to correlate the action of

alcohol on excitation processes with previous remarks on old age and youth. Ageing, we noted, is a gradual process of calcification of excitation processes, and alcohol, we now appreciate, would make them younger. It may not be edifying to see the college "head" behaving like an undergraduate, but it is of interest to appreciate that such may not represent a loss of acquired characters so much as the temporary possession of excitation processes of undergraduate age.

Leaving the brain temporarily, we revert to the heart to point out that in this latter organ an excitation process can be conducted from one part to another without exciting a contractile response, a greater level of ionic efficiency being required to excite a response than to conduct the excitation process from one part to another (4). Accordingly, returning to the brain, we deduce that in this organ a higher level of ionic efficiency is required in its excitation process to evoke the conscious activity of the responding organ than is required to conduct a nerve impulse from one point to another.

Alcohol, thus, may not necessarily be abolishing excitation processes when it produces unconsciousness, but rather may be altering their ionic efficiency. If such be the case, then, since chloroform and ether produce the same alterations of excitation composition as alcohol, the anæsthetized brain during an operation could throughout be capable of receiving impressions. Crile's work on anoci-association shows, I think, that the anæsthetized brain does receive impulses from the operated area. The work above indicates their mode of receipt, also that they would be of too low ionic efficiency to rise to consciousness.

We deduce, then, that in the brain a certain level of ionic efficiency in excitation processes is necessary to enable them to evoke the conscious activity of the responding organ. How that level is reached is a matter for investigation. A likely mechanism seems an increased blood-supply to the conscious area, such increased supply being due to alterations in the calibre, not of the larger vessels, but only of the smaller vessels supplying the conscious area to which the larger vessels act as reservoirs. Consciousness would not, thus, be necessarily accompanied by changes in the total blood-supply to the brain. Yet an adequate total supply would be essential to efficient local variations.

We postulate ions, then, as the constituents of excitation processes, making the responding organ conscious that an excitation has taken place. The responding organ, however, must be made not only conscious, but also conscious of something. This something must obviously be the state of colloidal aggregation. Accordingly all psychic processes should be divided into three parts—the judgment,

the judge and the thing judged, or the perception, the perceiver and the perceived. The judgment is the activity of the responding organ which judges through ions the process judged—a state of colloidal aggregation. Also, there are conscious and unconscious judgments depending on the ionic efficiencies of their excitation processes.

The capacity for judging must increase with age, for ageing is calcification, but there must come a time when judging capacity, as ions, has so developed as to leave little to be judged as colloidal aggregation. The second childhood judgments then formed have possibly the same value as those made at the other extreme of life, where there is relatively much for judging, but too little to judge it.

Another possibility of age is that the heightened ionic efficiency of excitation processes can bring into consciousness excitation processes previously outside consciousness. As compared with the more efficient processes, these new arrivals could only be expected to be a dim sort of consciousness, their efficiency being high enough to excite a conscious response, but not high enough in ions to enable the responding organ to judge correctly their significance. Some such process, it is to be suggested, may form the physical basis of hypochondria.

We would next deal with the central nervous system as a storehouse of memories. These we first divide into the conscious and the subconscious, the latter being transformed into the former by added ionic efficiency. Next we divide a conscious memory into three parts. There is the responding organ, which, through ions, the remembrancer, is enabled to appreciate, or remember, a state of colloidal aggregation.

By this method memory traces emerge as altered states of colloidal aggregation. The existence of the faculty of memory next indicates that every impulse which has activated a nerve-cell must leave behind a persisting altered state of aggregation, the degree of alteration depending on the number of activations and their intensity. Macdonald's study of the physical properties of the nerve-cell indicates that such a persistence is inherent in the physical nature of the cell (22).

Nerve-cell activity is thus either the reception of an altered level of colloidal aggregation from some stimulus, or else a reproduction of the activity attending such a reception. The conclusion being accepted, one next may consider whether all cells of the cerebral cortex are always active, or whether only those coming into consciousness are active. The former seems the more likely, for through such continual activity, probably rhythmical, the subconscious part of the machine would be for ever providing the

continuous flow of impulses which seem always to be attempting to break in on the conscious field. One must assume that something must happen as each subconscious impulse breaks itself against the ionic barrier of the conscious field, and the probable happening is a disintegration of the ionic barrier. Such gradual disintegration would be termed fatigue of attention.

Incidentally these conceptions of the conscious and unconscious indicate that sleep must be a condition in which excitation processes are inadequate to excite conscious activity of the responding organ, the inadequacy being either in size or in quality. An adequate blood-supply we have already indicated as a necessary factor to build up an adequate ionic complex; an adequate stream of impulses from the environment, or subconscious mind, or both, probably assists.

The dream, it is suggested, has its origin in some local vasomotor disturbance, probably in turn derived from some stimulation arising from environmental change. It represents something below the normal level of consciousness, and as such also possesses a subnormal ionic complex, which in turn determines a subnormal degree of exclusive power. The ionic part of excitation processes being Freud's "censor," we thus get an explanation of the censor's less efficient working in a dream; also why free association, or day-dreaming, should decrease the censor's activities.

Abnormally large ionic complexes, as in old age and mania, would, on the above principles, be a barrier to sleep. The old gentleman's "night-cap," by making his excitation processes younger, would help him in this process.

Also, where ionic complexes are very large, one can conceive the possibility that many different areas, at one and the same time, could frame excitation processes capable of activating the responding organ, which, being only adapted to respond to one, gets accordingly confused.

Reverting to memory again, we noted above that nerve-cell activity was either the reception or the reproduction of a memory; also that the essential difference between an unconscious and conscious act was in the different quality of the excitation processes. Now training involves repeated nerve-cell activity, and the improvement that follows training must imply a better nerve-cell memory, which in turn implies a higher level of colloidal aggregation. Since also in training a conscious act is gradually transformed into an unconscious one, there must be a gradual diminution in the ionic content of the excitation processes mediating the act.

We find, then, that training does not consist in "higher" centres teaching "lower" centres what they should do, but rather is

dependent on an alteration in the balance of the excitation processes mediating the act. The grouping of cells mediating the unconscious-trained act is the same as that which mediated the conscious-trained act—a conclusion also reached by Pavlov on different grounds. The conscious act is in fact automatically transformed into an unconscious act by training, yet at any subsequent time the unconscious can be brought back to consciousness by adding ions.

Reverting to the heart again, we find there that the alteration in the composition of excitation processes which we now find to transform a conscious into an unconscious act produces also a cell more readily responsive to environmental change (15-21).

If we now imagine a nerve-fibre making connections with a large number of nerve-cells, and an impulse travelling along that nerve, then, other things being equal, it is obvious that the nerve-cells most readily set into activity by that impulse will be those with the least ionic balance. Also, since a nerve-cell once excited keeps a memory of the stimulus in a higher level of colloidal aggregation and a lower ionic level, cells once made active will be even more readily activated on repetition of the stimulus.

All repeated acts, by developing this alteration in the balance of the excitation components, are automatically transformed from a more conscious to a less conscious type. Also automatically, the chain of nerve-cells mediating the act become more readily excited.

The mechanism just described, however, is a mechanism of *bahnung*, hitherto regarded as a specific property of synapses. It leaves the synapses, then, nothing more to do than to function as passive conductors. And earlier in the paper, in dealing with anaesthesia, sleep and exclusions, which are functions hitherto regarded as dependent on synaptic interference, no necessity was found for assuming the presence of variable synaptic resistances. It would appear, then, that when one realizes that excitation processes have composition as well as size, and that their composition determines behaviour, the synapse will probably have left to it only the function of passive conduction.

The hypotheses of interfering synapses, and of higher and lower centres, were necessary as long as it was believed that nerve-cells possessed only one source of the energy called excitability, which, because it was single, could be measured correctly in terms of the size of the response. The introspective philosopher, however, has for centuries appreciated the existence of two different sources of the energy giving rise to his thoughts, but his results could not be directly filled into a scheme where responses were all or none, and possessed only size. Conceptions of higher and lower centres and the

synapses have served to rationalize the hitherto conflicting testimony from muscle and nerve and mind. In the future it seems possible that introspection may be able to teach us much concerning excitability.

SUMMARY.

The maximum contractile effort of a heart is a constant quantity easily capable of measurement. That knowledge being obtained, the experimenter must not only know how a heart under experiment is actually working, but be able to choose the experimental conditions to make the heart work as he thinks fit.

Work performed under such selected conditions, based on knowledge of a heart's capacity, reveals that living tissues have at their disposal, in their electrolytes and in their state of colloidal aggregation, two independent sources of the potential termed excitability.

It is next shown that a response of a given size can be built up by any one of an infinite series of excitation processes which differ only in the proportions of two constituents derived from the independent sources of excitability. The interaction of the two supplies of potential gives the excitation process, which in turn evokes a response. The response and excitation process also take place in different structures.

Excitation processes and responses are thus shown to possess composition as well as size. This composition, in turn, is found to determine the tissue's capacity to react to its environment. These principles derived from the heart are next applied to mental phenomena.

They indicate that every nerve-cell must have at its disposal two independent sources of energy for framing its excitation processes.

Experiments with alcohol next indicate that electrolytes mediate "higher" things and states of colloidal aggregation the "lower."

Excitation processes, however, take place in a different structure from that which responds and do not necessarily evoke the responding organ's activity. Hence in any group of nerve-cells two levels of activity are presumed: the one serves to conduct or frame an ordinary excitation process; the other frames excitation processes which have greater ionic efficiency, to excite conscious activity of the responding organ. Excitation processes of the first level belong to the subconscious, those of the second level to the conscious.

Conscious processes thus require three factors, *viz.*, a responding organ, and an exciting organ possessing two independent sources of the potential termed excitability. The two potentials interact

in the excitation process, which, according to its ionic efficiency, does or does not evoke conscious activity of the responding organ.

Application to mental phenomena is then made of the principle that excitation processes and responses have composition as well as size, and that this composition determines behaviour. This application provides new theories of sleep, anæsthesia, etc., and leaves to synapses the property of passive conduction.

References.—(1) Burridge, *Journ. of Physiol.*, 1911, xlii, p. 359.—(2) *Idem, ibid.*, 1912-13, xli, xxxii.—(3) *Idem, ibid.*, 1914, xlviii, lviii.—(4) *Idem, Quart. Journ. Exp. Physiol.*, 1912, v, p. 347.—(5) *Idem, ibid.*, 1913, vii, p. 167.—(6) *Idem, ibid.*, 1915, viii, p. 303.—(7) *Idem, ibid.*, 1920, xii, p. 339.—(8) *Idem, ibid.*, p. 355.—(9) *Idem, ibid.*, 1927, xviii, p. 1.—(10) *Idem, ibid.*, 1928, xviii, p. 315.—(11) *Idem, Quart. Journ. Med.*, 1915-16, ix, p. 43.—(12) *Idem, ibid.*, 1916, ix, p. 271.—(13) *Idem, ibid.*, 1917, x, p. 141.—(14) *Idem, ibid.*, 1917, x, p. 163.—(15) *Idem, Arch. Internat. de Pharm. et de Thérap.*, 1921, xxvi, p. 19.—(16) *Idem, ibid.*, 1922, xxvii, p. 239.—(17) *Idem, ibid.*, p. 243.—(18) *Idem, ibid.*, 1923, xxviii, p. 37.—(19) *Idem, ibid.*, p. 367.—(20) *Idem, ibid.*, 1928, xxxiv, p. 105.—(21) Burridge and Seth, *ibid.*, xxxiv, p. 195.—(22) Macdonald, *Quart. Journ. Exp. Physiol.*, 1909, ii, p. 65.

ON THE EXCITATION PROCESSES OF FITS AND OTHER CONVULSIVE AND EMOTIONAL STATES.

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IN the previous paper on the subconscious and conscious mind it was tacitly assumed throughout that excitation processes, though capable of activating the responding organ, yet are kept within the limits of that organ's capacity to respond. In the case of the heart, however, it was definitely pointed out that the responding organ had a limited capacity to give a normal response; also that the intensity of excitation processes could exceed this capacity (1, 3).

Accordingly, it is now proposed to consider excitation processes exceeding in strength the capacity of the responding organ to give a normal response, the maximum normal response of the heart being, of course, a series of rhythmical contractions of maximum height.

One method of developing excitation processes of temporarily supernormal size is indicated in the next tracings. (See Fig. 1.)

We have again the rectangle $AOBD$, and this time our line PQ , representing the height of the contractions of a perfused heart, begins high up. At the first arrow the first, or original, perfusing solution is presumed to be changed, and the new solution to contain something in great strength, which first rapidly reduces the height of the contractions to about zero and next more slowly restores their height again. Sodium chloride in sufficient strength, it may be mentioned, can do what is presumed to have been done in this particular case (2, 3).

The rapid depression and slow augmentation, we next note, are mediated by independent mechanisms, the former being due to decreased efficiency of calcium, and the latter to increased efficiency of colloidal aggregation (2, 3).

At the second arrow perfusion of the original solution is deemed to begin again, and subsequently to cause reversal of the two excitability changes which the second solution previously produced. This reversal takes place in a definite manner; the rapidly produced

depression after the first arrow is reversed by a rapidly produced and equal augmentation after the second arrow, and the slowly produced augmentation reversed by a slowly subsiding depression which ends with reversion to the *status quo* (2, 3).

This reversal is indicated in our diagram by the partly continuous and partly dotted curve beginning after the second arrow and ending at Q , the portion of the curve within the rectangle being continuous, and the portion without dotted.

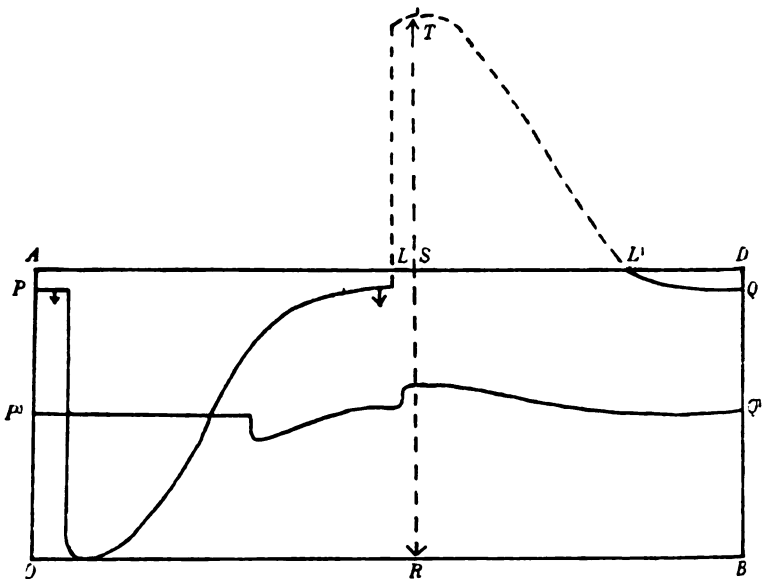


FIG. 1.

The curve P^1Q^1 is presumed to represent the same two changes as occurred along PQ , but on a smaller scale.

We next note that between the points L and L^1 the curve PQ has gone outside the limits of the rectangle, which, as before (1), shows in the vertical distance between its two horizontals the maximum height of a cardiac contraction. We have, in fact, after the second arrow, excitation processes capable of producing a contraction of height RT , and a heart only capable of contracting as high as RS . The part of the energy of the excitation processes represented by the height ST , though surplus to the heart's capacity to express it as height, is, however, as energy, not capable of being destroyed; it can only be transformed. One finds by experiment that it is transformed either into tone, or quickening, or both (2, 3, 5-9).

When the surplus of energy is large, the cardiac machine, as it

were, crumples up (2, 7, 8). It enters into strong tonic contraction for three or four minutes and thereafter begins slowly to relax. During relaxation it begins to beat again, the beats at first being at long intervals and tending to be of the veratrine type (2, 3). Behaviour returns to normal some twenty minutes or so after the onset of the primary spasm (2, 3, 7, 8).

The abnormal behaviour described is, in effect, that of a heart in a fit, and the mechanisms preceding it may be divided into two stages—the stage of preparation and the stage of removal or neutralization.

Considering the stage of preparation first, this in the figure above corresponds to a time of some twenty minutes. This time is an experimental time. In the body the time may well be spread over days, weeks or months. The actual time, however, is unimportant; all that is required is that the body shall accumulate during the preparatory stage enough of some toxin or antibody to produce two excitability changes to the extent which the diagram indicates.

Accumulation of toxin or antibody and development of the two excitability changes would go hand in hand. Also, though no changes in the size of the responses need occur throughout the preparatory period, yet, as the two excitability changes developed, a corresponding increase of sensitiveness to environmental change could also be expected to develop through the change of composition.

Considering next the stage of removal, it should be noted that in the experiment the substance producing the two changes was got rid of by the simple expedient of perfusing a fluid without it. This procedure is not at the disposal of the body, which, in the blood, has the same perfusing fluid before, during and after the fit. The body uses other means of neutralization in place of change of perfusing fluid, as may be grasped from experiments described elsewhere. In those experiments pilocarpine was the agent used to produce two excitability changes, and atropine the drug used to neutralize the pilocarpine with a resulting production of cardiac spasm (7, 8).

Anaphylaxis provides also a possible method. In anaphylaxis a substance, *A*, gives rise on injection into the body to another substance, *B*, which in its turn produces and maintains two excitability changes. When these two changes have sufficiently developed the neutralization of *B* by a new injection of *A* will, of course, cause reversal of the two excitability changes which *B* had developed and maintained. Their reversal, the one suddenly and the other in some twenty minutes or so, gives the spasm of anaphylactic shock (7, 8).

Anaphylactic shock in the guinea-pig being due primarily to spasm in its bronchiole muscles, we learn therefrom that the two excitability changes mediating the spasm or fit are not necessarily produced in all excitable tissues, but probably only in some. Hence, to suggest that an epileptic fit may be anaphylactic shock of the brain, all we require is to assume the existence of toxins or antibodies having actions just as specific on nerve-cell excitabilities as others have on those of the bronchiolar musculature.

So far, it should be noted, we have only considered that extreme of the mechanism where there is enough surplus of excitability to produce temporarily complete spasm, or *grand mal*. At the other extreme there would just be enough surplus to produce slight tone for a few minutes, or *petit mal*. The mechanism, however, provides no dividing line between *grand mal* and *petit mal*; also it provides an infinite gradation of severity, or lightness, for both *grand* and *petit mal*.

The action of bromides is here of interest. They produce colloidal changes opposite to those required for spasm, but would assist a toxin's depression (4). Calcium (and barium perhaps more efficiently), would antagonize both the changes (2, 3, 6).

Two other mechanisms for producing spasm may also be considered. The one would be a sudden release of a high concentration of Ca salts. In this case, however, spasm would come and go with the Ca and be maintained just as long as the extra Ca was present (7). It would not, therefore, have the marks of a fit.

The other mechanism would be the production, through a toxin or other cause, of the equivalent of "systolic arrest" in nerve-cells somewhat as digitalis does in cardiac muscle. The spasm in this case, however, would not come on suddenly, but even allowing so short a period as one minute for spasm production, the toxin would still require rapid neutralization to permit the machinery to return to normal working in twenty minutes. Hence the first mechanism given is the one of choice.

No attempt can be made here to correlate this view of the mechanism of the fit with current theories of epilepsy, for such theories have no knowledge of the two modes of excitability change. It can be confidently predicted, however, that no mechanism other than that laid down above is likely to be discovered (6). On the other hand, when one comes to consider the various agencies which can produce the two required excitability changes, one appreciates that their number may be legion. Toxins producing two excitability changes may well be produced in any organ of the body, but that is not enough; neutralization is also required. It is more likely that in some particular organ there is an infective

process held there in check, but also raising the general immunity through production of antitoxin, which in turn produces the two excitability changes as indicated above. Then comes the day when toxin sweeps into the blood-stream and, temporarily neutralizing the antitoxin, lets loose the two excitability changes which that antitoxin has slowly built up.

Hence, so far as physical theories of the excitation processes of epilepsy are concerned, the requirements are :

(1) Something which can build up two large excitability changes.

(2) Something else which can rapidly neutralize the something of (1).

The connection between (1) and (2) has been indicated above, and we appreciate the fact that the foundations of epilepsy may be laid in any organ.

Next we note that if one part of the cerebral cortex can inhibit another, a psychic as well as a physical origin of epilepsy is possible.

We would now proceed to use the above results for further study of consciousness and unconsciousness. We found previously two kinds of unconsciousness, the one in which excitation processes had been temporarily blotted out, as it were; the other in which excitation processes were of too low ionic efficiency for consciousness.

The unconsciousness of *petit* and *grand mal*, however, can belong to neither of these types, for in the excitation processes mediating these states there is neither lack of ions nor lack of intensity. Quite the contrary, we find over-intensity of excitation processes.

We must thus predicate a third type of unconsciousness, *viz.*, that due to over-intensity of excitation processes. The explanation of this loss of consciousness is obtained, I think, from a consideration of the processes in *petit mal*. The corresponding cardiac activity would be a heart beating with slight tone, and, as it were, cutting a little off the base of each beat. The responses would thus be chiefly "normal," and only slightly abnormal. Accordingly, consciousness being absent, one must deduce that the normal part of these responses must be held by the colloidal part of the excitation processes (1).

Somehow or other, then, that part of the response built up on colloidal aggregation has the first claim on the field of response.

We should arrive at a similar conclusion by considering blind passion, which one would define on the conduct side as an emotional outburst of such great intensity as to leave the individual bereft of reason. This, put in terms of response composition, implies not only that a response preponderantly colloidal leaves little room for

the ionic part, but also that the colloidal element as it develops can, as it were, push the ionic part out of the picture.

We appreciate the possibility, then, that there can exist excitation processes sufficient in size to affect the responding organ, yet having a composition which excludes consciousness. It is, however, a matter of experience that the responding organ does not merely respond, but also coordinates. Coordinated conduct outside the realm of consciousness would be termed automatic, and our hypothesis of its nature indicates that it should have high emotional tone.

Incidentally, it should be noted that if there be small and great minds, or responding organs, such as is indicated by our fundamental equation, then equal development of colloidal changes in the two types would leave the one bereft of reason and the other still reasonable.

Now, at the dawning of consciousness, the ionic part of the excitation processes must, of course, be small. And, being small, it becomes relatively easy to push it out of the picture. Also it just happens that this period of dawning consciousness is naturally selected for teaching the individual the first elements of decency and personal cleanliness. Lapses from virtue which then arouse an emotional response in the teacher will be accompanied by a corresponding arousal of emotion in the taught. The child's excitation processes, however, have so little ionic part that a relatively small access of colloidal element reduces the ionic part below the level of consciousness. The highly emotional experiences of the dawning of consciousness are thus automatically, as it were, pushed into the subconscious.

Granting next that the responding organ develops with age, it would appear that equal emotional experiences must give different results in the young and the adult, passing automatically to the unconscious in the former and capable of remaining conscious in the latter. On the other hand, it should not be impossible for the adult to meet with emotional experiences, as in war, of such high emotional tone as also to pass automatically out of consciousness.

It will be appreciated that we have just given a theory of the mechanism of the process termed repression by Freud and others.

"Repression," it is suggested, is an unfortunate name. It undoubtedly correctly describes an imaginary process in which the individual takes a decision to forget for ever, as it were, a particularly disagreeable experience. It is also certainly possible to have disagreeable things excluded from the conscious field, but that is quite a different matter from deciding that a thing should be forgotten. And it certainly seems impossible that a child of eighteen

months should take such a decision, or that a man blown up by a shell should have the time to do it.

"Expulsion," I suggest, is the proper term for this phenomenon. It indicates that the experience was not deliberately forgotten, but rather that it was so intense as to expel automatically from the scope of a responding organ of limited capacity a second element essential to a conscious memory.

We have next to note that the group of cells whence consciousness has been expelled consists of cells fully activated. As such—for living cells are active—they are the seats of production of large amounts of nerve energy which must somehow or other find an outlet.

It seems possible that a group of nerve-cells fully activated in childhood never thereafter grows up. Their energy is thus capable of being taken up by some other more developed group, which will then show that hyperactivity which is termed a neurosis. The psycho-analyst has learnt how to track down the hidden source of energy and "ionize" it. Recalling a childish expulsion in this manner causes so little disturbance that one can presume the added ions merely allow it to grow up, as it were.

On the other hand, expulsions occurring in the adult leave behind fully activated, fully developed nerve-cells. The energy they manufacture will not be capable of being taken up by any other group of cells, and so must overflow. Hence the motor manifestations of shell- or other shock.

Next we have to note that these fully developed cells have no room for enough ions for consciousness and normal activity. Our studies of epilepsy above, then, would lead us to anticipate that the addition to these excitation processes of enough ions to make them conscious would be automatically followed by a fit. This extra Ca mediating consciousness not only serves to produce the fit, but also to reduce the state of aggregation of the colloids. Hence once it has got back into the machine and thoroughly worked it, we could anticipate a permanent reduction in the level of colloidal aggregation accompanied by a restoration of conscious memory.

These expelled memories, it should be noted, lack only one element of a memory. The responding organ can respond to them, but the memory traces are so over-developed as to leave no room for the remembrancer. To restore memory one has to reduce the intensity of the memory trace sufficiently to give the remembrancer scope to work. The expulsions of childhood, however, seem capable of taking up the remembrancer by development.

The shock which follows painful experiences, such as burns or other accidents is, it is suggested, a manifestation of the

process just outlined. The thing to be perceived occupies so much of the field of response as to leave too little room for adequate functioning of the perceiving element. Consciousness is present, but to a much smaller degree than normal.

Hysteria affords other examples in its hyperæsthesia and anæsthesia. These, it is suggested, result from high emotional tone. The hyperæsthesia is a milder stage of the anæsthesia; the former results from augmented colloidal aggregation, the latter from such an over-development of the former as to leave no room for the perceiving element to function. Noting next that high emotional tone cannot go with good judgment, will-power, etc., it becomes possible to deduce other peculiarities of the hysteric as being due to the type of balance of her excitation processes.

It should be noted that all our results here, excepts fits, are derived from our fundamental equation, $H + L = T$.

The equation gives T a value, and as such places limits to T . Fits are due to the sum of H and L being greater than T . When the sum of H and L is equal to T , we have merely to observe that if there be overmuch of the one there must be also a corresponding loss of the other. High emotional tone cannot go hand in hand with good judgment; passion can rise so high as to leave the individual without consciousness of the significance of his acts, and so on. All these peculiarities of behaviour are deducible from our fundamental equation, or, being what they are, serve to prove the equation's validity.

We would take up for final consideration a conception that septic processes can alter the state of colloidal aggregation, the alteration being towards the higher aggregation level. So long as the affected individual retained his capacity for compensation, termed by Hippocrates the "physis," increase of colloidal aggregation would be compensated by corresponding decrease of the ionic part of excitation processes. For unless that compensation took place, the excitation processes would become too great for normal activity of the responding organ, with the resulting production of a more or less permanent fit.

To keep excitation processes within normal limits of strength, then, an increase of intensity of the one element would be balanced by a corresponding decrease of intensity of the other.

Following the alteration would come changes of behaviour. There would be gradual loss of judgment capacity, conscious memory and so on, the loss being compensated by an increase of affective tone. The early stages, indeed, might well be confused with hysteria.

The individual affected would, in fact, go slowly through the same stages as are traversed more quickly by the man who gets

blind drunk. The septic process, plus bodily adjustment, slowly develops a condition similar to alcoholic intoxication. The only thing to do in such cases is, of course, to seek the source of toxin and get rid of it, as is now being done by Graves (9) and others.

Another aspect of this intoxication may well receive attention. The organs of the body are not always being run "all out"—at least not in youth. We keep a reserve to meet strain. If, then, a youth has a septic focus, *e.g.*, tuberculosis, the septic process may well serve to keep his cerebral machinery running "all out," so that later his friends may lament the early demise of one who showed such brilliant promise, or, if he conquer the infection, lament a failure to realize the possibilities shown during youth.

SUMMARY.

The motor discharges of an epileptic fit are shown to possess a cardiac parallel.

Examination of the cardiac parallel shows that the abnormal behaviour is due to excitation processes of too great intensity to permit the responding organ to give a normal response.

Accordingly it is deduced that the responding organ mediating mind must also possess a limited capacity to give a normal response.

Fits are thereby indicated to be based on excitation processes of too great intensity to evoke normal activity of the responding organ.

The results lead to a consideration concerning which element of an excitation process, colloidal aggregation or electrolytes, holds prior possession of the field of response.

Prior possession being conceded to colloidal aggregation, theories are developed of the mechanism of the process hitherto termed "repression," but better termed "expulsion," shell-shock and emotional states.

Three kinds of unconsciousness are recognized :

- (1) That due to excitation processes of too small intensity.
 - (2) That due to excitation processes of unfavourable composition.
 - (3) That due to excitation of too great intensity.
- (2) and (3) are allied.

References.—(1) Burridge, *Journ. Ment. Sci.*, July, 1929, lxxv, p. 371.—(2) *Idem*, *Quart. Journ. Exp. Physiol.*, 1915, viii, p. 303.—(3) *Idem*, *ibid.*, 1920, xii, p. 339.—(4) *Idem*, *Arch. Internat. de Pharm. et de Thérap.*, 1921, xxvi, p. 19.—(5) *Idem*, *ibid.*, 1922, xxvii, p. 239.—(6) *Idem*, *ibid.*, p. 243.—(7) *Idem*, *ibid.*, p. 347.—(8) *Idem*, *ibid.*, 1923, xxviii, p. 23.—(9) Graves, *Journ. Ment. Sci.*, Jan., 1929, lxxv, p. 31.

ON THE SIGNIFICANCE OF DOUBLE NERVE SUPPLIES.

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IN considering the significance of double nerve supplies, we shall limit our outlook to the heart, and leave to others the task of applying the results to the wider problems of vagotonia, etc.

The heart has a double nerve supply from the vagus and sympathetic, and the functions of these nerves have been hitherto considered solely in terms of size; the vagus depresses, the sympathetic exalts. In many animals also it has been found that these nerves both exert tonic activity.

Now, so long as one considers the actions of these nerves in terms of size, this tonic activity of both nerves is bad driving of the machine. No physiologist, for example, would keep in his employment a coachman who was perpetually flogging his horses and always holding them in. Yet, considered in terms of size, that is the parallel to combined tonic vagus and sympathetic activity.

The actions of these nerves considered in terms of the composition of excitation processes give a quite different view of the significance of double nerve supplies.

I have shown through pilocarpine (7) that the vagus nerve in the heart decreases the capacity of calcium to interact with colloids. The positive charge, as conveyed by the H-ion, for example, is as potent a decalcifier of heart muscle as is an oxalate (1, 2, 4). The negative charge, on the other hand, increases the capacity of calcium to interact (3). The vagus nerve, then, decreases the efficiency of the ionic element in excitation processes.

The sympathetic nerve, however, increases the part played by colloidal aggregation in excitation processes (6).

In a double nerve supply, then, we have a mechanism for altering the composition of excitation processes. With such alteration of composition goes alteration in the behaviour of the organ to its environment (5).

We need only consider here a possible alteration to a particular concentration of drug, or hormone. By altering the composition of

its excitation processes, without necessarily altering the level of activity, it should be possible for the organ at one time to be rendered susceptible to the action of a particular hormone and at another to be steeled against its action (5, 6).

Whether a hormone shall or shall not act on a particular organ, then, can depend on the balance of the actions of the nerves supplying the organ.

Some day we shall probably find that the blood concentration of a hormone is delicately adjusted to the level at which organs can be steeled against it or rendered susceptible to it.

One should also note that the same nerve may possibly affect ions in one organ and colloids in another. This seems likely for vagus supplies to the heart and intestine respectively.

This view of the significance of double nerve supplies is more complicated, perhaps, than the current views of size, but is almost certainly sounder. It opens up a much wider field of research than do views which look to them merely to augment or diminish activity. Probably the clinician will be afforded more opportunities to investigate their qualitative effects than the experimental worker.

References.—(1) Burrige, *Quart. Journ. Exp. Physiol.*, 1912, v, p. 347.—(2) *Idem, ibid.*, 1913, vii, p. 167.—(3) *Idem, ibid.*, 1915, viii, p. 331.—(4) *Idem, ibid.*, 1927, xviii, p. 1.—(5) *Idem, ibid.*, 1928, xviii, p. 315.—(6) *Idem, Quart. Journ. Med.*, 1917, x, p. 163.—(7) *Idem, Arch. Internat. de Pharm. et de Thérap.*, 1923, xxviii, f. 23.

THE LAW AND CERTIFYING PRACTITIONERS.

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RECENT decisions in the Law Courts leave the law relating to improper or negligent certification in a very unsatisfactory position; and that not only from the point of view of the medical practitioner. The effect of the decision in *Harnett v. Fisher* ([1927] *Appeal Cases* 573) is that a person of sound mind who has been improperly certified as insane through the negligence of the certifying physician, and has as a result of that negligence been deprived of his liberty for a period exceeding six years during which it has been impossible for him to take legal proceedings, is by his failure to do so—in other words, by the very gravity of the wrong that he has suffered—deprived of any remedy for that wrong against the person to whose negligence it is traceable.

It seems clear that the framers of the Lunacy Act, 1890, contemplated (see s. 331, since repealed by the Public Authorities Protection Act, 1893) that in such a case time should run, not from the date of the original wrongful act, but from the release from detention of the injured party. And in the opinion of Lord Blanesburgh, differing from the majority of the House of Lords, that principle was kept alive by the later Act, with the substitution of six months for twelve as the period of limitation ([1927] A.C. at pp. 601, 602). And although, or rather because, Lord Blanesburgh's was a minority opinion, no fair-minded person can dispute that for the prevention of the hardship amounting to injustice which, upon the findings of the jury (and these for this purpose must be taken as correct), was inflicted in that case, some amendment in the law should be made when next the Lunacy Act, 1890, comes under review by the Legislature.

It must, further, be observed that a mere re-enactment of s. 331 would not be sufficient, since, in the opinion of the majority of the House (see the speech of Lord Sumner at p. 583), that section and the General Limitation Act (21 Jac. 1, c. 16, s. 3) were not mutually exclusive; so that an action would have had to be brought both within six years of the original wrong, and within twelve months of release. Moreover, it was expressly decided that the

circumstances of that case were not within the purview of the Public Authorities Protection Act. (Whether they would have been within s. 331 was left undecided, though Lord Sumner's reasoning seems to apply equally to that section.) And a distinction was drawn (see *per* Lord Atkinson at p. 590) between a release mentioned in that Section and discharge consequent on escape. It follows that any re-enactment of s. 331 should clearly extend to actions not only for " anything done under " the Lunacy Act, but for any act, neglect or default in furtherance or for the purpose of anything intended to be done under it.

This matter has so far been considered from the point of view of the victim of wrongful detention, and with reference to circumstances of a very unusual character. From the point of view of the medical profession the law is yet more unsatisfactory, with results disastrous (quite apart from the need of provision for early treatment without certification) both to the public and to patients who may be a danger to themselves and to others, and in urgent need of protection.

Stated shortly, a medical practitioner called in to examine and, if satisfied that it is necessary, to certify an alleged lunatic, owes a duty to the latter to use due care, for breach of which he may be liable in damages. If, without using due care, he signs a certificate upon which the magistrate acts, and the patient is afterwards found to have been unjustifiably detained, his act is held to have been the cause of the detention and of the resulting damages. It seems to follow that he might also be held liable for damages for negligently refusing to certify, if consequently on such refusal the patient sustained some injury or injured someone else (*De Fréville v. Dill*, 96 Law Journal K.B. 1056, at pp. 1060, 1061, *per* McCardie, J. ; *Everitt v. Griffiths* [1920], 3 *King's Bench*, at p. 196, *per* Scrutton, L. J.) In such a case he would at least incur the risk of public censure (see *Report of the Royal Commission*, p. 40).

Both the above fundamental propositions have been disputed and doubted by high authority. It has been said that the certifying physician owes no duty of due care to an alleged lunatic who has not called him in ; and further, that even if he did, the detention which follows on a certificate is caused, not by the certificate or the doctor who gave it, but by the order of the magistrate acting in a judicial capacity. The authorities were collected in the above-cited case of *De Fréville v. Dill* by Mr. Justice McCardie, who, while evidently sympathizing with the views last stated, felt constrained by authority to refuse to give effect to them. It is, as he indicated, eminently desirable that the House of Lords should give an authoritative decision on both points.

To the writer it seems difficult to believe that a medical practitioner owes no duty to an involuntary patient to use due care, when called in with a view to certification, since (in the words of McCardie, J., 96 L.J. K.B. at p. 1060) "it is plain that a surgeon who operates negligently on the body of a patient is liable in damages, though there is no contract between the patient and himself." It may be that the contrary view will ultimately be held to be the law; but it would offend the public conscience, and legislation to that effect would have small prospect of success. This was in effect the opinion of the Royal Commission on Lunacy (see p. 41 of their report).

On the other hand, the argument that not the certificate, but the Reception Order is the cause of detention, and therefore that damages caused by the detention are not the legal result of giving the certificate, has much force; and this conclusion seems almost to follow from the reasoning in the case of *Harnett v. Bond* ([1924] 2 K.B. 517; [1925] A.C. 669, 682). Indeed, it has been suggested that in view of s. 317 (2) of the Lunacy Act, 1890, the only available remedy for misstatement in a medical certificate may be by criminal proceedings (Lord Sumner [1927] A. C. at p. 584).

The Royal Commission, while expressing the view that the absolute privilege of a witness, involving complete immunity from civil proceedings for a medical practitioner who gave a certificate negligently or in bad faith, could not be defended, yet recognizes that "unless some relief is found for the situation without delay a break-down in the system is inevitable." And they suggest a shifting of the onus of proof by amendment of s. 330 (1) of the Lunacy Act, 1890, so that for the last words of that clause, "a person . . . shall not be liable . . . if such person has acted in good faith and with reasonable care," would be substituted "unless such person has acted in bad faith or without reasonable care," with a corresponding amendment to clause (2) as to a summary stay of proceedings.

It is to be feared that such an enactment would afford but little more security to the certifying physician than exists already. Where s. 330 (1) is pleaded, the plaintiff goes into court prepared with such evidence as he can gather to negative the plea, and in effect undertakes the onus that the proposed amendment would lay upon him; and few actions are brought in which a sufficient *prima facie* case cannot be made out on affidavit evidence to prevent summary dismissal.

It has occurred to the writer that a useful analogy may be found in actions for "malicious prosecution." Here the plaintiff must *inter alia* prove three things: (1) That the prosecution failed—

corresponding to proof that the patient was in fact sane; (2) malice—in other words bad faith; and (3) absence of reasonable and probable cause (*Laws of England*, Halsbury, xix, pp. 677–682). The last element, raising a mixed issue of law and fact, is for the judge to determine upon the facts as found by the jury—a circumstance which should lift it out of the atmosphere of sentiment and prejudice. It is suggested therefore that the proposed amendment should read somewhat as follows: “Unless such person has acted in bad faith or negligently, and without reasonable and probable cause,” with, perhaps, a *proviso* that in the case of a trial with a jury, the issue of reasonable and probable cause should be determined by the judge upon the facts found by the jury. But it is believed that it would be unnecessary to provide expressly for this.

LIGHT THERAPY IN MENTAL HOSPITALS.*

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INTRODUCTION.

THE value of sunlight in the maintenance of health has been recognized from early ages, and history records sun-worship by many nations in the past as well as at the present time. In Europe records exist of the use of the light of the sun for medical and surgical purposes since before the Christian era, but it was only towards the end of the last century that its possibilities began to be studied and the value of the electric arc lamp as a substitute recognized. In 1893 Finsen demonstrated the value of sunlight and electric arc radiation in the treatment of lupus, and at the beginning of the present century Bernhard of Samaden treated wounds and tuberculous lesions with sunlight. In 1903 Rollier opened his first clinic at Leysin, where he obtained excellent results in the treatment of tuberculosis, especially of the surgical type, by insolation in the brilliant Alpine sunshine. In 1908 Gauvain introduced heliotherapy at Hayling Island and at Alton. Nagelschmidt used the air-cooled quartz mercury vapour lamp for general irradiation in the same year, and in 1913 Reyn commenced the use of the carbon arc for the same purpose. The value of ultra-violet rays in the cure of rickets was not recognized till demonstrated by Huldschinsky in 1918, though Palm (1), as early as 1890, urged that deficiency of sunshine was a cause of the condition.

During the past ten years greater attention has been directed in this country to the investigation of the effects of the actinic rays on the blood, endocrines and other tissues of the body. The medical and the lay press abound with allusions to the therapeutic use of sunlight, and at least two journals are entirely devoted to the subject.

ACTINOTHERAPY IN MENTAL HOSPITALS.

A note in the report of the Board of Control for the year 1925 runs as follows :

“ The recognized value of ultra-violet radiation and of ‘light’

* A paper read before the Section of Psychiatry, Royal Society of Medicine, on January 8, 1929, and reproduced by kind permission of the author and of the Editors of the Society.

baths is prompting the authorities of mental hospitals to introduce this form of treatment into their institutions. While it is believed that treatment by actinic rays has an effective influence in ameliorating cases of neurasthenia, it might be thought premature to assert that it has any specific action in psychotic states. It is, however, only right and in harmony with enlightened opinion that the population of a mental hospital should have such modern facilities as are open to the general public for the treatment of such conditions as malnutrition, tuberculosis, autotoxæmic states, skin diseases, etc. Fortunately the requisite apparatus is not expensive."

The report adds that there were in 1925 one registered and four county mental hospitals provided with installations for this mode of treatment. Twelve months after the publication of that report we find the following statement by Dr. Edwin Goodall (2) in his Maudsley lecture :

" Now that artificial sunlight treatment is being introduced in psychopathic institutions its effect in basal metabolism in suitable cases should be recorded. Indeed, I consider it incumbent on those who have the installation for this treatment to furnish scientific evidence for or against the utility of the treatment in psychopathic cases—evidence based upon tests of function, blood-examination, etc. It will be time enough for mental hospitals in general to make provision when such evidence is forthcoming."

To Goodall's remarks no exception could have been taken if his concluding sentence had been omitted. The suggestion that the study of actinotherapy, in relation to psychopathic cases, should be limited to the staffs of the few hospitals provided with the apparatus is unfortunate. Such an attitude is incomprehensible in one so eminent in research and whose work has been so diffuse. Evidence such as he denotes would be more readily forthcoming if the research were extended to all mental hospitals. A keen spirit of inquiry exists in many medical officers, who would welcome the opportunity of studying the subject, and the cost of the equipment, as the Board of Control states, is not great.

An inquiry addressed by the Actinotherapy Sub-Committee of the Royal Medico-Psychological Association in May, 1928, to 200 mental hospitals elicited forty-seven replies. From these it appeared that only sixteen hospitals had any apparatus, while eight hoped to instal one in the near future—five years after Horton Mental Hospital, the first in the field, was equipped.

In 1924, at Parkside Mental Hospital, enclosures were erected for male and female patients and provided with hammocks where courses of sun-baths could be given. The summer that year provided a minimum of sunshine, so that little experience was gained as to the

value of the treatment. It was then decided to instal electrical apparatus for actinic radiation. Adopting the suggestion of Turrell (3) in his book, an 80-ampère cinema arc lamp was obtained and about 50 patients treated during the year. Later additions to our equipment included six of the conventional 25-ampère carbon arcs, in two series of three, for general irradiation of groups of eight to ten patients, and three quartz mercury vapour lamps. The two types of lamp were obtained because of the difference in penetrating powers of their rays; experience showed that alternate use in treatment produced the best results. Details of equipment of a room for actinotherapy can be found in most text-books on the subject, but a rubber carpet is needed for insulation to prevent accidents in treating mental cases.

During 1925 an investigation was undertaken of the results of irradiation of about 50 cases treated for periods varying from two weeks to two months. An 80-ampère carbon arc was used, the electrodes being, in cinema parlance, "high intensity" carbons. These were selected after trial, because the best reaction was obtained by their use; I believe they are impregnated with nickel. Six to eight patients were treated at a time by irradiation of the whole body, all suitable new admissions during the year being chosen. No cases of epilepsy, mania or general paralysis of the insane were included. The dosage was fixed at five minutes for the initial exposure of the front of the body and five minutes for the back, increasing each by one minute daily to the maximum of thirty minutes, at a distance of 3 ft. from the arc. The metabolic rate was taken before, during and after the course of treatment, in each instance before the patient rose from bed in the morning. The blood-pressure was recorded and a full differential blood-count made at the same periods. The body weight was recorded weekly, and regular notes made of mental variations, appetite, sleep, skin condition, etc.

The results showed that there was a marked and general increase of the body weight, averaging $3\frac{1}{2}$ lb. for each patient. The appetite generally improved and most patients showed greater muscular activity, with concomitant exhilaration and cheerfulness. The metabolic rates and blood-counts showed no constant variation. The blood-pressure records indicated a slight average decrease of the systolic pressure.

During the investigation it was early realized that in melancholia with agitation and in cases of hyperthyroidism the condition was aggravated. Manic-depressive cases responded most readily, the period of depression being considerably curtailed, while mild cases of melancholia also benefited. Delusional cases, with much

mental irritability due to the delusions, became more amiable, the delusions were less frequently referred to and did not appear to trouble the patient while undergoing treatment. In dementia præcox there was no amelioration of the mental condition, but some cases showed greater motor activity and talkativeness.

Since the above investigation was undertaken the results broadly



PARKSIDE MENTAL HOSPITAL, MACCLESFIELD.

Showing Q.M.V. Lamp, Time Clock, Thermometer, Weighing Machine. Above couch a 1000 Watt Tungsten Filament "Vita" Glass Lamp. At end of couch a Cinema Arc (Carbon) Lamp.

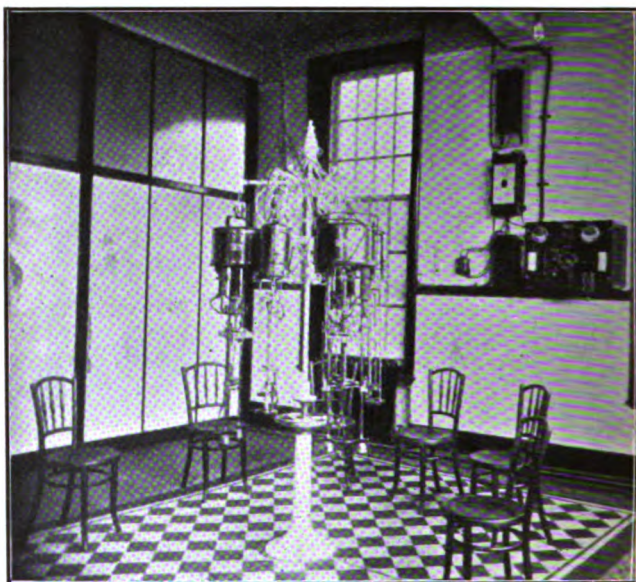
defined have been confirmed. In addition, treatment of cases of confusional insanity, some cases of dementia præcox and anergic stupor have yielded good results.

K. K. Drury (4) records similar conclusions as to the types of mental disorder that appear to benefit, and states that in acute

mania the patient becomes quieter during exposure, but immediately afterwards grows more and more restless and noisy. In epilepsy he found that the physical condition improved, but that the number of fits increased by from 20% to 150%.

PHYSIOLOGICAL ACTION OF ACTINIC RADIATION IN RELATION TO PSYCHOPATHIC STATES.

Actinic radiation effects a general improvement of the physical condition, increases body weight and improves muscle tone (Rollier



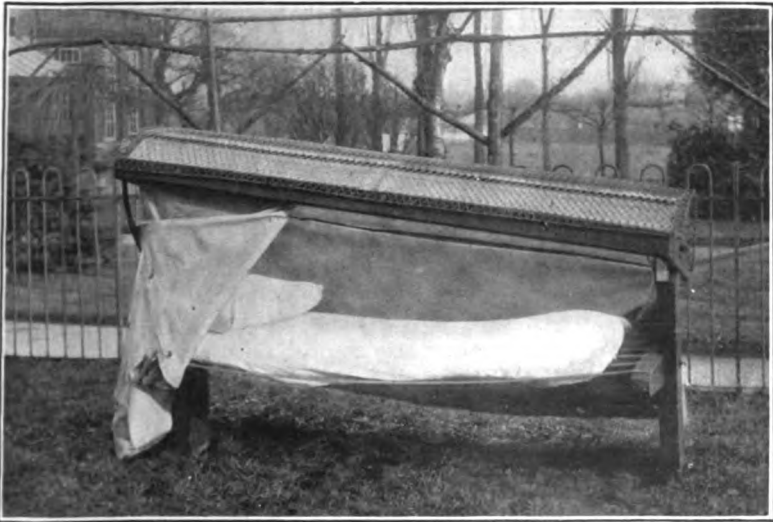
PARKSIDE MENTAL HOSPITAL, MACCLESFIELD.

Showing Battery of Six Carbon Arcs (25 Ampère) in two series of three, Ammeter, Voltmeters, etc.

refers to sunlight as the "best masseur"). Colebrook, Eidinow and Hill (5) and others have shown that the bactericidal power of the blood is augmented, and Humphris (6) states that the immunizing power of the body is increased. These effects must materially assist in the therapeutic value of local treatment directed to eliminate sources of infection, in those cases which Cotton (7), Wm. Hunter (8) and others ascribe to a toxæmia derived from a focal sepsis or intestinal absorption. These cases, which they would group under "septic psychoses," include dementia præcox, manic-depressive insanity, paranoid conditions, psychoneuroses

and toxic insanities, in most of which our best results have been obtained by irradiation.

Saleeby (9) states that actinic irradiation raises the iron content of the blood and the iodine content of the thyroid, and I have noted an increased thyroid activity in cases of hyperthyroidism and agitated melancholia. This action indicates the benefit to be expected in exposure of those dull and lethargic cases which are often due to thyroid insufficiency. Grant and Gates, of the Rockefeller Institute (quoted by Howard Humphris (6)) recorded that the weights of the endocrine glands were all increased in experimental



PARKSIDE MENTAL HOSPITAL, MACCLESFIELD.

"Vita" Glass Canopy over Hammock. The canopy can be tilted towards the east or west on its long axis. The water-proof curtain affords privacy as well as protection against the weather.

rabbits. The parathyroids showed the greatest hypertrophy, and the calcium content of the blood was increased. T. C. Graves (10) treated with calcium lactate cases of excitement in epilepsy, all forms of mania, and agitated melancholia, with satisfactory results. His treatment was based on the assumption (from Bayliss's view that calcium is necessary for the normal effect of adrenaline on sympathetic endings) that, though there could be no lack of adrenaline in the body in these cases, there was an absence of its "fixation ion."

Levick, quoted by Edgar Mayer (11), noted that the neurasthenic symptoms often accompanying rickets were the first to clear up under ultra-violet ray treatment. E. H. and W. K. Russell (12)

state that they have treated many cases of neurasthenia and that all but two have benefited greatly. Humphris (6) states that there is no disease in which greater benefit may be derived from ultra-violet radiation than in this condition, and that the benefit may be due to alteration in the blood chemistry or the endocrine balance or to the bactericidal improvement in the blood, or to all three. We should remember that many cases of so-called neurasthenia are early cases of melancholia with hypochondriacal tendencies.

The action of the rays on the endocrines should be of interest to that school of thought which holds that most kinds of mental disturbance are a direct result of faulty functioning of the endocrine system, and it cannot be denied that there is a close relationship between the internal secretions and the mental state. But where there is a disturbance of the endocrine balance, it has yet to be determined whether irradiation will tend to restore that balance or to accentuate the disturbance. My experience goes to show that only when the disturbance is slight can any improvement be expected.

Many observers have noted a marked reduction of high blood-pressures, which may give rise to certain psychotic states, and that in this respect the carbon arc was more effective than the mercury vapour lamp. They also noted that when the blood-pressure was previously normal no decrease could be demonstrated.

It is generally held that the ultra-violet rays affect not only the vasomotor system but also other parts of the vegetative nervous system, such as those controlling the pigmentation of the skin, the fibres supplying the hair-follicles, and those which affect muscle tone.

I have been able to trace few references to work on the action of actinic radiation directly on the nervous system, but that of J. D. Achelis and H. Rothe (13) appears of sufficient importance to be noted. They investigated the state of excitability in the external cutaneous nerve before and after irradiation of the arm below the site of experiment and used the other arm as a control.

The result of seventeen tests showed that :

- (1) The sensory nerve which innervates a radiated region goes through a variation of excitability during the latent period.
- (2) Four phases could be distinguished : (a) A small increase of excitability; (b) a short variable period; (c) a strong, slowly increasing diminution of excitability; (d) a fairly rapid return to normal when the erythema appears.

This rhythm in variation might be continued for some time with gradually decreasing intensity. The phases (c) and (d) were constant but the phase (a) was not always observed.

They comment on the marked and constant reduction of excitability, which is not limited to the place of irradiation, but can be shown along the course of the nerve below and above the stimulated area. They conclude that the whole neuron is implicated in the change, and it would seem to be justifiable to infer that the whole of the sensory division of the nervous system is influenced by general irradiation. This reduction of sensitivity is to me analogous to the action, in small quantities, of the large group of anæsthetic and hypnotic drugs, including alcohol, which produce at first a feeling of exhilaration and mental vigour, with corresponding removal of care and annoyance. Hirschfelder and Serles (14) showed that these drugs, in spite of their chemical diversity, possess an important physico-chemical property in common. When added to an emulsion of oil and water they convert the oil-in-water phase into the water-in-oil phase. The effect of this is greatly to raise the electrical resistance of the emulsion.

The *Lancet* editorial of December 17, 1927, commenting on the above, states: "It seems a justifiable hypothesis that these drugs act in the same way in the body, and that, by altering the phase of the emulsion of lipoids, which constitutes the cell membranes of the neurones, they reduce the electrical conductivity in the nervous system, possibly at the synapses."

This leads to the question whether the action of the actinic rays on the sterols has any affinity with the above reactions.

The action of ultra-violet radiation, then, in reducing the conductivity of the sensory nerves, produces a sensation of well-being with mild excitement and freedom from care and annoyance, and may be said to paralyse certain inhibitions. Thus its beneficial action in neurasthenia, mild melancholia and the depressed stage of manic-depressive insanity may be understood, as well as the aggravation of excitement in cases of mania. Here we find the explanation of its analgesic action also.

It has been suggested that the change in the excitability of the nerve may be due to direct action of sunlight on the nerve-endings, or to some chemical substance produced in the epithelial tissues or to a hormone secreted by the skin.

SENSITIZERS.

Certain dyes and other substances can sensitize tissues to a radiation which would otherwise be without action. These have been termed "sensitizers," and they include eosin, methylene blue, iodides, bromides, hæmatoporphyrin, etc. Coal-tar products, such as sulphonal, may produce a temporary hæmatoporphyrinuria

in certain people who would at these times be extremely sensitive to the action of light. Beri-beri, an avitaminosis due to a diet of polished rice, is probably partly due to the action of sunlight on the sensitized individual. Pellagra, attributed by some to an avitaminosis, by others to the eating of corn or maize infected or altered in some way by the method of preparation, is also suggested to be due to sensitization. Drury (4), on the other hand, has reported a case of pellagra in which irradiation resulted in considerable improvement.

Hypersensitiveness to the light may occur as an idiosyncrasy in some people. This possibility should be remembered in deciding the dosage for any particular case. E. H. and W. K. Russell (12) give a fairly long list of drugs as well as certain articles of diet which enhance the effects produced by ultra-violet radiation.

"*Vita*" glass.—A discussion on actinotherapy in mental hospitals would be incomplete without allusion to glass which is partly penetrable by the actinic rays, the best known being "*vita*" glass. Ordinary window glass cuts out most of the rays, but "*vita*" glass, "*sun-ray*" and other varieties of this type are said to have the property of transmitting rays up to 2,750 Å.U., and are thus freely transparent to all the ultra-violet rays which occur in sunlight. This glass is being largely used in schools, hospitals and private houses as well as at the London Zoological Gardens and for cattle-sheds, stables, etc., with beneficial results.

As it is considerably more expensive than ordinary glass many hesitate to recommend it for verandahs without actual experience of the results of its use. To these I would suggest the erection of a small "*vita*" glass canopy, with side curtains, over a hammock for experimental purposes. Such a structure should entail a cost of no more than £10 or £12.

CONCLUSION.

Actinotherapy has been practised at Parkside Mental Hospital for nearly four years, and, from my experience, is a very necessary adjunct to the treatment of mental cases. It is employed as a routine for convalescent cases, whose recovery is thereby hastened.

Care is necessary in the choice of cases for treatment, the type who benefit to the greatest degree having already been indicated. Mention should, however, be made of the excellent results obtained in dementia præcox of the simple type, and also in the hebephrenic after the acute phase has passed.

It is my opinion that every mental hospital should be equipped with ultra-violet ray apparatus for the treatment of mental disorders,

as well as for the many physical diseases which are ameliorated by its use. Opportunity would also be given for more extensive study of this subject, which would give scope for wider research into its physiological relation to the psychoses and the nervous system generally.

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A NOTE ON URINARY REACTIONS IN RELATION TO INTESTINAL TOXÆMIA IN PSYCHOTIC SUBJECTS.

By S. A. MANN, B.Sc., F.I.C., and H. L. SHIPP, B.Sc., A.I.C.

*(From the Central Pathological Laboratory of the London County
Mental Hospitals.)*

WITHIN the last year a series of papers has been issued (1, 2, 3) from this laboratory indicating that in the psychotic there exists a disturbed regulation of the respiratory mechanism for the control of acid-base equilibrium, which, in the cases examined, mainly depressed psychoses, manifested itself as an inexcitability of the respiratory centre, shown by a failure of response to CO₂ stimulation. The work was done on uncertified borderline cases of insanity; it has since been confirmed by Marsh (4) on certified patients, and his results in 73 cases confirm the original findings and indicate plainly that dementia præcox and depressive psychoses fall into a group showing a variable inexcitability of the respiratory centre. The question naturally arises whether this condition is a cause or an effect of the mental state, and, from the point of view of cause, whether it is due to the drug-like action of some substance arising from faulty metabolism, or is an exhaustion effect. The question of intestinal toxæmia obviously needs investigation in this respect. This subject has been freely discussed in the literature and its significance becomes of greater importance in relation to psychoses owing to the work of Buscaino (5, 6) and Scheiner (7, 8) in Italy, and of Stewart (9) in this country. Buscaino describes a reaction of the urine with silver nitrate in certain psychotic cases, alcoholic insanities and dementia præcox, and from this assumes the existence of a toxic substance from liver derangement in these cases. He further describes lesions of the small intestine of mental patients which may result in undue permeability of its walls; it is not proposed to discuss this latter aspect of his work, but to deal with his silver nitrate reaction.

The Buscaino reaction consists of the addition of one part of 5% silver nitrate solution to two parts or one part of urine; on heating ("a caldo") in the normal the precipitate remains white in the first

proportions (1 : 2), and becomes rose-coloured in the second (1 : 1), whereas in the psychotic and pathological cases dark purple to black precipitates are given. Buscaino affirms that this blackening is not due to any of the normal constituents of urine (uric acid, etc.), and that it is independent of the chloride concentration. He quotes figures showing that white precipitates occur with chloride concentrations of from 5·12–32·25 grm. per mille with an average of 14·22, and black precipitates from 1·14–68·8 grm. per mille with an average of 3·42. He also, using the proportions 2 urine : 1 reagent, gives a series of results showing that urines with the same chloride concentrations can give different reactions, but it must be said that the black reactions become conspicuously few with the higher chloride concentrations. The test has been applied by Italian and other observers (10, 11, 12, 13), with positive and negative results, and a review of their work leaves the diagnostic significance of the test very much in doubt.

Buscaino asserts that the reaction is due to the presence in the urine of abnormal chemical substances of amino nature, but his assumption receives little support from those who have investigated the nature of the test (12, 13, 14, 15). The importance of chloride concentration of the urine as a main factor in the test is emphasized by most workers, and others view it merely as an expression of the balance of concentrations of sodium chloride and uric acid, two normal constituents of urine.

Scheiner (7) gives some support to Buscaino's findings and states that the test is not actually due to a diminution of chlorides or an increase of uric acid, for positive cases showed, if anything, a diminution of uric acid concentration. He finds the urosoein reaction for indolacetic acid to be always present in the urine of cases of dementia præcox and of confusional and alcoholic insanities, and introduces another reaction which is supposed to have some significance in the urines of psychotic patients, namely, the Millon reaction (8). He describes the isolation and characteristics of the reacting body, and Stewart (9), commenting on these findings, urges that it may be a substance akin to tyramine. It seems, however, unlikely that such substances can escape detoxication in the intestinal wall and liver, with conversion into the corresponding carboxylic acid. Such appears to be the more likely course in view of the work of Koessler and Hanke (16), Guggenheim and Loeffler (17), Sherwin (18), and others on the detoxication of amines, and Stewart's figures (9) for tyramine content of urines in normal and psychotic cases. From the work of Buscaino and Scheiner it would appear to be established that toxic bodies exist in the urines of psychotics, with lesions in the intestinal walls and consequent liver

changes, but when the Buscaino and Millon reactions are critically examined, it is found that they have no chemical significance; positive reactions do not denote the presence of toxic substances, and conclusions based on the incidence of positive reactions in psychotic subjects are utterly fallacious.

Our investigations of the Buscaino reaction give absolute confirmation of the work of Bettzieche and Thomas (15) in that if the chloride content is quantitatively precipitated by silver nitrate addition, all urines, normal and otherwise, will give a positive reaction; at the exact point of precipitation of the chlorides the reaction does not occur, but if a slight excess of silver nitrate is added a reaction will occur and the degree of colouration will be dependent on the amount of the excess and the concentration of phosphates so far unprecipitated. The following experiment was made on a large number of urines to demonstrate these fallacies.

The chloride content of 5 c.c. of urine was exactly determined and sufficient 5% silver nitrate solution was added to precipitate quantitatively the chlorides present; boiling at this point produced no change; a further 1 c.c. of silver nitrate was added and on boiling a positive Buscaino reaction was obtained, the intensity of the black precipitate being to a certain extent dependent on the excess of silver nitrate added.

Our conclusions were also confirmed by the investigation of a number of urines collected during sleep, when normal chloride concentration is at its minimum. All such urines will be found to give a positive Buscaino reaction with *real* excess of silver nitrate. Moreover, adsorption with 5% charcoal which removes uric acid from urine (1) also removes all possibility of a positive Buscaino reaction.

Apart from the crude application of this test which has led to faulty interpretation of its significance, there does not appear to have been any attempt to express it in any quantitative way; neither has the question of concentration, nor the nature of the urine specimen, been considered, whether the urine be (1) that associated with sleep, (2) that representing the period of maximum ventilation before noon, or (3) that associated with food ingestion and metabolic activity. The same objections apply to any Millon test in untreated urines. It is generally accepted that the Millon test is unsatisfactory for use with solutions containing inorganic salts, and for this reason it is not used for the detection of protein material in urine. In general it is impossible to attach any significance to the results of Millon tests on urines and diluted urines with a variable and interfering chloride content.

An endeavour to overcome all these objections has been made by

Stewart (9) ; this author has also added interest to such work by his previous investigations (19) on the intestinal bacteria in insane cases ; he asserts that " the intestinal organisms of the acutely insane are much more active in attacking tyrosine than are those of healthy persons ; the bacteria most active in this respect are *B. Morgani* and *B. phenologenes* of Berthelot. These bacteria form phenol in great quantity when grown in an alkaline tyrosine medium, but in an acid medium containing tyrosine with either glucose or glycerine they form the poisonous base tyramine."

Stewart has devoted considerable care to technique and quantitative expression of his results ; but, as he himself says, no deductions can, so far, be made from the small number of cases dealt with. In comparison with the normals the results he has obtained in psychotic cases are surprisingly negative, the main conclusion being that the output of phenols, p-hydroxyphenylacetic acid and indolacetic acid appears to be higher in psychotics, a finding which receives support from the work of Ross (20) who found indolacetic acid in the urine of 21% of normal persons and in 48% of dementia præcox cases. Stewart's healthy controls show imidazoles and p-hydroxyphenylacetic acid in comparatively high concentrations. It is obvious that any work of this nature must be continued on the lines outlined by Stewart, but as such an investigation entails considerable labour it is advisable that the food intake over the period of examination should be controlled and that urine specimens should be collected at the distinct physiological periods of daily life. The question resolves itself into two parts: firstly, the technical accuracy with which the minute traces of protein putrefaction products can be estimated ; secondly, the possible significance of variations in the excretion of such substances. The technical difficulties of such investigations are well known to all workers, and it is with extreme diffidence that one criticizes the painstaking work of Stewart, but an example of these difficulties is demonstrated by the fact that in Stewart's cases indicanuria as evidenced by the Jaffe technique occupies an insignificant position, while in our experience, using the Jolles technique (21), it is evident in nearly all normal and pathological urines. Further, in the estimation of such minute traces by methods involving solvent extractions it is essential to carry out estimations on solutions of the pure substances and of mixtures of these substances to prove that (1) the recovery is quantitative, and (2) that the colour developed with the Millon reagent is proportional to the amount of the substance present. Except for an experiment on the solubility of tyramine and tyrosine in ether, absolute alcohol and acetone, Stewart has produced no figures in support of the accuracy of his methods.

The question of intestinal auto-intoxication and its significance has been reviewed in detail by Herter (22), Alvarez (23), Hurst (24), and others, and it is unnecessary to give more than the general conclusions that may be of importance with regard to psychotic subjects. Interest centres mainly on the products of protein putrefaction in the intestine. Instead of the normal absorption of amino-acids by the liver with subsequent deaminization, oxidation, and utilization of the fatty acid residue, the amino acids can, by the action of intestinal bacteria, (1) lose their amino groups, giving rise to a series of phenols and oxy-acids, (2) lose their carboxylic groups giving rise to a series of alkyl amines—bodies of much greater pharmacological importance. These processes can affect any of the amino-acids produced during ordinary digestion, but so far attention has been directed mainly to the putrefactive products arising from three of the essential amino-acids, *viz.*, tryptophane, tyrosine and histidine :

	By loss of NH ₂ group.	By loss of COOH group.
Tryptophane .	Indole carboxylic acids Indole and skatole	Indolethylamine.
Tyrosine .	p-hydroxyphenyl- carboxylic acids Phenols	Tyramine.
Histidine .	Imidazole-carboxylic acids	Histamine.

In general we are concerned with the excretion of phenols and oxy-acids, for as already stated (p. 421), the amine type of putrefactive product is detoxicated in the intestinal wall and liver, the end-product being the corresponding carboxylic acid. Moreover in psychotics there is no evidence of the excretion of these bodies, and the clinical manifestations do not accord with their pharmacological action.

Products arising from Tryptophane Putrefaction.

For many years indicanuria has been thought to have some special incidence in psychotic subjects, but when the urines of normal individuals and general hospital patients are subjected to the same examination by improved technique, it is found that this special association is not justified. Investigating a series of psychotic cases with controls it is quite possible to find a less intense indicanuria among the patients than among their medical custodians, and indicanuria in other than psychotic subjects is of very common occurrence.

Mutch (25) investigating a series of urines from 308 unselected

hospital cases obtained positive indican or urorosein reactions in 81%. He describes the indican and urorosein tests as too sensitive in both the chemical and the clinical sense, and by a test for p-hydroxyphenylacetic acid, he endeavours to discriminate between the "trivial" and the "serious," the "trivial" interference with tryptophane digestion as contrasted with the "serious" putrefaction of tyrosine. He states that indican and urorosein reactions may be obtained without the presence of p-hydroxyphenylacetic acid, but the latter was rarely present in the absence of indicanuria. It is noteworthy, however, that in these unselected hospital cases positive p-hydroxyphenylacetic acid reactions were obtained in 40%.

As already stated (p. 423) Stewart indicates a higher excretion value of indolacetic acid in his psychotic series, and Ross gives similar results in dementia præcox, but here again normal output requires more extensive investigation.

Products arising from Tyrosine Putrefaction.

The association of the tyrosine molecule with the chemical constitution of endocrine hormones, *e. g.*, thyroxin and adrenaline, gives rise to much speculation as to the possible significance of serious interference with normal tyrosine digestion, but the figures available do not indicate any marked increased excretion of p-hydroxyphenylacetic acid in psychotics, and the figures quoted for other than psychotic cases certainly detract from the importance of the findings so far obtained in psychotics. Much endeavours to show a relationship between gastric secretion and tyrosine digestion. In the 21 cases examined lack of acid in the gastric juice was associated with an increase in the excretion of products arising from tyrosine putrefaction.

Products arising from Histidine Putrefaction.

The excretion of imidazole bodies has been carefully estimated by Stewart. The figures obtained from his psychotic cases show marked variation, the normals are too few, and there are not sufficient data to warrant any conclusions regarding the comparative concentration of these bodies in the urine of psychotic subjects.

SUMMARY.

In common with most other investigators we have found that the Buscaino black reaction in the urine is associated merely with the concentration of normal urinary constituents, and conclusions based on the incidence of this reaction in the urine of psychotic

subjects in regard to the existence of toxic substances or the possible influence of intestinal toxæmia are utterly fallacious.

The same applies to the value of crude tests on untreated urines, such as the simple addition of Millon reagent.

The technique attached to such investigations presents extreme difficulty and the cases under examination should be rigorously controlled as regards diet and time of collection of specimens. No simple tests of the urine are of any value and all investigations should be on the scheme elaborated by Stewart, with chemical and numerous normal controls.

The evidence so far available does not warrant the assumption, based on urinary reactions, that the presence of bodies arising from protein putrefaction has any peculiar significance in psychotic subjects. If such be the case it is necessary to assume the presence of some hitherto undiscovered toxic substance arising from intestinal toxæmia, or to assume that the psychotic organism is more prone to be affected by putrefactive products than is the normal organism.

ADDENDUM.

Since this paper was written an exhaustive study of the Buscaino black reaction has appeared by S. Katzenelbogen (26) which confirms all the criticisms noted in this paper, the findings being completely unfavourable to the value of the reaction.

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THE CONCEPT OF THE EGO IN PSYCHIATRY, WITH SPECIAL REFERENCE TO PSYCHO- ANALYSIS.

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[The following is an almost verbatim transcription of some impromptu remarks made before an informal discussion at a meeting of a local group of the Psychopathology Sub-Committee. These remarks are, therefore, very sketchy and unoriginal, and the reason for committing them to paper at all in such an unvarnished form, is briefly this :

Few medical officers in mental hospitals wish to master all the intricacies of psycho-analysis, but many seek some concise, elementary knowledge concerning psycho-analysis as a body of theories (rather than psycho-analysis as a technique). It is for these that the following recapitulation is being published, largely in accordance with the suggestion of members present at the original group meeting, and in the hope of encouraging others, equally unversed in the finer details of the subject, to come forward and discuss these problems.]

GENERAL CONSIDERATIONS.

I have no doubt that for many of us one of the earliest uses of the word "ego" in psychiatry was in connection with that famous definition "Insanity is a perversion of the ego." A most delightful phrase, admirably concise, admirably vague, and therefore extremely popular. For what is it that can be perverted in insanity? Well, we know of perversions of instincts and of emotions, perversions in the department of the will, of intellectual faculties, of moral sense; in fact, the word "ego" here becomes synonymous with the term "mind," and we are left very much where we were before. If, however, we turn to more accurate uses of the term "ego," we are confronted by a number of concepts belonging to different systems of psychology, and are further confused by the fact that two other terms, "self" and "soul," are used by some authors where others would speak of the ego.

It would be useless for us to attempt to consider all the possible

definitions of an ego ; but we might review a few points concerning the main classes of definitions, paying particular attention to the modern psychological and psychiatric uses of the words "ego" and "self."

First we have the conceptions of some enduring and guiding individual psychic factor, such as a self or soul, the principal points being : (1) that this self has an innate sense of right and wrong ; or if not, then it has an innate desire for discriminating between right and wrong ; and (2) the self or soul is of a spiritual and, maybe, transcendental nature in relation with some Supreme or Universal Being. Two groups of variations arise here according to whether this Being is conceived as the mere sum of all individual souls, and therefore a resultant ; or is considered to be primary, expressing itself through, or being split up into, a number of smaller, individual units, and in this case a cause. The spiritual side appears again in such other systems as monadism, whether as originally expounded by Leibnitz, or as recently by Wildon Carr, but we might more profitably pass on to give a glance to the classical schools, though a few examples only will have to suffice.

To some philosophers (*e.g.*, Jacobi) the term "ego" was vague and unessential and generally identified with the content of consciousness, but the German school, of which Fichte was a representative, aimed at more accurate definitions. Fichte recognized in the self two distinct parts : (*a*) the finite ego, that "core" of the mind which we feel we can recognize by the use of an "inner sense" and of which we become aware in experience, that is, a lasting individual factor ; and (*b*) the infinite—with some a transcendental—ego, which cannot be recognized in experience or by any inner sense, but which can be inferred on logical grounds, and is that which urges us towards the good and the true. In France, however, no such clear concepts were evident ; for instance, Biran merely identifies the self with the "doer" or higher dynamic factor of the mind, expressing itself by means of the various mental functions. He ascribes to it individuality and endurance of identity, but strangely enough, he would exclude from its manifestations all such things as involuntary moods and sensations—almost an anticipation of later psycho-analytical views.

On the other hand, the schools of associationists and of empirical psychologists—the latter essentially a British school—led by Hume, and, I think, Hartley and later Mill, with Condillac in France, recognized no such thing as a self or ego. There may be an appearance of unity or of individuality, but this is merely a chance resultant and is not to be taken as corresponding to reality. Herbart, the representative of the school in Germany, would differ

slightly in admitting a soul, but merely as a creator of ideas, without committing himself to any statement concerning its ultimate nature. In England, it was only through the reaction originating with Reid and the Scotch school of philosophy that the idea of an ego came to the front again.

Turning now to more modern psychology we again find many divergent views. At one extreme we have the idea of a self—as a psychic factor—entirely repudiated by the behaviourist movement; at the other extreme are the various systems of self psychology, as representatives of which we might mention Prof. Mary Calkins, Prof. Margaret Washburn, Royce, and in this country Ward and Stout. An integral part of this psychology is the attempt to reconcile structuralism and functionalism, and the conception of a prime mover in the mind, a regulator and possessor of mental attributes; in other words, an embodied self such that we can speak of that self's consciousness, of its will or its emotions, a self "whose" are the ideas of the structuralist and the functions of the functionalist.

Coming now to William James, the pragmatist, we find that he discusses the question of a self rather closely. Following him, we might say that in so far as we can examine our own minds, we must recognize two distinct parts of the self: (a) We have all the various mental contents and processes that we can appreciate in retrospect, that we can examine, catalogue, and group in different ways and that we can say are "ours"; and (b) there is that part of our mind which does the examining, the cataloguing and the grouping. In other words, our mind is partly observed, partly observer, partly known, partly knower, partly object, partly subject. The objective part that consists of our mind as "known" James calls the "me," corresponding in many ways to the empirical ego of older writers. (I am not concerned here with the physical and social implications of the "me," but only with its mental aspects.) The active, observing part he calls the "I," the pure ego of classical psychology, though not a transcendental one. This I, he says, is nothing more or less than a passing state of consciousness. It is true that we feel that our I of to-day is the same as our I of last week; there is an appearance of identity between the two, suggesting that the I of last week has endured long enough to be the I of to-day; but this is only an appearance, and the identity of these two I's resides not in their being substantially the same, but simply in the fact that they are *functionally* alike. That is, they both can examine the same past of years ago, can both catalogue the same things as constituting an enduring me, and therefore they appear in retrospect as being one and the same. Actually, however,

the I of any moment—in so far as it is just a passing state of consciousness—becomes the next moment capable of being observed in its turn and known by the following state of consciousness, and therefore ceases to be an I and becomes part of the me. In opposition to these views are many modern writers, such as Briffault, or in psychopathology, William Brown, who find in their systems of psychology no room at all for the concept of any pure ego, and seem to get along very well without it. We have to pass now to the psychopathological and psycho-analytical views concerning the ego; but before doing so let us mention two other lines of approach that might repay a casual glance.

First, there is a school of German psychologists headed by Hans Driesch, who divide the self in rather a novel way. The dynamic factor, the "doer" or "deliberator," is called by Driesch the soul-ego. The other part of the self is the I-ego; this latter is the passive receiving and experiencing mind, a sort of registering background comparable to the screen of the cinema on which pictures and images are cast, but which "does" nothing. I suppose this division into active and passive egos is but a recasting of the old description of mind under the two headings "Conative" and "Cognitive."

Then there is the evolutionary psychologist, who sees in the soul or self appearance rather than substance, and who invokes the principle of emergence to explain this. In psychopathology we might adduce as an example R. G. Gordon. The word "emergent" was first used in opposition to "resultant" by Lewes somewhere about 1870, but it was only as the result of the appearance of Prof. Alexander's book about the beginning of the war and of the writings of such as Lloyd Morgan that the word came into general use. When in the course of evolution lower functions are integrated into the formation of a new and higher function, it may be that some of the characteristics of the higher function are predictable from a sufficient knowledge of the characteristics of the lower functions. In this case we call the attributes of the higher function "resultants." But if there appear in connection with this higher function qualities that cannot be predicted from a consideration of the simpler "parts," then they are said to be "emergents." To give a simple analogy: However much you know concerning the properties of sodium and the properties of chlorine, yet you cannot from these alone foretell the properties of the resulting compound salt; the properties of salt would here be comparable to emergents. On these lines it has been argued that the soul or ego is only an appearance of unity, of individuality and of enduringness that is a characteristic of higher mental processes resulting from evolution, and that therefore the soul has no substantial existence and is merely

a result of emergence. We should note a potent criticism here. Emergence is being made to depend on predictability; but this predictability may well vary with our state of knowledge, hence what is considered as an emergent now may be classed as a resultant in the years to come, when our knowledge will have increased.

PSYCHO-ANALYSIS.

The first fact we learnt about psycho-analysis was the apparent opposition between conscious and unconscious; it seems that mental contents would tend to be conscious and remain so, were it not for a "censorship" that represses them and causes them to become unconscious. What reason is there, however, for certain things to be permissible in the conscious when others are not? The answer is: on account of the presence of reality. In the growing child, there is one psychic system, which represents the primitive trends; this system seeks outlets for these primitive tendencies, and it obeys the pleasure-pain principle; that is, it endeavours to secure immediate pleasure and to avoid pain. The human individual, however, is endowed with a perceptual consciousness which puts it in contact with environment. As a result a second psychic system grows up, moulded by education and environmental influence generally. This second system obeys the reality-principle and forces the organism to suppress the pleasure-pain principle, and to learn to forego pleasure and to endure pain. This second system thus represents the aims of reason—the subjugation of instinctive needs to rational ends—and corresponds to the intellectual and balanced side of the personality. It is the function of this perceptual system to harmonize the primitive and instinctive needs of the individual with the demands of external reality. So we might now replace the antithesis *conscious—unconscious* by the antithesis *pleasure-pain principle—reality principle*.

Now what qualitative distinction can we draw between the two parts of the human psyche that correspond to these two principles?

The libido.—The instinctual trends that are governed by the pleasure-pain principle have been grouped together under the heading "libido" and have generally been taken to constitute the sex instinct; it would seem, therefore, that the rational thinking side of the mind is constantly engaged in controlling or modifying the urge of the sex instinct, and that as a result such insoluble conflicts may arise as are liable to cause mental breakdown.

Considerable criticism and even more abuse have been levelled against this view. One of the possible lines of defence is familiar to us all and runs much like this: When Freud uses the term "*sex*

instinct" or "libido," he does not use the word *sex* in its ordinary connotation. On the contrary, he would see in *sex* all that is generally included under the broader term "love," and more besides. But there is another line of argument, which is not so usually put forward but yet is important. When Freud uses the term "*sex instinct*" he does not use the word *instinct* in its ordinary connotation. On the contrary, he would see in an *instinct* an urge that is more fundamental, more general, than what is usually called an *instinct*.

Take for comparison the instincts described by McDougall. These instincts of his appear as inherent tendencies that show themselves in certain situations only, are limited and circumscribed in their application, and generally speaking seek immediate expression. Further we note that they only come into play as a result of the perception of certain specific stimuli. We must not forget, however, that the organism may have ultimate instinctual goals as well as immediate ones, and any one of the latter may be a stage on the way to reaching any one of the former. The fighting instinct, for example, may come into play in a striving after an egoistic end, or a social end, or again a sexual end. To illustrate this difference by analogy with reasoned and conscious aims: All of us here, we will assume, have one main professional aim—I will exclude one of us who has already achieved it—and that is, to become a medical superintendent in some mental hospital. But even though that aim is implicit in us, it is not explicitly present in our everyday acts; our daily conduct is guided by more limited aims, such as the posting up of case-books, the acquiring of administrative knowledge, the improvement of one's diagnostic capabilities, etc., but all, in this instance, tending to the same ultimate end, namely, fitting oneself for a higher post.

Of course, even the desire to diagnose a case may for other ends, such as scoring off a colleague, obeying a request for consultation, avoiding blame, or even merely "killing time"; so that we have always two distinct sets of ends (whether innate or acquired), the immediate and the ultimate, and this applies to instinctual needs just as it does in the above example to rational ends.

Whereas McDougall's instincts are described in relation to immediate ends, Freud's are grouped according to their ultimate ends. Further, whereas instincts according to McDougall only come into play in circumstances providing specific stimuli, Freud associates with instinctual activity a state of tension, a condition of need, urging the organism to expression even in absence of outside stimuli. In fact, stimuli will not only be reacted to when encountered, but will be actively sought as a result of instinctual urge.

We see then why libido is made to include all instinctual trends that, in the primitive and primal state, tend *ultimately* to the continuation and reproduction of the species. We see that we must include not only the tendency to perform a mere act of reproduction (McDougall's sexual instinct), but also all the trends that produce or maintain sexual attraction and sexual differences. Reproduction depends on attraction between the sexes, and any possibility of attraction in its turn depends on sex differences, mental as well as physical.

In so far as those instincts that are related to sex attraction (in the broad sense of the word) are sensual instincts, and in so far as there is in the primitive state little sensuality not related to sex, one might be tempted to enlarge still further upon the Freudian formulation and say that the libido consists of *sensual* instincts, the passions if you like, all originally tending to ensure sex attraction and the propagation of the race, and primarily obeying the pleasure-pain principle in their mode of expression.

The ego.—We must now say something about the other side of the personality, that which obeys the reality principle. This is the one that develops as the result of environmental influence and stress; it stands for sanity, reason and judgment in opposition to the sensual libido, even though it arose in the first place as a differentiation from the original sensual mass. It may be regarded as a modification of that part of the primitive instinctual personality that is placed in relation with environment by means of perceptual consciousness. This part of the self, which in its adult form stands in such contrast to the libido, which has its own aims and its own instincts that are not libidinous, is that to which Freud has given the name "ego."

But even now we cannot quite oppose ego to libido because much of the libido is expressed in its original form, and it is only part of it that becomes modified or even repressed; any conflict that arises is really between ego and that part of the libido that has to be repressed. And so we can now add to our original pairs of opposites, which were, you remember, *conscious—unconscious* and *pleasure-pain principle—reality principle*, a third pair, *ego—repressed libido*.

At this stage we might be tempted to believe—as I think earlier workers in the field did believe—that all is now plain sailing; we can conceive the ego as consisting of those instincts which oppose and repress libido, and when the clash between the two becomes too violent sparks fly and cause the symptoms of a neurosis. At this point, however, some misguided people, not content with leaving well alone, came along wanting to know more about this ego, how it really worked, what were the ego instincts and what were their

aims, etc. And so a search for ego instincts was instituted. At first a remarkable thing happened; the more the ego trends were analysed and subjected to scrutiny, the more elusive did they become; and it was felt that after all it might be a hopeless task to attempt to find and describe any instinct that was distinctly part of the ego. After a while, however, and as a result of what Freud himself admits was a purely speculative effort, some vague and ill-defined trends were unearthed and ascribed to the ego, chief among these being the repetition principle and the death wish. The former appears to be an innate tendency (well exemplified during the war) to go over and over again in imagination any situation that it has been difficult to master, as a sort of practice at overcoming certain problems. The death wish, on the other hand, is no longer, in normal life, directed towards the self, but is projected towards the outer world as sadism and a wish for mastery. In pathological states, such as melancholia, it may be turned back on to the self, giving rise to suicidal impulses. Beyond this, I cannot say much about these trends, as I am far from being sufficiently clear about the newer views concerning them. In any case it still seems unlikely that all the activities of the ego derive their necessary energy from, say, the death wish only; and we are forced to ask "whence does the ego get the bulk of its instinctual energy?" But to answer this question we must look to some other aspects of psycho-analytic theory.

The libido is sexual in its original manifestations, or, as we have previously put it, sensual. But we know that as a result of control over our primitive instincts, it is possible to divert an instinct from its sensual end, and to redirect the energy bound up in that instinct into some new, non-sensual channel. In fact all sublimation consists of such a process. And when sensual instincts are thus diverted, they have been described as desexualized libido, or, as Freud has also called them, instincts-inhibited-in-their-aims. Some psychologists of recent days are inclined to substitute for desexualized libido the more general term "interest." Now we know from a general knowledge of psycho-analysis how the primitive (sexual) libido may take the self as its object; that is, the physical aspect of the self can be loved for its own sake—primary narcissism. A regression to this stage can be recognized in the auto-erotic activities of dementia præcox. In the same way later on in life the desexualized libido can take as its object the psychic self or ego, and we get the adult form of self-interest. The earlier stage is more objectless; the latter, on the other hand, regards the self as a definitely objective organized entity. And it is suggested that those instincts which, having been inhibited in their (outer,

sensual) aims, have been turned back on to the ego, are just the ones that provide the necessary instinctual energy for the furtherance of ego needs and aims. It was here that Freud introduced the term ego-libido to distinguish these instincts from object-libido directed towards objects in the outside world.

As a result we have to make an important alteration in our conception of the ego. We must no longer consider it as being animated by ego-instincts as opposed to libidinous instincts, but as being provided with ego-instincts proper plus desensualized libido. In fact we must revise the last antithesis we established, that of *ego—repressed libido*, or at least add to it the further antithesis *ego instincts* (pure ego instincts plus desexualized libido)—*the rest of the libido*. Surprising as it may at first sight seem, that the ego should thus to a large extent be libidinous, yet after all, if the ego is developed gradually from the primary "sensual mass" under the influence of environmental education, then is it not naturally to be expected that the energies of the ego should equally be derived (though in an altered form) from the primitive sensual instincts (libido) ?

Freud goes as far as suggesting that it may be that between the leaving of a sexual object and the re-applying of interest to a new non-sexual aim there always occurs an intermediate stage of increased narcissism, as though instincts-inhibited-in-their-aims have first to be applied to the ego before they can be used in a new direction in the outside world.

Further, it would appear that even pure ego instincts, in their original, primitive form also obey the pleasure-pain principle, and that they only later come to bow before the demands of reality. Although during the earlier psycho-analytic period, it almost appeared as though all instincts obeying the pleasure-pain principle were libidinous, yet it was never denied that there might be other, non-sexual, instincts ; but the latter were little emphasized, largely owing to their comparative inaccessibility.

But we have not disposed of all the problems that arise in connection with the ego. Many questions have yet to be answered.

The super-ego.—For instance we might ask "If there is in the mind a special faculty of repression, symbolized by the term 'censorship,' where does it reside ? Is this function to be ascribed to the ego ?" Well, although the ego does appear to be largely opposed to the libido, it is evidently not opposed to all libido, even in its sexual form, for much of the primitive libido is allowed to come forth undisguised. And if it discriminates between permissible and unpermissible forms of libido expression, does it borrow the criteria of discrimination from the environment, so to speak, at the time

of deliberation, or is there in the mind a sort of inner sense of judgment, a still small voice that acts *autonomously*? And if there is, should it also be sought for in the ego? Now, an act of repression being obviously an unconscious act, it cannot take place as a result of deliberation in the conscious ego. Further, even ego needs may be denied satisfaction through repression just as libido needs may; so whatever critical factor there is responsible for instigating repression, it can neither be part of the ordinary ego, nor can it be conscious.

To provide a way out of the difficulty, a third aspect of mind has been postulated, one that is neither ego, nor primitive libido, one that is unconscious, and corresponds to the old term "censorship"; and this is what is now described as the ego ideal or super-ego. The term is meant to designate something that controls ego activities and decides what libido expressions are permissible, and super-ego must not be taken to mean part of the ego. The other name of ego ideal is less used now and is by some applied in a different and special sense. In so far as the super-ego is unconscious and is, therefore, not a mere conscious re-edition of herd standards, we should enquire into its probable mode of formation and its ultimate fate and function in the adult.

In early childhood there is erected in the unconscious a set of elementary standards that form the nucleus of the super-ego. At first these standards are merely such as will guide the organism in its search for pleasure and its avoidance of pain. Later, when the parental influence is at its height, the various injunctions and prohibitions enforced upon the child get incorporated in the child's own super-ego; it is because the child possesses in itself a replica of the family standards that it is ultimately able to detach itself from parental influences; the super-ego thus replaces the *rôle* of parental authority. At this stage, the super-ego is hard, unbending, a severe taskmaster that controls the ego with just such rigidity as was evident in the parents' original tyranny over the child. Next, other additions are made to this unconscious super-ego, representative of newer influences substituted for parental relations, such as those emanating from other members of the family or from teachers, or resulting from hero-worship. But as more and more new material is incorporated within the super-ego, such a diversity of elements become represented in it, that it begins to lose its severity, its dogmatism and its narrowness of outlook. Further, in relation to the super-ego, partly as an outgrowth from it, partly too under the teaching of education, a *conscious* rational set of standards is set up which may constitute a beginning of our reasoned sense of right and wrong. Finally, in order to allow the

ethics of our conduct to become more directly the result of our intellectual judgment and less moulded by an *unconscious* factor, the super-ego weakens and finally disintegrates. It leaves behind perhaps some representative of the old infantile super-ego, but more important than this, it splits up into three permanent elements. There is first that part that is allied to and has helped to mould the conscious "conscience." It is to this that some would now apply the term "ego ideal"; I know Rickman would for one. The next offspring of the super-ego is an impulse for authority and mastery which is now expressed towards the outside world (instead of towards the self) and becomes incorporated with the ego. And thirdly, we have a "vigilant element" that has for function the watching of the libido in order to warn the ego of any accumulation of libido that might lead to internal stress; when such pent up accumulation or increase of instinctual needs occurs, this vigilant element produces a danger-signal to notify the ego, and this danger-signal is "anxiety."

The situation may be met by the ego in a variety of ways. The symptom—*anxiety*—may persist as a free-floating anxiety, often expressed in the physical sphere, too, as in anxiety neurosis. Or else the anxiety may be attached to various symbols in the environment, giving rise to an anxiety hysteria. Again the energy behind the anxiety may be converted into another form of energy, motor innervation, the starting-point for the motor symptoms of a conversion hysteria. The anxiety (a relic of the severity of the old super-ego, often the result of a fixation) may be abated by symbolic and placatory rituals to avoid evil and escape punishment, such as may be found in obsessional neurosis; prevent the compulsive acts and anxiety returns. Lastly, there is the way of the psychotic; anxiety is a sign of an inner danger (accumulation of unexpressed libido) as fear is an accompaniment of outer danger, but the organism cannot react to this inner and unconscious danger in the way usual in dealing with outer danger, that is, fight or flight. But when this inner situation is "projected" into the outside world as though it was there that the danger really lay, fear takes the place of anxiety, fight or flight can once more be resorted to. We find such reactions exemplified in delusional cases.

The ego and the id.—Recently Freud has introduced yet another new term in psycho-analysis, namely, the "id." This id is the name given to that part of the psyche from which libido springs; it is the more primitive component of the mind and is unconscious, not because it has all been repressed—some may have been—but because a great deal of it has never been conscious. Of course in attempting to understand the meaning of all these terms we must

not lose sight of the fact that these concepts—ego, super-ego, id—in no wise correspond to any substantial or spatial reality; the mind is not topographically arranged in compartments. These concepts are merely used to express *aspects* of the mind, modes of functioning that are not to be ascribed to separate "pieces" of the mind.

The id is therefore the primitive sensual self, activated by libido, and expressing itself in accordance with the pleasure-pain principle. A special part of the id, the outer part if you like, that is brought into relation with the outside world by means of perceptual consciousness becomes modified, learns to obey the reality principle, is mostly conscious and gradually becomes the ego.

The growth of the ego is thus gradual, and would appear to take place in stages, corresponding to the stages in the growth of the sense of reality. At first there is no capacity for objectivity at all; the ego is purely a pleasure ego, seeking pleasant stimuli, and identifying itself with all that provides these stimuli. Next the ego becomes more capable of tolerating libido tension, it becomes more discriminating, but it also tends to repudiate unpleasant ideas by means of an act of repression. Finally, it becomes capable of accepting unpleasant ideas, though it does so by linking them up with other, attractive ideas, thereby ensuring a sort of consolation for the loss of self-esteem consequent upon such acceptance.

The ego is activated by a few vague instincts of its own, but derives its main energy from desensualized libido. It has its own needs and aims, and apart from furthering these it also has to adapt itself to the demands of reality outside the expression of libido trends coming from the id. Also, from the original id, but remaining largely unconscious, develops the super-ego; this is the "censorship" which criticizes the work of the ego, and decides whether the activities of the ego and the libidinous expressions arranged for by the ego are permissible. How the super-ego, developed in the unconscious from the id, and, as Freud says, a representative of the id, nevertheless in a way works against some of the expressions of the id, I, for one, fail to understand; but as far as I do understand it, the super-ego is the *unconscious* criterion of right and wrong that is responsible for repression, and the ego ideal is that contribution to the conscious "conscience" that comes from unconscious influences; whereas the rest of the conscience—probably the greater part of it—is developed from environment and rational education.

In conclusion, we see how the ego has to satisfy three masters. It must find satisfactory outlets for id impulses, and yet in doing this it must allow for the demands of outside reality. Yet it still

has to placate the super-ego and satisfy the criteria embodied therein, in order not to suffer from the super-ego's critical tyranny.

If at any time insoluble conflicts occur in the mind, the ego may behave in several different ways. Suppose the curbing influence of reality and the urgency of the needs of the id cannot readily be harmonized one with the other, then the ego may either side with reality, repudiating the id and repressing it, taking the risk of its bursting forth again in other more dangerous forms, such as transference neuroses, or else it may side with the id and repudiate reality, replacing the latter, or at least modifying its appearance, by means of delusions and hallucinations. If, on the other hand, the ego comes into too severe a conflict with the super-ego, it may cringe and submit so completely that it will lose its power and such independence as it had, and will appear insignificant, miserable and weak, and as a result ideas of guilt and of unworthiness will be present, as in melancholia. (Other mechanisms enter here, such as the introjection of sadism and the identification with a love object, but we cannot discuss these now.) Again, the ego may react to an over-critical super-ego by repudiating it completely; as a result the ego will feel free, omnipotent, and correspondingly elated, and a condition of mania will supervene. Of course other intra-psychic conflicts may occur, as between one trend and another, between two different modes of gratification, between love and hate, etc.

These are just a few psychiatric formulations as far as I have been able to gather and understand them, and I am looking forward to further elaboration and information about them during the course of the discussion.

PSYCHO-ANALYTIC PRINCIPLES AND SOCIETY.

By FREDERIC J. FARNELL, M.D., F.A.C.P.

"It is at least conceivable that our present complacent assurance that every individual must live and act within the arbitrary limits assigned by conventional and purely artificial standards of conduct, or else be segregated from society, may be fallacious and inimical to the best development of the race."

WHEN Sigmund Freud, in 1893, published his *Studien über Hysterie*, that part of the medical world which did not greet it with ridicule treated it with silent contempt. In this work Freud made a generalization which for breadth, depth and all-inclusiveness in its particular field may well be compared with the generalizations of Galileo, Copernicus, Newton and Darwin in their respective fields. The very magnitude of the generalization was, in a sense, stupefying to the medical world, and stupefaction gave place to virulent abuse when a few years later he published his *Traumdeutung* and his *Drei Abhandlungen zur Sexualtheorie*, in which the principles enunciated in the first-named work were applied to the deepest workings of the human mind and shown to have therapeutic effects of the highest order.

Prior to this, other investigators had become aware of the close connection between the mind and the body with respect to certain diseases, but credit is due to Freud for combining the results of the investigations of others with those of his own, and developing a plan of procedure for the treatment and cure of sufferers from those previously little understood disorders of the mind known as neuroses and psychoneuroses. One of the strongest proofs that the principles formulated from these discoveries of Freud are based upon universal and fundamental truths lies in their application to the phenomena of everyday life. From the psychological point of view this should be so. Were the principles of psycho-analysis only applicable to the sick mind the element of doubt in its efficacy would be so large as to bring discredit upon it.

Psycho-analysis, whether considered from the point of view of the normal or of the abnormal mind, is based upon the fundamental verities of life. It postulates the oneness of body and mind, the latter term denoting the sum total of the functions of the nervous system, as the former does the sum total of the functions of the

body; that is, psycho-analysis assumes the monistic theory of human nature as against the dualistic. Another postulate of psycho-analysis is that man is the inheritor of the ages both mentally and physically; that the phylogeny of the race is reproduced to a greater or less extent in the ontogeny of the individual; and also that the principles according to which mental operations are carried on are fundamental and universal, whether recognized or unrecognized. If it were not so society would be impossible.

These postulates do not, in the least, detract from the credit due to Prof. Freud. The laws of thought or the rules of logic in effect existed for millenia before Aristotle formulated them. Newton did not create the law of gravitation, nor Darwin the conditions of existence summed up in the word "evolution." They were discoveries in the domain of natural or, more properly, physical science, and "to discover" is but "to uncover" and make known that which was before unknown. Man has repressed painful ideas and thoughts for unnumbered ages, though with advancing civilization and ethics repression has increased proportionately and been accompanied by greater and still greater untoward consequences. Mankind is indebted to Freud for discovering and formulating the laws of psychical repression and showing their often deplorable effects on the individual.

The repression of painful thoughts and ideas is not "forgetting" in the sense in which that word is ordinarily used. The painful thought or idea cannot be repressed without a mental conflict. Psychic trauma, in the strict sense of the word, concerns the immoralities, not the moralities of daily life. In forgetting the things said and done yesterday there is no conflict. Such things are and remain on the verge, and are only crowded out of the field of consciousness by the exigencies of the ever-living present. The repression of painful thoughts and ideas presupposes a something akin to consciousness, but very different from it. It is a matter of very little consequence whether that something be labelled "sub-conscious" or "unconscious" so long as we understand and agree upon what the word does mean.

The subconscious mind is coeval with humanity, but its complete recognition has only taken place within the past hundred years. To Freud is due the credit for having recognized this biological fact, and formulated the means whereby the contents of the subconscious may be drawn out and its deleterious effects minimized, if not entirely destroyed.

The repression of painful experiences, thoughts and ideas does not necessarily imply a conscious act on the part of the subject. It may be assumed that whatever conflicts arise are present in

consciousness. But merely ceasing to do evil is not enough. Freud's investigations have shown that. If "ceasing to do evil" be tantamount to the repression of evil thoughts, that is, painful thoughts, thoughts of an immoral nature, in a word psychic trauma, the result is inimical to the health and comfort of the individual.

The repression of the painful and unpleasant experience, that is, the psychic trauma, implies a wish to forget it, to force it out and keep it out of consciousness because it is painful and unpleasant, and that desirable end seems to have been attained if, in the subject's waking hours, it is not present in his consciousness, for in his waking hours he can build around the offending thought and experience a system of defences intended to be impregnable or, at any rate, to be in the nature of a penance without consciously realizing for what offence the penance is imposed. In the building up of these defences he is exercising an oversight of his thoughts and actions. Prof. Freud was the first of modern psychologists to recognize the importance of this oversight and in his nomenclature it became the censorship. The censorship operates in the field of consciousness. In sleep the field of consciousness is reduced to a minimum, and in just so far as the censor is off duty, so to speak, in dreams, all the defences being broken down, the repressed thoughts and ideas manifest themselves, and the subject's most secret wishes and desires, upon which his unpleasant and painful ideas are founded, have full opportunity to assert themselves.

In the interpretation of dreams Freud took the simple, common-sense view from the start, namely, that in the functioning of the brain you can get nothing out but what has been put in. If the painful experience, unpleasant thought or idea is based upon an unchaste, immoral wish or desire, it will show itself more or less plainly, according to the degree to which consciousness is lost during sleep. Thus if consciousness, which is the censor, is not entirely in abeyance, the unchaste, immoral wish or desire becomes symbolized under different aspects in an endeavour to hide its ugliness. Here again Freud's investigations, including the examination and interpretation of the contents of thousands of dreams related to him by his patients, have resulted in formulating a series of symbols in which the unchaste and immoral wishes and desires clothe themselves.

The words "unchaste" and "immoral" have been repeated several times in the course of this essay, and that with a purpose. Chastity has sole reference to sex and immorality is largely connotative of sexual matters. In the phylogeny of the race sex has been a predominant factor. In the ontogeny of the individual sex is supreme. The human race must be taken as it is. The

individual must be considered as we find him. In the diagnosis and treatment of disease, either of body or mind, the subject is the paramount factor. The ills of society cannot be diagnosed and remedies applied if the physician has an ideal existence in mind, and, ignoring conditions as they are, seeks to apply ideal remedies. Nor can the ills of the individual be diagnosed and proper remedies applied if the physician ignores, wholly or partially, those fundamental conditions upon which the very existence of the individual rests. Sex is one of those fundamental conditions. The two primary factors of existence from primeval times have been hunger and love. Our world-wide economic and industrial systems rest fundamentally on the former, and just as fundamentally the perpetuation of the race rests upon the latter. Since the organization of the first speck of primeval protoplasmic matter, sex, or something akin to it, has existed. When, in the course of human evolution, the faculty of speech began to be developed, can there be any question but that the first articulated words primitive man used had relation to the two primal elements, hunger and love—words relating to the absolutely necessary bodily wants and desires? That civilization has, in a measure, tabooed sexual matters is beside the question just as much as it would be if society had tabooed all reference to hunger and to the means for appeasing hunger. To say that, just in so far as society has tabooed sexual matters, it has made the existence of certain diseases possible, is to say something which is by no means without its foundation in human experience. With such a history behind it, it should not be at all surprising that sex plays a most prominent part, not only in health but in disease. Grossness and sensuality are subjective before they become objective, and it is again to Freud's credit that he has shown conclusively that certain bodily ills, neuroses and psycho-neuroses have their origin in suppressed and repressed sexual desires or wishes, desires and wishes that could not be repressed without a conflict between the two opposing influences operating in the mind of the individual—the repressed and suppressed influences being immoral in their nature and productive of painful consequences, such as disgrace and suffering, if not suppressed. This principle of psycho-analysis has been censured without stint ever since Freud published his *Studien über Hysterie* in 1893, and is to-day regarded with disfavour by many physicians, though it is a pleasure to say that their number is decreasing rapidly. The censure here referred to has its origin largely in the mind of a class of practitioners and professors, who, either through mental inertia or laziness, or by reason of bias and prejudice, are unable or unwilling to examine the claims of the psycho-analyst, or even to withhold

their judgment. Every marked advance in medical science has met with the same kind of treatment. Such objectors may admit the truth of the findings of psychological investigators in general, and even concede that psychotherapy, as a means of relieving certain diseases, is not without value, but when confronted with the claims urged on behalf of psycho-analysis their antagonism is instantly aroused. The reason for this antagonism lies in the fact that, just as one psycho-analytic dictum postulates that influences received in early life are often found to be not only the remote but also the fundamental cause of bodily disorder many years afterwards; so "most of these criticisms have centred themselves around the prominence given by Freud to the sexual element as the cause of various forms of nervous and mental diseases"; it has "always been considered a disagreeable subject . . . and it has always had attached to it a moral reaction doubly emphasized by religion and education." To quote further: "What is psycho-analysis? Psycho-analysis is the name given to a method of investigation which has been developed for reaching down into the depths of the individual's mind to bring to light the underlying motives and determinants of his symptoms and attitudes which may reveal the unconscious tendencies that lie behind his certain actions and reactions, and which in turn may influence his conduct in sickness and health." As it has also been defined by Burrow, "psycho-analysis is a method of psychotherapy based upon the principle that where there is present a marked and persistent impediment in the life of the individual, whether it amounts to the blocking characteristics of nervous disorders or only to such obstructions to effectiveness as are represented in many so-called normal individuals, it is due to the existence, in the unconsciousness of the psyche, of repressed sexual affects regressing toward an early infantile mode. . . . Its basic postulate is that repression is the causative factor in the neuroses. . . . The essential idea of psycho-analysis is a personal analysis. It is not the analysis of our patients; it is the analysis of ourselves." Psycho-analysis involves the study of man's unconscious or unacknowledged motives and impulses to thought and action.

But even the most determined objector to psycho-analysis must admit, and does admit, that some parts of it are worthy of his acceptance. Such an objector, however, is very careful to add that no credit is due to Freud on that account. Says such an objector: Whatever is good in psycho-analysis is old; whatever is new is not good.

What are these condemned parts?

(1) That infantile sexual trauma is a cause of the neuroses.

(2) That the sexual mental life is a fundamental fact of existence.

(3) That the repressed and displaced mental material is always sexual.

(4) That means have been discovered whereby the repressed material, by a particular process of analysis, is manifested by sexual symbolism.

(5) That certain neuroses are curable by such analysis.

In briefly examining these objections the words "sex" and "sexual" should be taken in the sense in which Freud himself uses them. "The snag which is met with in psycho-analysis is the meaning of the word 'sexuality.' Freud never meant it to be interpreted in the gross popular sense. Freud conceived sexuality to be synonymous with love, and love includes all the tender feelings, emotional reactions, ambitions, æsthetic reactions, ethical reactions, moral reactions, friendship, companionship, etc." Only in one aspect does it refer to the physical relations of the sexes which result in the perpetuation of the race, and which may be of the tenderest kind or of the grossest nature.

In offering a rejoinder to the objections just given I shall consider them slightly out of order for the sake of convenience, taking first the second objection, namely, that the sexual mental life is a fundamental fact of existence. To doubt the truth of this statement is to doubt one's own existence. Mental life and physical life are not separate entities. They are not merely interwoven, one with the other. They are two aspects of the same thing, namely, that living, breathing, thinking, organized integration, the interdependent parts performing their functions properly: this is considered a state of health. When one part or another is not performing its functions properly sickness is the result, and this notwithstanding the assertions of certain religious sects to the contrary.

The third objection is equally untenable. It is based upon the fallacy that the repression of an idea must be a conscious act, which is far from being the case. Men do not forget by an exercise of the will focused on the idea to be forgotten. A repressed thought or idea is one pressed back from the field of consciousness by other ideas and thoughts forcing themselves to the centre of the field of consciousness. That the repressed material is of a sexual nature is a matter of evidence, and the experience of the Freudian school shows this to be proven beyond the possibility of doubt.

The fourth objection is also a matter of evidence and experience that stamps the claim of Freud to be one of indisputable veracity.

We will now consider the first objection, namely, to the assertion

that infantile sexual trauma is the cause of the neuroses. This objection cannot be summarily dismissed; nor would it be proper, within the scope of this essay, to elaborate the evidence tending to show that this objection is not founded on observation, but rather that it has its basis in that state of mind which refuses to accept any theory, whether well grounded or not, which to such objectors even remotely implies that the innocence of childhood may by any possibility be improperly influenced by ideas of sex and sexuality.

This objection ignores the surrounding conditions under which the child passes its earlier years. It ignores the all-prevailing evidence of sex which confronts the young child from its birth onwards; or, to be more specific, it ignores the differences which force themselves on the child's notice from the time when its powers of observation begin to be aroused, such as the superficial differences between its father and mother, its brothers and sisters, boys and girls, dress, language, play, the bodily functions, the difference in treatment accorded to it by men as compared with women, all of which impressions, as also the pleasures or pains attached thereto, become organized, psychologically considered, in the nervous system long before the age of puberty arrives. It is absurd to say that these things, the commonest of common things, have no effect on the child's mind. That the child does not understand these things, or any of them, may be conceded if by "understanding these things" means understanding them as an adult understands them. The complete organization of the child is born with it. In the ontogeny of man the peculiar sexual parts, internal and external, begin to be developed at an early period in uterine life. Knowing these things, as the objector must, he is faced with a dilemma: he must either reject the view that such an organization of the nervous system resulting from an infinitude of impressions, a few of which are suggested above, takes place, and assume that by some unknown process a knowledge of sexual matters suddenly flashes into the consciousness of the child at puberty without any preliminary steps; or he must agree that such a development does take place, but without the child being in the least aware of the fact until puberty. If the former, he necessarily must hold that a multitude of impressions repeated innumerable times are without effect on the child's mind; and if the latter, he reads into the child's mind the thought of an adult in violation of a primary rule of scientific research, which may be expressed in some such way as this: Never permit subjective influences (bias, prejudice) of your own to determine objective results.

The writer feels that he should not go into the details of the processes by means of which Freud has opened the mind of the child

to inspection as it were. In a paper of this kind such details are out of place. By the writer it is conceived to be sufficient if he has established the fact of universal opportunity for sexual knowledge of some sort on the part of the child, for when that fact is established the conclusion is irresistible that that knowledge may be used either well or ill. If used well, then the further development of the child goes on normally; if ill, the foundation is laid for nervous troubles in adult life. Freud's investigations have proved the truth of this conclusion beyond a doubt.

Turning now to the fifth criticized point—that certain neuroses are curable by analysis.

The writer deems it inadvisable to undertake even a general consideration of the data upon which psycho-analysis as a system of therapy rests. Sufficient has been suggested already to justify the conclusion that certain of the neuroses are amenable to proper treatment by psycho-analytic methods. He suggests, however, that psycho-analysis has nothing in common with the schemes of so-called mental healing, nor of the hypnotic and suggestion schools of therapy. Experience has proved its efficacy, but for the procedure or *modus operandi* of treatment reference should be made to the standard works on psycho-analysis. To do even scant justice to this part of the subject is impossible in an article purposely cast in an untechnical mould. Suffice it to say that psycho-analysis is a highly important step forward in the evolution of the healing art. It is, as has been shown, based on fundamental psychological principles, and as such is bound to have more far-reaching results in the future than have yet been attained. To use a somewhat non-medical expression, but one full of meaning: It has made good in its own particular field and in that particular field it is without a rival.

One consideration concerning the individual as a social unit, which investigators in the domain of mentality cannot afford to ignore, and least of all the psycho-analysts, is in regard to the future. With a rapidly diminishing birth-rate in the leading civilized nations; with the persistent and insistent demand of women for higher education and political rights and equally persistent demands for equality with man in all respects, and with the necessary correlative sacrifice of child-bearing and domestic duties, the outlook for the future is indeed very grave. The phylogeny of the human race, during scores of thousands of years past, has impressed a stamp on men and women that cannot be erased during the course of two or three generations. The anatomy and physiology of the body, in all its parts, are inheritances from a past compared with which the time that has elapsed since our human ancestors deserted their arboreal surroundings and acquired the upright position is

but as yesterday. To consciously, and in a sense, violently suppress those necessary mental traits which are intimately connected with, the bodily conformation thus acquired, must obviously result in an ever-increasing number of the mentally unstable. Drugs or other medication are powerless to rectify this condition. Such individuals must be taught right living, and right living is to obey the laws of their existence. Mere moral and religious teachings do not accomplish this. The history of the past two thousand years clearly and strongly supports this view, as witness the effects of asceticism in the early centuries of the Christian era as compared with industrial Europe, from the middle of the nineteenth century. The population of the British Isles in the time of Elizabeth was only about 8,000,000. At the accession of Queen Victoria it was in the neighbourhood of 20,000,000; and by the end of the nineteenth century was upwards of 40,000,000. Religious asceticism in almost all its branches had ceased to exist and had given place to industrialism. The era of social and political reform inaugurated in the early part of the nineteenth century is still with us, but intensified a thousand-fold. Mythological Eve, yielding to temptation, exchanged ignorance for knowledge, and was rejected from Paradise and had the pains of childbirth inflicted on her. The modern Eve aspires to regain Paradise by the aid of more knowledge—through birth-control, legalized or otherwise—and the consequence will undoubtedly be an ever-decreasing rate in births. But this cannot be attained without suppression of the instincts, impulses, feelings and emotions, inherited from a thousand generations of ancestors. When the suppression is complete, if such an eventuality is conceivable, the human race is ended. In the meantime, such forcible suppression will result in an ever-increasing ratio of the mentally unstable. It is not claimed that psycho-analysis is in any sense a system of morals, yet by directing attention to the causes of many mental difficulties it indicates their relation to the fundamental basis of existence and points the way out of those difficulties. In this respect it, in the truest sense of the term, lays the foundation for a higher and more nearly perfect system of morals than has ever before existed.

“It is the moralization, not the annihilation, of ambition and desire that is demanded—the bringing of one’s sensuous nature into harmony with the realization of a rational personality.”

A RE-ADJUSTIVE PROCESS IN NEUROTIC REACTION-TYPES.

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THE points raised here have been brought up by the occurrence, side by side, of a number of cases showing the same peculiar factors in ætiology and course. The existence of such cases has been for long well recognized, but the clear-cut nature of the whole process has in those here mentioned been so marked that they have been selected to illustrate the operation of a mechanism shown in a lesser degree in very many of our hospital cases, and too often lost sight of.

In a sketch of this type, it is too much to attempt an exposition of the dynamic conception of mental disease as a whole, but the principle is now so generally admitted that it needs only to be mentioned as an essential and integral part of the process to be discussed.

The essential feature here considered is the addition of an extra load in the mental component of a physical illness, or some lesser degree of metabolic imbalance, on a personality of a neuropathic type.

It is not considered from the point of fatigue, a dangerous element, but simply from the aspect of the effect of the physical factors mentioned as an additional difficulty against which the patient has to fight.

This is no new thing. From one point of view it is merely a statement in another way of a conception elaborated by Janet many years ago and worked out by him along the lines of loss of mental tension, of loss of unity of the psychic stream in response to various extra psycho-biological demands of various kinds and it will be remembered that he uses the term "bankruptcy" to indicate his conception of the inability of the patient to meet these increased calls.

Janet's conception of a loosening of the internal tension which holds the personality together as an integrated unit was to some extent a contribution to an academic psychiatry, but this view has its more modern counterpart in the conception of mental disease as a response to exogenous and endogenous demands by any part of the organism viewed as a psychological unit.

It is felt that in dealing with clinical material this wide outlook tends to be lost sight of, with a corresponding loss of that close touch with our case material which is so essential for forward movement.

Case 1.—The patient was a single woman, a school-teacher, *æ*t. 40, The story of her illness, briefly, is as follows :

At Christmas of 1927 she, and all the members of her family, had a severe attack of influenza, and she, recovering first, had the job of nursing the others. She returned to work too soon, and relapsed and had to return to bed, where she lay for some days. On rising she was unable to face her work and began to show signs of the illness which brought her to hospital.

The first symptoms were that on one occasion, when she was out for a walk, she began to show signs of fear of old women and would cross the road to be away from them. She returned from her walk and rushed up to her bedroom and refused to leave it.

Thereafter she was fearful, agitated and tearful. She was afraid of old women because she had a horror of growing old, she wanted to be a man and expressed a loathing for herself in that she was a woman.

She came to hospital in May, five months later, her symptoms having continued throughout the intervening period. She was still agitated and depressed. Her intelligence was not impaired, and the only defects of a demonstrable nature were in the calculation and retention sphere, where a good deal of attention might be expected to be lost by emotional drainage.

Her concept of herself was of a sensitive, brooding type given to rumination. As a child she was very much a prey to the fears and panics of that period of life, and in particular she had a fear of being left destitute by her parents.

She said that as a girl she was, though nervous, fairly happy, until the onset of puberty and menstruation, which caused a great upset in her personality and, to use her own words, altered her perspective to a very great extent.

The effect of this was to fill her with a sense of aversion to womanhood, which she rationalized as a realization that her sex prevented her from wandering about as she wished and prosecuting her studies wherever she wanted to go. As she was an art mistress this was a good explanation.

It was in this frame of mind that she approached her first breakdown, which took place at the age of 23, seventeen years before the second attack.

This episode was as follows. She was finishing her apprenticeship as a dressmaker, studying at the art school, and teaching a junior art class as well as taking her share of the work at home. She had to leave home to take some further classes, and finally returned home to take up her previous load of duties and sit her final examinations as well. She broke down and described her symptoms as a feeling of hopelessness, despair at her sex, a wish to be a man, fear

of going out in the street. There did not seem to be any morbid anxiety, but she was depressed. This episode lasted for eighteen months, and she finally stabilized herself and went back to work, but a year or two later the affair was re-lit by the last days of her grandmother, who lived with the patient in a state of senile dementia for some time before she died. This brought her horror of age and of her sex to the surface once more.

She said: "We had girls of 10 to 17. Some of them nearly went frantic when it (menstruation) began. It was awful. They are such dainty creatures—little girls—and to think of them becoming like Grandma—it was awful."

She had no heterosexual feelings at all and she said that her fear of going out was due to the conviction that people would look at her; she had a marked sense of guilt which should be taken in conjunction with her lack of normal sex feeling.

After admission to hospital she showed the picture here indicated. She was very uncooperative, her story had to be got piecemeal, and she was inaccessible to therapeutic discussion; at no time was a *rapproch* struck. She was sleepless, and complained of the usual vertical headache.

She was kept in bed and the ordinary methods were used to improve her physical condition, which was that of a slight asthenia. Her day was regularized, she was supplied with literature, and a tempered firmness adopted towards her complaints.

In bed she improved, and was got up after about three weeks' rest. The first day she was up an old lady came into the room where she was seated, and she immediately went into a panic and threw herself on the floor in a simulated seizure. That evening she showed a marked emotional reaction of the type already described. She was given a sedative, and no further notice was taken of the incident. The next day she was confronted, not by design, with the same old lady, and nothing happened. Thereafter she showed no symptoms whatever beyond a certain plaintiveness in her manner, the headache she never again referred to. In conversation she said that she still had the same feelings about sex and age, but the urgency of the emotional component of the thought was much less, and she wanted to try life outside. In this condition she went home.

The case is a simple one of an obsessional neurosis and the pity is that one was unable to arrive at the ultimate thought which was the basis of the neurosis. We can only hazard a guess at a homosexual trend, with possibly some incident in childhood, but it is, in passing, interesting that the condition arose out of a personality where there had been from infancy a tendency to excessive fear and panic at the idea of being left alone and destitute. This is borne out by her father's account of her make-up, and it forms a common-sense explanation of a neurosis where the central point was the fear of old age and the economic dependence of women.

The case may be summarized in a sentence. Here we have a personality in which a neurosis has always been present, and in

which overt symptoms only appear in the presence of an additional load, in this case increased physical strain.

Case 2.—This case presents a different problem from many points of view, but the same factors can be seen at work. The patient was a young married woman, *æt.* 30. Her family history and life previous to the breakdown yielded nothing of note. She had been happily married for three years and had had one healthy child.

The onset of her breakdown was sudden. She developed a sub-acute rheumatism, and after some days she had a blister applied over the lumbar muscles, where the pain was localized. When this blister was removed she fainted and immediately thereafter developed the symptoms which led to her admission to hospital. These were—she felt she could not take an interest in anything, her husband and her child ceased to be important to her, she felt she could not speak to anyone, she could not summon up the energy to do her housework. In all this she blamed herself, for her life with her husband had been of the happiest, and in the investigation of her case there emerged nothing that could be considered of significance as a psychological factor.

As time went on things arrived at a stage where she was unable to do anything at all, and she went to live with a sister, while her husband was allowed to fend for himself. This naturally led to a certain amount of antagonism, and she was subjected to a good deal of exhortation to "buck up," which had the usual bad effect on her.

Life began to lose all savour, even the little help she gave to her sister was badly done, she felt that the world was changed, sunshine was not so bright, flowers had lost their bloom and so on. In addition she began to deteriorate physically and became thinner; all her conative trends began to slack off, and at times thoughts of self-injury came to her.

For eight months she was like this and finally came to hospital.

She showed no defect in memory, orientation, calculation, or retention, and her intelligence was normal. Only in her mood was any defect noted; this was a simple depression without retardation, and after admission to hospital it cleared up smoothly.

Her explanation of her condition was that, being unaccustomed to physical illness, she had felt acutely her inability to perform her usual tasks, and her sense of powerlessness had made her feel that she was of no further use for any thing. This led naturally to a withdrawal of interest, and one wonders in passing whether this woman was not approaching complete autism.

Attempts to discover a mechanism for her condition were unavailing, and she was not pushed along the lines of analysis. An attempt was made to get at her dream life, and she reported a dream in which she was holding a boy baby in her arms—her child is a girl.

As indicated, she rapidly improved in hospital, she was for a short time in bed, and her physical condition was attended to along eliminative lines.

In a short time she was up and about and beginning to enjoy life,

she made full use of the occupational therapy department and afforded evidence that the hospital was for her an asylum or refuge from responsibility and care.

She was ultimately discharged cured after one or two trials outside, and has done well.

One is justified in regarding her illness as a reaction to a physical illness, not as an illness, but as a handicap. The mechanism followed along the lines suggested by Déjerine and was in the nature of an emotional reverberation into her general psychic life. The fatigue of her illness as an affective component began to enter into her general activities, and a vicious cycle was set up.

The effect of hospital life on her was obvious. Here she was not adjured to "buck up," she had no responsibilities, she had nothing to live up to.

It is a bold statement to make, but it is justified by clinical experience, that to make any attempt at a psychologizing explanation in a case of this type, a woman of the artisan class, is merely to bewilder the patient and to make her feel that she is faced with something which she has no means of meeting. It is merely to raise ghosts which may never again be successfully laid.

It is more difficult to label this case than the preceding one—if that be considered necessary; it is of a very different type, but it shows just as clearly the incidence of a neurosis as a response to ill-health and its clearing up with little else than institutional care.

Case 3.—This case resembles the first in that it was a frank obsessional state, and, like the first, it had been present in some form or other, during practically the whole of the patient's life. She was a married woman, *æt.* 60, and on admission had been ill for about three months. Her illness began at a time when she was in a state of extreme debility as a result of having nursed her husband through a long illness which ended in his death. There was no suggestion of a single emotional stimulus in the setting up of the condition, as she had been aware for some time of the nature of her husband's trouble and knew that it must end fatally.

The first symptoms were those of agitated depression, confusion and fear of insanity.

On admission to hospital she showed no disorder in the spheres of memory, orientation, retention, calculation, etc., and her mood was one of depression with some morbid anxiety.

Her mental trend contained one central point around which everything else grouped itself. This was an obsessional thought that she would break out and use bad language. The process was the usual one. Into her mind at all times would come unbidden a string of foul and obscene words and the desire to utter them would become overpowering, with at the same time a wave of depression and anxiety.

Here, then, is a case of an obsessional neurosis appearing at a time of physical overload. The first point entitling us to look to physical factors is the nature of the illness which she, a woman of poor health, had to nurse, and the other is that similar mechanisms had shown themselves before in a way remarkably similar to Case 1.

Spontaneously and without any leading questions she traced back her illness to the birth of her son thirty years before. Soon after he was born she experienced a desire to kill the child. This filled her with horror, and the idea soon assumed the form of an obsession. It subsided, but some time later again appeared as the desire to destroy her neighbours' children, an obvious enough transference. For years this obsessional thought troubled her.

Now on going farther back it was found that her sex feeling for her husband had been far from normal and that she had been the subject of a definite frigidity. Intercourse had been repugnant to her, and she had been unhappy about her pregnancy. Her labour had been a long and tiring one, after a pregnancy in which she had had a good deal of ill-health.

Farther back still, she described how as a girl she had been subject to panics and fears, and had been troubled with recurring thoughts which apparently had a strong affective value of an anxiety type.

Here again we may summarize in a sentence. The patient, by her own account, always inclined to think along obsessional lines, showed, twice in her life history, a flare-up of her condition in response to physical overstrain.

She was definitely asthenic on admission to hospital. She was pale, thin, and showed some fine tremor, her blood-pressure was low, 120-60, her appetite was poor, and she was constipated.

Rest in bed and attention to her general health along the most simple and commonsense lines soon improved her physical condition. After the first few prolonged sittings of investigation into her mental condition, it became obvious that discussion made her worse and definitely increased her tenseness. It was plain that no attempt to deal with the condition along analytical lines could be made without harm, probably permanent.

Nevertheless she began to improve steadily, and in about three weeks she was up; a little later she was able to go out, and by the end of a month she was occupying herself well and showing every evidence of an increasing steadiness. Thereafter her recovery—or, to be more accurate, readjustment—proceeded smoothly, and she went home at the end of a three months' stay in hospital, and has done well since.

These three cases are typical of the type of reaction which we constantly see in a hospital where the main bulk of the population is psychotic.

In each of the three there is evidence to support the view that the trigger energy producing the neurosis was a physical disability of one kind or another. In one it was a period of extra hard work in a "soft" person who had to nurse a sick man over a long period of time, in another it was a debilitating illness—influenza—and in a third it was a subacute rheumatism.

In two of the three there was incontrovertible evidence of a faulty reaction which had been present from childhood if not

indeed from infancy, but in the third we could discover no underlying psychological causal factor and the case assumed the type of a functional nervous disease where the determination of the mental breakdown took place as a misinterpretation of physical symptoms and their overflow as an affective state into the general affective reaction to life—a mechanism well proved by Déjerine.

All three had this in common that they were unsuitable for investigative treatment. In Case 1, *rapport* was never established, in Case 2, as has been said, we were faced with the prospect of explaining a complicated psychological mechanism to a woman of little education, and which would have simply bewildered her, and in Case 3 it was obvious that to dig down into the patient's inner life would be to increase the trauma.

This is a restatement to some extent of what Freud indicates when he says that analysis requires much intelligence on the part of the patient, and it is an indication of something more, namely, that in some of these cases we are faced with the problem of a personality reconstruction of the most far-reaching type, and furthermore that any attempt to go too deeply into the condition with the patient is to make matters worse instead of better.

It is true to say that we must be content with a superficial readjustment, and this is not a counsel of despair, for with the patient's own conception of ætiological factors and the guidance we can give her, similar episodes can be avoided.

The lines indicated are no hark-back to Weir-Mitchellism—of which Ross says that it was successful in his hands as long as he could believe in it—for no dramatic lines were adopted to build up the physical resistance of the patient. They were simply given institutional treatment and all that that implies. The implications of this line of attack are simple, but not widely enough realized. The term "asylum" has of late been so infected with the stigma which attached to the word "lunatic" that the original meaning of the term has been lost sight of. For cases of the type under discussion our mental hospitals are sanctuaries and places of refuge; there is no other means of getting well. For many of them attendance on a psychiatrist in private is impossible, and it is here that the line must be drawn between the sphere of usefulness of our out-patient clinics attached to general hospitals and that of the mental hospitals.

Case investigation is of paramount importance, social service work is of the most material benefit, simple therapeutic discussion is of the greatest value, but nothing can replace the effect of no more dramatic a measure than the regularizing influence of life in a hospital.

There the patient has his day laid out for him ; for as long as is judged necessary no initiation whatever is asked of him, he has, and this is important, nothing to live up to in the way of social strain, be it ever so slight. We cannot lose sight of the fact that it is absurd to give, say, an hour and a half at an out-patient clinic, discussing a depression or an anxiety with an unfortunate woman who returns to a home where her relations, with the best of motives, will spend the evening telling her to " buck-up."

A minor point that one comes up against is the statement that association with psychotics is harmful. In actual practice this has never been noted to have any effect one way or the other.

From the foregoing, then, emerge the following points. From time to time in hospital we see neuroses whose incidence as cases requiring treatment dates from some physical load in excess of the usual strain which the individual in question has to meet.

In some of the cases (two are quoted), the condition lies on the surface and is so fixed that months or years of highly skilled analysis would be required to make any impression on the neurosis. In other cases (one example is quoted), the mechanism is also patent, but of such a nature that explanation is inadvisable. Yet these cases improve, go out of hospital, resume life outside as functioning social units, and guard against factors similar to those which they recognize were instrumental in causing the breakdown.

An important point is that, as well as being the true explanation of neurotic episodes such as described—if we accept a dynamic psychiatry—it is an explanation couched in terms which the patient can understand, and free from the vague fears of the uncomprehended and mysterious.

The benefit of hospital treatment in these cases is obvious ; it depends chiefly on rest, regularization along all lines, absence of responsibility, absence of social strain, and gradual return to a higher level along lines of, perhaps, occupational therapy, or merely the rebuilding of social contacts. Above these there is the effect of a discussion, thorough and complete, once for all, with someone who is prepared to hear the patient's story without the expostulation and argument which in many cases they have been subjected to so often and which they dread so much. This is the province of the psychiatrist.

It becomes obvious that between the mental hospital and the out-patient department there is a gap. That gap will only be filled by the creation of properly run psychiatric blocks in association with our general hospitals. Such an establishment with the resources, spirit and atmosphere of the general hospital would receive these cases earlier than the stage at which they, often in

despair, seek refuge in a mental hospital. In this way time and suffering would be saved and greater success obtained in the treatment.

I am indebted to Dr. D. K. Henderson, Physician Superintendent of the Glasgow Royal Mental Hospital, for permission to publish the records of these cases.

DERMOGRAPHIA IN THE INSANE.

By A. W. H. SMITH, M.R.C.S., L.R.C.P., D.P.M.,
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"In a recent murder trial at Los Angeles, California, one William Edward Hickman was indicted for the murder of a young school-girl. At the trial an attempt, which appears to have been unsuccessful, was made to set up a defence of insanity (*dementia præcox*).

"The usual battle of opposing experts was staged and led to a rather curious incident. Dr. Paul E. Bowers, called for the prosecution, testified that Hickman was sane, and he based his conclusion in part on the absence of dermographia. The witness was called upon to repeat his test in court."

Quoting further : (1)

"Hickman was stripped to the waist, and Dr. Bowers, with his thumb-nail, marked a **H** on Hickman's back and chest, explaining that in a true case of *dementia præcox* the scratch-marks would get very red and stay red. Hickman was then walked up and down before the jury for several minutes and the scratch-marks grew red, but the witness explained that they would fade away quickly. The fading did not occur, and an hour and a half later when photographed in Hickman's cell the marks were as red as ever."

This raises the obvious question : What is the relation of dermographia to insanity ? And more particularly : To what extent can dermographia be regarded as a physical sign of *dementia præcox* ? A search into the literature is not very helpful.

Dermographia or urticaria factitia, an exaggerated susceptibility on the part of the cells of the skin to mild forms of trauma or pressure, has long been a well-known phenomenon.

Hallam states that the condition is met with in apparent good health (2), though he says that the incidence is higher in cases of epilepsy, alcoholism and secondary syphilis.

According to both Lewis (3) and Ebbecke it is by no means infrequent among young and healthy people, and the former claims conspicuous whealing in about 5%.

Mumford also believes its appearance to represent a healthy response to an irritant, in that all skins wheal under suitable stimuli (5). A lash from a horse-whip will raise a wheal on the most hardened hide.

But Purves-Stewart states that it is commoner in hysterics (6) than in normal people and commonest in neuropaths (7). Dreschfield (8) affirms that it is particularly common in exophthalmic goitre, and Oppenheim that it plays a specially important part in neurasthenic conditions of anxiety (9). The latter writer goes further and states that it is present in the majority of traumatic neuroses, and that he is convinced that it is a pathological condition, although he says it may be the only manifest expression of the neuropathic diathesis. Stursburg (10), again, shows that no great importance can be attached to this symptom.

Kraepelin in his classical work on dementia præcox (11) holds that dermatographia, among other vaso-motor disturbances, is very widespread among primary demented, especially at the beginning of states of stupor, and in this opinion he is upheld by White (14).

Most of the other works on urticaria factitia consulted gave very little or no information germane to the subject in hand.

Now, in an endeavour to throw some light upon the questions at issue a series of cases of various forms of insanity was investigated for manifestations of dermatographia.

This was done by the simple expedient of drawing a blunt instrument (the unsharpened end of an ordinary lead pencil) twice down the skin of the back between the scapulæ, once on each side of the spine, with an even pressure as near as could be calculated to about 2 lb. Any variations in the instrument or in the pressure used were found only to affect the duration of the subsequent skin changes and not their existence or quality. All cases giving results above the average for the group were repeated and those showing wheals were all tested on three separate occasions, and finally the best of these were photographed after fourth and fifth tests.

Before proceeding to the enumeration of the results obtained, it might be as well to review current theories on the causation and mechanisms of whealing and its attendant phenomena.

Both urticaria factitia and ordinary urticaria, in which the wheal is secondary to internal causes, are due to the release of a histamine-like substance in the cells of the skin. This has been incontestably shown by Lewis (4). Why the dermatographic patient acquires an increased susceptibility of the cells of the skin is not so clear. Unlike true urticaria, there is no itching in the factitious variety.

Gilchrist, by excising portions of the affected skin at varying intervals after wheal formation, was able to describe the actual tissue changes, which include local congestion, escape of serum through the capillary walls and other signs of inflammation in well-marked cases.

When the phenomenon of anaphylaxis came to the fore, Wolff-

Eisner advanced the conception of urticaria factitia as an allergic condition; and now Baker and Oriel include it in their ichthyosis-asthma-hay-fever-eczema-prurigo-urticaria-migraine syndrome, in which they believe there always occurs some inborn metabolic kink comparable with Garrod's "inborn errors of metabolism" (13).

This theory would lead one to anticipate the possibility of the occurrence of urticarial phenomena in such hereditary diseases as dementia præcox and epilepsy.

Furthermore, Dr. H. Wordsworth Barber would include psychical stimuli as distinct from reflex nervous stimuli in his list of factors predisposing to the sensitization of the cells of the skin to the histamine-like substance of Lewis (3). In his third Lettsomian Lecture (12) he describes a case in which genuine attacks of urticaria occurred whenever the patient was confronted with an important business appointment or the prospect of meeting strangers socially. He concludes that it is more rational to postulate psychical stimuli than an emotional liberation of histamine.

Sir Thomas Lewis in his notable work on *The Blood-Vessels of the Skin and their Responses*, shows the local action of the histamine-like substance in the skin to be independent of nervous tissue, and to consist in (1) local dilatation of capillaries and small vessels by direct action (*local dilatation*); (2) a local increased permeability of minute vessels by direct action (*local œdema*); (3) a reflex nervous dilatation of surrounding arterioles causing the "flare," the three mechanisms constituting his "triple response."

It is important to note that Lewis states "the flare is called forth through nervous channels, the local dilatation and the œdema are not." Also that "the flare and the œdema are related, so that if this flare develops some degree of whealing may be expected (4).

This was found fully borne out in all the cases tested.

Mumford (5) points out that dermographia is assisted by a raised surface temperature. This again was completely substantiated, and it was found necessary to keep the patients warm when photographing their backs if good pictures of the whealings were to be made.

In all 811 cases were tested for the purposes of this investigation, 241 females and 570 males, comprised as follows:

104 epileptics.	68 imbeciles.
120 primary dement.	53 secondary dement.
199 acute and chronic maniacs.	10 senile dement.
103 melancholics.	17 general paralytics.
105 delusional types.	7 encephalitics (epidemic).
24 confusional types.	1 organic.

With regard to the primary dement every endeavour was made

to verify the diagnosis, including consultation with colleagues, and doubtful cases were relegated to other classes according to type.

56 cases (6·8% of all cases) produced definite wheals.

Of the others, 63 cases (7·7%) produced a hyperæmia (local dilatation as distinct from flare) along the line of pressure considerably in excess of the average for the total, as borne out by the length of time the redness persisted, with, in some cases, a slight amount of œdema hardly to be described as whealing.

Males gave by far the most consistent results both as regards the persistence of phenomena and the association of persistent local hyperæmia with whealing; while the best specimens of œdema were also found in the males.

Thus the average length of persistence of the hyperæmia in the females being 35 min., 24 cases (10%) persisted for 60 min. or more, 3 cases actually lasting 150, 120 and 110 min. respectively without any attendant œdema; while, among the 20 female wheals, 4 were below the average in redness and one showed none at all. But in the males only 39 (7%) reddened above the average and then not to extreme degrees, while none of the male wheals were under the average in redness.

The 56 cases with very definite whealing consisted of—

Males 36	.	.	.	.	6·3%	of all males.
Females 20	.	.	.	.	8·3%	„ females.
Total 56	.	.	.	.	6·9%	„ cases.

and were comprised as follows :

8·3 %	of all epileptics	.	.	.	.	9 cases.
10·0 %	„ dementia præcox	.	.	.	.	12 „
8·0 %	„ mania	.	.	.	.	16 „
3·9 %	„ melancholia	.	.	.	.	4 „
8·6 %	„ delusional	.	.	.	.	9 „
3·8 %	„ secondary dementia	.	.	.	.	2 „
5·9 %	„ imbeciles	.	.	.	.	4 „

The most persistent wheal occurred in a male epileptic, and lasted five hours. It is interesting to note that Trepsat was able in one case after forty-eight hours to make the dermographic writing again visible by light rubbing with the finger-tips. This was tried in many of the cases, but no such recrudescence was found.

It will be seen from these figures that while melancholics, secondary demented and imbeciles tend to wheal less than the average, epileptics, maniacs and delusional patients give figures somewhat higher, while primary demented wheal to the extent of 50% more than the average. Also, females wheal slightly more

I am much indebted to the Medical Superintendent, Dr. W. J. N. Vincent, for permission to undertake the foregoing investigations.

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THE RELATION OF FOCAL INFECTION TO MENTAL DISEASES.

By WILLIAM HUNTER, C.B., Hon. LL.D.Edin., M.D., F.R.C.P.

I HAVE read with interest and appreciation the brief paper on "Focal Infection in Relation to Mental Disease" (*vide Journ. Ment. Sci.*, April, 1929, p. 267) contributed by Drs. Kopeloff and Kirby, whose work, along with that of their colleague, Dr. Cheney, is familiar to English and American psychiatrists.

Their paper has reference to some remarks of mine, summing up the discussion on this subject at the Edinburgh Meeting, July, 1927 (see *Journ. Ment. Sci.*, October, 1927, p. 726), which was opened by addresses from myself, Sir Berkeley Moynihan (now Lord Moynihan) and Prof. G. M. Robertson.

These remarks were necessarily of a hurried and largely colloquial character, which could not be reported in their full context, and my considered opinions cannot fully be drawn from them, but only from my address which preceded them.

This incomplete and colloquial character especially applies to the last sentence of my reference to the work of these American observers, which by its abruptness about "not worrying" seems to show a want of courtesy and appreciation towards them.

I therefore gladly take this opportunity of saying that this was far from my purpose. On the contrary, I share with all others a full appreciation of the laborious investigations which they have carried out, and which have supplied many needed data to other workers on the subject.

The inclusion of that final sentence of my remarks was due to an unfortunate *contretemps* which caused me distress at the time.

When I found it in the proof of my remarks *I at once struck it out*.

It was, therefore, a source of great surprise and regret to me to find, when the Journal was published, that this correction had unfortunately been overlooked in the final revise.

My regret at this oversight was fully shared by the Editors of the Journal, to whom I at once wrote. I was in time, however, to enable the correction to be made in the later issues of the Journal,

and in the reprint of the whole discussion which was later made available to readers.*

My remark about "not worrying" had reference to the negative results which the American observers had obtained in the 58 cases in which septic foci had been removed.

They seemed to me to attach too much importance to these results. Personally I do not think the divergence of view between their results and others is as great as they seem to emphasize.

The whole subject is so difficult as to warrant any differences of opinion that exist, and no good is served by accentuating these divergences. The broad fact about which we are agreed is, I think, correctly described by Prof. George Robertson in summing up the discussion, *viz.* :

"The discussion had been very interesting, and had made a deep impression on everyone who had been present at it. He was sure that in the future no one attending clinical cases would overlook septic foci" (*op. cit.*, p. 727).

Or, as Sir Hubert Bond summed up :

"That there is a relation between sepsis and mental disorder seems scarcely open to doubt. The removal of sepsis cannot do otherwise than promote health; and if perchance it has, indeed, acted as a precipitating agent of the mental illness its removal cannot fail to assist in warding off relapses" (*op. cit.*, p. 728).

With this view of the matter, I take it, the American observers are in substantial agreement. They admit that "the psychiatrist may even be justified in regarding focal infection as a precipitating factor in some psychoses."

That is being more and more recognized, as the work of the various mental hospitals now shows.

I do not think that anyone can reasonably hold the view that "focal infection is the *specific* cause of the functional psychoses."

The factors underlying mental disturbances are many and various. But when the importance of a great potential factor—like sepsis—is brought into the foreground by observers such as Dr. Graves, of the Birmingham group of hospitals, and others, it is certainly very desirable that it should receive special independent attention not only as an infective factor in causing psychotic disturbances, but also as a potential factor in causing the various disturbances—in metabolism (*e.g.*, calcium metabolism), agglutinating and resisting properties of the blood, endocrine function, etc.—that are so constantly found in mental cases.

My own opinion is thus expressed (*op. cit.*, p. 557) : "In dealing with this subject let me put in one plea. Do not let it go forth

* This is so. The revised report runs : "Yet, while paying his tribute to it, he did not think psychiatrists need unduly worry about the negative results of this particular work." We regret that the original correction to which Dr. Hunter refers was inadvertently overlooked.—[EDITORS.]

that sepsis is the cause of all forms of insanity. That is the sort of thing that will only serve to put the clock back. Let us be content to know on new evidence that chronic sepsis is undoubtedly capable of producing very marked psychotic disturbances, and that a new and more hopeful era has been opened up for the prevention, amelioration or possible arrest of various mental disturbances and disorders by removal, surgically or otherwise, of the sepsis which so commonly besets the mental patient."

The new evidence referred to includes that relating to the prevalence and severity of the conditions of dental and nasal sinus infection in mental patients who present problems of difficulty in regard to their treatment. The problem is a clinical one presenting different features in individual cases. The hope expressed may not be shared by all; that is a point on which, as the American observers justly remark, "We must suspend judgment, and gather further facts or develop better methods."

But as they also conclude, "In the meantime nothing should be left undone, physically or mentally, which will tend to restore the mental patient to a normal condition."

“NERVES” AND CITY CIVILIZATION.*

By Sir PHILIP GIBBS, K.B.E.

SOME of you may be wondering why a man who writes novels should be asked to make a speech on behalf of the Tavistock Square Clinic, and I must admit that I have been cudgelling my brains to find a satisfactory answer. The reason, however, is now clear to me. This Clinic, as you know, deals with functional nervous disorders. That also seems to be the province of the modern novelist, judging from the character of our library fiction. Some of these Constant Nymphs, these Lily Christines, the heroes and heroines of our Flaming Youth and Young Anarchy, are in urgent need of treatment by Dr. Crichton Miller and his colleagues. Readers of Mr. Michael Arlen and Mr. Aldous Huxley must imagine that passion of the most disordered kind is running riot in society and the suburbs, and that morals have been abandoned from Mayfair to Mitcham.

As a matter of fact the work of a novelist, if he takes himself seriously as an artist and a truth-teller, is in the same street as that of a psycho-analyst. He is a student of the human mind. He has to explore its secret corridors. He has to study the hidden motives of men and women and see their souls behind their masks. He must know them in their dreams. He is not shut out of their bedrooms when they lock the door and are left alone with themselves.

I rather fancy that we novelists deal with the same cases as come to Tavistock Square. They are, of course, not, as a rule, the nice, normal, healthy people who are adapting themselves to the conditions of life with courage and cheerfulness. People like that, of whom there are millions, wouldn't make a story, and they are not in need of psycho-therapy. No, the characters we choose are those who find life difficult, and who are maladjusted to the society in which they find themselves. It is not altogether the fault of the novelist if there is a sign of neurasthenia, a touch of hysteria sometimes, in modern fiction. Is there not a good deal of that in modern life, and is not that the reason why the Tavistock Square Clinic

* Being a speech made by the author at the Annual General Meeting of the Tavistock Square Clinic for Functional Nerve Disorders, on May 6, 1929.

cannot cope with the work which crowds into its consulting-rooms?

Speaking as a novelist and a journalist, it seems to me that the whole world, as far as I know it, and especially perhaps this city of London, is suffering from functional nervous disorder—likely to be increased in gravity during the next few weeks by the emotional crisis of a general election! Take up one's daily paper and one is rather aghast at its picture of life—those young people who put their heads into gas ovens, those strangled sweethearts, those crimes of passion, those broken marriages and unhappy homes which are reported day by day in small print.

And the doctors of Tavistock Square know many other cases which never get into the papers—those young people who have got all wrong with life because of some mental maladjustment to their social conditions, business men who become nervous wrecks because of some lack of balance between body and mind, innumerable girls who develop some form of hysteria because of bewildered emotions and secret conflicts of the mind, unhappy husbands, unhappy wives, and all those little tragedies of life which are due to that modern malady which the layman calls "nerves."

It is the disease of civilization. It is perhaps the price we have to pay for civilization. The London sparrows don't suffer from functional nervous disorders, nor do the beasts of the field. And in the old days when men and women were close to the earth, earning their living by sweat of body and brow, hand in hand with Mother Nature, they were better adjusted, perhaps, to the natural conditions of life. We are less brutal, less cruel, less ignorant, but we are more sensitive, more highly strung, and therefore more quick to suffer. We have to pay the price for divorcing ourselves from the old earth, and from flowers and trees, and bodily labour, and handicraft. These marble columns, this excellent lunch, this city life, cost a great price in nervous strain.

It is a question to my mind whether this strain on the nerves of humanity is not getting too much for the ordinary brain and body. We have mechanized life without simplifying it. The machine hurls us faster from one place to another, but the mind has no stopping-place. As the pace of life increases, as ideas travel faster, the mind of man is invaded by new impressions, new excitements, new appeals to the senses, with which it can hardly keep pace, so that it becomes bewildered by all this racket. A walk through London to-day, a strap-hanging journey on the tubes, a venture across the "roundabout" of Trafalgar Square would upset the mental balance of Shakespeare if he revisited this earthly scene, and make a nervous wreck of the Iron Duke.

But the mind of to-day is not only subject to these outward stresses and strains. It is tortured, or at least made anxious, by inner conflicts. The old primitive instincts of the cave man still lurk in the unconscious memories of the human race and have not been adjusted to the ideals of modern civilization—or the police-court code. The ignorance of parents and teachers still creates dark fears in the imagination of childhood. Some of the young people of to-day who have broken with tradition find themselves spiritually adrift on a sea of doubt. They are told not to do this and not to do that, but they do not recognize any authority why they should exercise such self-control or self-sacrifice. They only know that they "get it in the neck" from society if they break certain conventions which have no spiritual sanction in their own mind and no sincerity in the social code itself. It is all very bewildering, and sometimes leads to the mental hospital.

In this city civilization of ours there is a lack of balance between the mind and body and between the imagination and reality. There is also in this country a lack of balance between the sexes—too many girls and too few boys—at the very time when the passion of love and the allurements of sex are over-emphasized in every cinema and playhouse, and forced upon the imagination by a constant repetition of sensuous appeal. The picture-palaces are crowded by people who wish to escape from reality and the painful process of thinking, by husbands who cannot stay at home with their wives, by wives who are afraid of lonely hours with their own thoughts. Anything rather than think! Any dope as an anodyne to the torture of facing the facts of life! Because many people have no philosophy to reconcile themselves with this artificial civilization which they have built away from Nature, and no religion which gives them peace of mind in a world rushing about in the hope of finding happiness!

This Tavistock Square Clinic is an institution for teaching people how to get right with their minds. It is accumulating a stock of ever-increasing knowledge about the factors which make for mental disease. It is able to estimate the importance of the different stresses and strains of civilization, the faults of our system of education, the dangers of interference with the stability and order of family life, and its great importance is in the prevention rather than the cure of mental disorder. That surely is the most important need of the world to-day.

It is so important that there is no other branch of science or adventure of knowledge which offers such tremendous possibilities of improving the chances of human happiness. Because whatever new powers are put into the hands of humanity by physical science,

they are worse than useless—they are indeed only destructive—if the human mind cannot control itself. It is of no use for a man to be able to fly to India in two days if at his journey's end he lands with the wrong thoughts in his head, nerve-racked or obsessed by some hysteria. The "talkies" may follow the "movies," and television may bring new pictures of life into the back parlour, but there will be no increase in the joy of life if people are making little hells in their own minds.

The Tavistock Square Clinic is not enough. There ought to be clinics of this kind, with Tavistock Square as a general headquarters, in every great city. They would be houses of rescue for those young people whose minds are not in tune with the realities of life. They would save those victims of an ill-balanced civilization who commit crimes because of some injustice or emotional weakness in early life. They would be laboratories of research revealing, as the investigations of medical psychologists have already revealed, the defects and dangers in the education of children who suffer many agonies and are ill-prepared for life because of the ignorance of parents and teachers. They would be, like this Tavistock Square Clinic, an observatory of the human mind, throwing new light into the dark passages of the unconscious, and helping us all to get free from that underworld of racial instincts, hidden fears and ill-balanced impulses which weaken us and drag us down. Above all, perhaps, they would teach us to get away from cruelty in our relations to our fellow men and women, and to have deeper sympathy and understanding and pity for all the children of life.

I have seen in the papers lately that a millionaire is offering a prize for advice on the best way by which he can give away two million pounds with the greatest advantage to humanity and the least harm. My own advice to him is to give every penny of it to the Tavistock Square Clinic !

Clinical Notes and Cases.

Twenty Cases of General Paralysis of the Insane Treated by Benign Tertian Malaria. By JAMES H. MURDOCH, M.B., Ch.B., Medical Officer, H.M. Prison, Brixton; late Assistant Medical Officer, Glasgow District Mental Hospital, Woodilee, Lenzie.

MUCH work has already been done in this subject, and while it would seem that the ultimate manner in which the malarial infection acts in bringing about improvement in general paralysis is, as yet, open to doubt, the fact remains that malaria has a definite value in the treatment of this disease.

The experience of many people who have carried out the treatment has been varied: some have obtained good results, and others have had little encouragement. Such being the case, it would appear to be unwise to draw too many conclusions from a small number of cases.

Owing to the difficulty in obtaining a supply of mosquitoes, the following cases were treated by inoculation with infected blood. The cases were at first unselected, but later on patients were treated as soon as possible after admission to hospital.

The technique decided on was as follows: After the diagnosis had been confirmed by examination of the cerebro-spinal fluid, the patient was given 5 c.c. of malarial blood (benign tertian) intramuscularly, at the lower border of the scapula. After allowing seven rigors, blood was taken from a vein and the next patient inoculated.

The malaria was stopped by 10-gr. doses of quinine bi-hydrochloride, thrice daily for four days. The cerebro-spinal fluid was examined from time to time after recovery from the malaria.

From the former average admission-rate it was calculated that by treating one patient at a time the same strain of malaria would be kept alive.

Of the 20 cases, 14 were paretics and 6 were tabo-paretics; both types, however, followed a similar clinical course.

The average interval from the time of first infection with syphilis to the onset of insanity was ten years, the longest being 24 years and the shortest 6 years.

The average residence in hospital was sixteen months, the longest being four and a half years, the shortest one month before treatment.

The results obtained were as follows :

20 Cases treated.	Paretics.	Tabo-paretics.	Total.
Number of cases discharged	6	4	10
„ greatly improved .	1	1	2
„ arrested? . . .	1	0	1
„ progressed . . .	2	0	2
„ died	4	1	5
Cerebro-spinal fluid improved	7	5	12

I do not propose to discuss the percentage results obtained because of the small number of cases treated, but will confine myself to several points of interest which arose in connection with some of them.

With regard to the patients themselves, it would appear to be a difficult matter to decide when it ceases to be worth while giving the treatment. One was discharged who had been insane for two and a half years and had had congestive seizures; another who improved greatly had lost control of the sphincters and was bed-ridden, but he was not discharged as he had been a mental defective from an early age, and had no friends. On the other hand, all the deaths occurred in advanced cases which were bed-ridden before treatment, and from those it would seem that heart disease, bed-sores and septic conditions generally are contra-indications in treatment.

Next, with regard to the course of the malaria, the average incubation period was twelve days, the longest being twenty-one days and the shortest five days. Only those rigors in which the temperature rose beyond 104° F. were counted.

The malaria was arrested in those cases in which the pulse failed to return to normal with the temperature, or rose beyond 160 per minute, or in which signs of cardiac weakness appeared.

Two cases had previously been given full courses of neo-salvarsan, but had gradually become worse; they improved after malaria, and were discharged.

On the other hand, one patient had been discharged from the army with malignant tertian malaria, and although parasites of benign tertian were present in his blood, he never had rigors, and the treatment had no effect on the course of his general paralysis.

All the patients were rather irritable and childish and required tactful nursing after the rigors had been stopped, and it is perhaps of interest to state that all were attended by female nurses.

One patient, who had improved greatly, sustained an intra-capsular fracture of the left femur by slipping on the polished floor. He developed a large bed-sore in the course of the treatment of the

fracture, but made a complete recovery from both conditions. Going back over the hospital records I found that two similar cases of fracture, who had not had malaria, died inside a month from the date of injury.

The most marked change in the cerebro-spinal fluid was in the cell-count, which came down to 5 at most in those cases which showed marked improvement. The globulin content was diminished slightly, but the Wassermann reaction and the colloidal gold curve remained unchanged.

In only one case was the cerebro-spinal fluid examined after discharge from hospital; in this case two years after discharge the cell-count was the only test that was normal, all the others being unchanged since the examination prior to discharge.

Of the cases who were discharged, one died six months after going home. He became depressed at certain financial difficulties with which he was faced. He was examined by a consultant physician who was aware of his history, but no physical signs of general paralysis of the insane were present. Two days later he threw himself over a banister, fractured a femur and sustained a head injury, and died eight days after. No *post-mortem* examination was carried out.

It is now three years since the first of those cases was treated and more than two and a half years since the first was discharged. All of the discharges have been at home at least a year, and all of them are following their ordinary occupations; moreover in a period of three years only 5 cases have died, excluding the one who died after discharge.

These remissions are of a considerably longer duration than natural remissions, and it seems reasonable to suppose that they would not have occurred had the patients not received malaria therapy.

My thanks are due to Dr. Whitelaw, late director of the Western District Asylums Research Institute, for examining the cerebro-spinal fluids, to Dr. J. Macleod, Pathologist, for examining the blood-films, and to Dr. Henry Carre, Medical Superintendent of Woodilee Mental Hospital, for permission to publish these clinical notes.

A Note on the Wassermann Reaction in the Blood-Serum and Cerebro-Spinal Fluid of Female Admissions to Banstead Mental Hospital. By G. A. LILLY, M.C., M.A., M.D., D.P.M., Deputy Medical Superintendent, Banstead Mental Hospital.

In the *Journal of Mental Science* of January, 1927, figures were published giving the results of the Wassermann reaction of the blood in a series of 412 consecutive male admissions to Hanwell Mental Hospital. For comparison, the Wassermann reactions of the blood in a series of 600 consecutive female admissions to Banstead Mental Hospital are now presented.

Between April 26, 1926 and May 27, 1929, actually 613 cases were admitted. As 11 of these were readmissions discharged after April 26, 1926, the results of their blood tests at the time of their previous admission were accepted, and 2 patients died before their blood could be obtained.

It was found that the blood serum had a positive Wassermann reaction in 37 out of the 600 cases of the series, representing 6·7% ; further it was found that the cerebro-spinal fluid was also positive in 17 of the 37 positive serum cases ; 2 patients died before the cerebro-spinal fluid could be taken. Throughout the series the cerebro-spinal fluid was withdrawn only in those cases where the serum was returned positive the week before.

Below is a table comparable with that published for the male admissions to Hanwell Mental Hospital :

Diagnosis on admission.	Total cases.	Positive sera.	Positive cerebro-spinal fluid.
General paralysis	5	5	5
Delusional insanity	105	6	1
Confusional insanity	90	8	4
Melancholia	187	9	4
Senile dementia	39	3	1
Gross brain lesion	3	<i>Nil</i>	<i>Nil</i>
Mania	48	3	1
Dementia præcox	62	1	1
Insanity and epilepsy	12	<i>Nil</i>	<i>Nil</i>
Alternating insanity	26	1	”
Imbecility	6	<i>Nil</i>	”
Stupor	4	”	”
Secondary dementia	11	1	”
Imbecility with epilepsy	2	<i>Nil</i>	”
	600	37	17

OBSERVATIONS.

1. It will be seen that only 5 out of the 37 serum positive cases presented grounds for a clinical diagnosis of general paralysis on admission, and in these the cerebro-spinal fluid was also positive.

2. A positive reaction occurred in 32 cases, which on admission did not present clinical signs of general paralysis, and of these 12 had also a positive cerebro-spinal fluid.

Up to the present date (27.5.29) 9 of these have been recognized as general paralytics on clinical grounds, while it is still impossible on clinical grounds to diagnose three as general paralytics.

In comparing the table of Banstead females with the table of Hanwell males, it may be noticed that the incidence is not so evident among the confusional cases, but is more noticeable among the melancholic cases; this, perhaps, is as might be expected, because of the greater preponderance of melancholic symptoms among women than men, whatever the cause may be.

In other respects the figures are similar.

It is not proposed to analyse the figures in this short note, but if any reader would care for further details, it would be a pleasure to provide them.

Diagnosis of cases.	Total cases.	Positive Sera.	Positive cerebro-spinal fluid.
Delusional insanity .	379 .	14 .	1
Confusional insanity .	89 .	7 .	3
Melancholia . . .	237 .	10 .	2
Senile dementia .	49 .	2 .	<i>Nil.</i>
Gross brain lesion .	5 .	<i>Nil</i> .	"
Mania	144 .	8 .	3
Dementia præcox .	86 .	3 .	1
Insanity with epilepsy	73 .	4 .	<i>Nil.</i>
Alternating insanity .	13 .	<i>Nil</i> .	"
Imbecility	82 .	4 .	1
Stupor	3 .	1 .	<i>Nil.</i>
Secondary dementia .	147 .	1 .	"
Imbecility with epilepsy	17 .	<i>Nil</i> .	"
General paralysis . .	6 .	6 .	6
Alcoholic confusional insanity	4 .	<i>Nil</i> .	<i>Nil.</i>
Mental defective . .	1 .	1 .	"
Volitional insanity .	1 .	<i>Nil</i> .	"
	<hr/>	<hr/>	<hr/>
	1336	61	17

Attached is a further table drawn up in the same manner, presenting the figures of the results of the Wassermann reaction on the sera of all the cases in Banstead Mental Hospital on 27.5.29, and the result of the Wassermann reaction of the cerebro-spinal fluid in those cases where the serum was positive.

The Wassermann reactions were carried out, under the direction of Dr. L. F. Golla, at the Pathological Laboratory, Maudsley Hospital. These notes are published by permission of Dr. A. A. W. Petrie, Medical Superintendent of Banstead Mental Hospital.

Medico-Legal Notes.

REX v. SELINA BEST.

This case was tried at Worcester Assizes on June 6, 1929, before Mr. Justice Shearman.

The prisoner, aged 21 years, a servant employed in a public-house, was charged with the murder of her infant child on January 31. She was confined of an illegitimate child on December 13, 1928, in the Kidderminster Poor-Law Institution. She left the institution, with the infant, on the day of the offence. She went to a local "hostel" and endeavoured to obtain admission. She was informed that there was no present vacancy, but that her case would be considered at the next meeting of the committee; pending this, she was advised to return to the Poor-Law Institution. She refused to adopt this advice, and her manner was such that the matron at the "hostel" communicated with the police. In the evening of the same day, a police officer met the accused and asked her where the infant was. She replied that it was "In the pool," and she conducted the officer to a piece of water, in which the body of the child was found. Death was due to drowning. The facts were not disputed, and the defence was that of "temporary insanity."

Two nurses at the institution stated that they had observed no signs of insanity, except that the accused would not talk. Dr. J. R. Craig, medical officer at the institution, stated that she was dull and morose. Such a condition might turn to temporary insanity in the event of some sudden stress. He had, however, observed no symptoms of "real insanity," and saw no reason to think that she did not know what she was doing.

Dr. M. Hamblin Smith, medical officer of Birmingham Prison, was called, in rebuttal, by the prosecution. He stated that the accused had been under constant observation since February 2. He had seen no signs of insanity. He did not agree with Dr. Craig that the accused was dull. Her intelligence was about the average level.

The jury accepted the suggestion of temporary insanity offered by the defence, and returned a verdict of "Guilty but insane." The usual order for detention was made.

Remarks made during the trial indicated that the defence would have been one of "infanticide" (as legally contrasted with murder), but for the decision of the Court of Criminal Appeal, in the case of Mary O'Donoghue (reported in this Journal, January, 1928), in

which it was laid down that an infant a month old was not "newly born" within the meaning of the Infanticide Act, 1922. The infant in this present case had lived for seven weeks. It has often been noted that juries are reluctant to return a verdict involving a capital sentence in cases, such as this, in which there is a strong probability that the sentence will not be carried out.

REX *v.* EDWIN GILBERT GOLDING.

This case was tried at Birmingham Assizes on July 15, before Mr. Justice McCardie. The accused was charged with the attempted murder of his wife and his mother-in-law, and with attempted suicide. He is 54 years of age, was in business as a draper, and had always borne an excellent character as a sober, inoffensive, respectable tradesman. He suffers from a large ventral hernia, which had occasioned him much pain and worry, as he had thought that he had some malignant disease of the bowel (his father had died from that cause). Early in the morning of June 7, he rose, made tea, and returned to bed. Some two hours later, he went into the room occupied by his wife and mother-in-law, the latter being a chronic invalid, struck both of them several blows on the face and head with a hammer, and then inflicted a severe wound on his neck with a razor. He consistently claimed to have complete amnesia from the time at which he made the tea to the time, some five hours later, when he "came to himself" at the hospital to which he had been removed.

The facts were not disputed, and the defence was that of insanity. The accused's wife gave evidence that he had lived in perfect amity with her and her mother, for many years. There had never been the slightest quarrel. She knew of no financial cause for worry on his part. He had often complained of headache, and had been in great dread of malignant disease. Fred Storey, a neighbour, who was called to the house at the time of the occurrence, said that the accused man "looked insane, with his eyes bulging out of his head," and made no reply when asked what he had been doing.

Dr. M. Hamblin Smith, medical officer of Birmingham Prison, had kept the accused under special observation, since his arrival at the prison on July 9, and was of opinion that he was insane at the time of the offences. He regarded the accused man's alleged amnesia as genuine.

The defence adopted the course, which is somewhat unusual in this kind of case, of calling the accused man as a witness on his own behalf. He stated that he had no recollection of having committed the offences, and assigned the limits previously mentioned for this amnesia. He was not cross-examined by the prosecution.

The jury found that the accused was guilty of unlawful wounding, but "insane at the time of the acts," and the customary order for detention was made.

Occasional Notes.

THE REGISTRATION OF MENTAL NURSES.

[This correspondence is published for general information. It will be considered in due course by the State Registration of Mental Nurses Committee and the Council.]

Reference MSR/CB.

20, PORTLAND PLACE, W. 1;
15th June, 1929.

DEAR SIR,

I have been instructed to reply to your letter of February 6th, 1929, and to state that the Memorandum attached includes not only consideration of your letter, but also points raised at the interview between the members of the General Nursing Council for England and Wales and representatives of the Royal Medico-Psychological Association held on Thursday, May 23rd, last.

The Council quite appreciates the great services rendered by the Royal Medico-Psychological Association in the work it has done to initiate a system of improved training and education of mental nurses and also in its efforts by which a Supplementary Part of the Register for Mental Nurses was included in the Nurses' Registration Act. They also are indebted to members of the Association for their valuable assistance in drawing up the Syllabus of Subjects for the Examination in Mental Nursing. They believe, however, that in the best interests of the Nursing Profession and for the reasons given in the Memorandum attached, they would fail in their duty should they depart from the position of requiring an independent examination for admission to the State Register for all branches of nursing—a privilege which has been gained for the profession by Act of Parliament. It is not the policy of the General Nursing Council as a Statutory Body to delegate its functions and powers and its right to hold examinations to any Voluntary Association. To do so would lead sooner or later to the multiplication of examinations qualifying for registration, and a return to the confusion which the Nurses' Registration Act was established to reduce through the regulation of training and examination by one Statutory Body. This view has been expressed and supported by large bodies of nurses in this country. There is no question but that the State examination in Mental Nursing will always be conducted on behalf of the Council by Mental Specialists, both in the medical and the nursing subjects of the curriculum. The General Nursing Council for England and Wales is concerned with the registration, training and examination of Nurses in England and Wales only, but has already by reciprocal agreement established satisfactory relations with many parts of His Majesty's Dominions, as required by the Act.

In conclusion, the General Nursing Council regret that they are unable to accept the proposals of the Association.

I am,

Yours faithfully,

MARIAN S. RIDDELL,
Registrar.

To the General Secretary,
Royal Medico-Psychological Association.

APPLICATION (DATED FEBRUARY 6, 1929) BY THE COUNCIL OF THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION FOR THE RECOGNITION OF THE ASSOCIATION'S NURSING CERTIFICATE AS QUALIFYING FOR ADMISSION TO THE STATE REGISTER OF NURSES. (Resolution, General Meeting, London, November, 1927, confirmed Annual Meeting, Wakefield, July, 1927.)

1. The Council of the Association, on July 10 last, appointed a special Committee on State Registration of Nurses with instructions to seek an interview with each General Nursing Council for the purpose of discussing the Association's proposals for co-operation in the matter of the State Registration of Mental Nurses within the terms of the resolution of the Association dated November 17, 1927, a copy of which was forwarded to you on March 12, 1928.

2. Every effort was made to ensure that the decision on this motion should rightly express the views of the Association and especially of its recognized training schools, and the steps taken to this end are recorded in an extract from the Annual Report of the Council for 1928. A copy of this report and of a report on the Questionnaire addressed to the recognized training schools were sent you in August last.

The Council has also been at great pains to make sure that the resolution did not ask the General Nursing Councils to do what was either impossible or illegal. In evidence of this, copies of correspondence with the Minister of Health and Counsel's Opinion are appended.

MEMORANDUM ATTACHED TO THE ABOVE LETTER OF REPLY FROM THE GENERAL NURSING COUNCIL FOR ENGLAND AND WALES, JUNE 14, 1929.

(General Secretary's comments in italics under each paragraph.)

Para. 1. As a Statutory Body the General Nursing Council cannot co-operate with voluntary associations by delegating to outside bodies work for which they are responsible. While welcoming advice and assistance, it is the duty of the Council to keep the control of the examinations in their own hands.

[*Legal point: Local authorities do work with "Voluntary Associations," e.g., M.D. Act, 1913.*

The Association proposed to hand over to the G.N.C. such control.]

Para. 2.—Recognition of Training Schools. The questionnaire issued by the Association was addressed to and the replies signed by the Medical Superintendents. The Council therefore conclude that the opinions expressed have the approval of Medical Superintendents who are for the most part members of the Royal Medico-Psychological Association. The Council consider that the training, education and control of mental nurses should not be left so entirely under the control of the Medical Superintendents as has been the case in the past. It is true of every other branch of the Nursing profession that improvement in training followed an increase in self-government, and of the control exercised by members of their own body, and it is eminently desirable that mental nurses be given the opportunity of occupying a like position.

[*Questionnaire addressed, as courtesy demanded, to the Head of the Hospital, namely the Medical Superintendent. Out of the 14 questions 10 were statistical, or matters of fact and not of opinion. Of the 4 "opinions" asked for, one was addressed (and) (or) your Matron.*

The Association makes no claim to represent or govern mental nurses. It merely provides a certificate of proficiency for which it lays down a scheme of training and syllabus. In regard to this it has a Mental Nurses' Consultative Council and numerous Nurse Examiners. The Educational Committee consists of the Registrar and six Examiners, together with the President, General Secretary, Treasurer and one Editor and five Divisional Secretaries—all ex-officio. Ordinary members are composed of Medical Superintendents, Commissioners-in-Lunacy, Professors and Lecturers, Consultants, and private members. This is surely a body which should know something about mental nursing and the training and syllabus appropriate to it. The Association does not keep a "live register," so no nursing electorate is needed.]

3. The present letter is in reply to yours dated October 11, 1928, asking for the further communication promised in my letter dated March 12, 1928.

4. In doing so care will be taken not to mistake the views recently expressed in the nursing press by admirers and supporters of your Council—views which are critical of, even hostile to, the educational activities of the Royal Medico-Psychological Association—for those of your Council, and which presume that the two bodies are in conflict generally. As a matter of fact, as far as the Association is concerned there is no such spirit of antagonism to your Council, nor does the Association know of any such spirit on the part of your Council, and sincerely hopes that none will ever develop between the two bodies, for such would be detrimental to the interests of the mental nurse, in whose welfare both bodies are gravely concerned.

5. The Council of the Association must, however, note certain conclusions arrived at on the occasion of a conference called by your Council on June 23, 1928, at which representatives of the corresponding bodies in Scotland and Northern Ireland attended, the report of which, though not communicated to the Association, appeared in the press.

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5. The Council of the Association must, however, note certain conclusions arrived at on the occasion of a conference called by your Council on June 23, 1928, at which representatives of the corresponding bodies in Scotland and Northern Ireland attended, the report of which, though not communicated to the Association, appeared in the press.

The Association makes no claim to represent or govern mental nurses. It merely provides a certificate of proficiency for which it lays down a scheme of training and syllabus. In regard to this it has a Mental Nurses' Consultative Council and numerous Nurse Examiners. The Educational Committee consists of the Registrar and six Examiners, together with the President, General Secretary, Treasurer and one Editor and five Divisional Secretaries—all ex-officio. Ordinary members are composed of Medical Superintendents, Commissioners-in-Law, Professors and Lecturers, Consultants, and private members. This is surely a body which should know something about mental nursing and the training and syllabus appropriate to it. The Association does not keep a "live register," so no nursing electorate is needed.]

6. These conclusions need not be stated here in full, but as regards (I), the report on the Questionnaire, which was issued later, shows conclusively that there are many factors of far greater importance and difficulty of solution than cost, which have prevented the general adoption of the State examinations by mental nurses; (II) the Association has not made any request that the General Nursing Councils should cease to hold its mental nursing examinations (*vide* Proviso of Resolution of November, 1927); (III) (a) Mr. Macmillan's opinion (appended) may be regarded as a complete answer; (III) (b) merely conveys an opinion and omits what would be of interest to the Association, *i.e.*, the grounds upon which this conclusion was reached; and as regards (IV), the Association has not envisaged any change in the present system of appointing the G.N.C. mental nursing examiners.

7. It is to be regretted that these decisions were made before the Council of the Association was in a position to submit this formal application with supporting documents.

8. The Council of the Association has now completed its preliminary inquiries in this matter which have taken some time, and submits the following application relating thereto for the consideration of your Council.

9. The fact need not be stressed that the Association was the first body in the world to organize a National or Imperial system of training and examination of mental nurses which was the first "one-portal system" in regard to the nursing profession; nor the fact that it has issued over 24,000 certificates of proficiency in mental nursing—a certificate which is recognized, with one or two

Para. 6. Referring in passing to this paragraph, we would point out that the question of cost was one most strongly brought forward by the advocates of the Royal Medico-Psychological Association's examination.

The question of Counsel's opinion and the legality or otherwise of recognition of the Royal Medico-Psychological Association's examination by the General Nursing Council in no way alters the attitude of the General Nursing Council. The General Nursing Council instituted the examinations by rules formulated under the Act. The Council have throughout maintained the position that as a statutory body they cannot accept for purposes of registration the certificate and examination of an outside body, and their position was further confirmed at the Conference of the three Nursing Councils on June 23, 1928.

(Appendices attached.)

[The first sentence must refer to some document unknown to the Association.]

Para. 9. While recognizing once again the value of the work of the Royal Medico-Psychological Association, the Council would point out that the term "one-portal system" as applied by the Royal Medico-Psychological Association apparently means a one-portal system for the mental nursing profession, whereas as used by the General Nursing Council it means the one-portal preliminary

examination for all nurses in this country to all parts of the Register.

exceptions, by all the local authorities in Great Britain and Ireland, in India and some of the Dominions Overseas and Crown Colonies, in the United States of America (where it confers a recognized status and increased remuneration), and in the Irish Free State (where it admits to the State Register of Nurses); nor yet again that the Association has ever been a firm supporter of the principle of the State registration of all nurses, and has for over 25 years claimed this recognition for its nursing certificate.

10. Nor, on the other hand, need the fact be stressed that the General Nursing Councils are State bodies, which have the statutory duty of keeping a State Register of nurses and certain duties relating thereto, and that later it was found necessary to obtain the permission of the State to conduct examinations, which permission was granted in default of opposition; nor yet, again, that they (the Irish Free State Council excepted) did not see their way in regard to the registration of mental nurses to taking action on the lines recommended in para. 22 of the Report of the Select Committee on the Registration of Nurses, 1905.

Para. 10. The words "that later it was found necessary to obtain the permission of the State to conduct examinations" are misleading. The rules relating to the admission to the Register by examination were formulated under Section 3 (1) (c) of the Act, and are law just as much as the Act. The Council also take exception to the words "in default," seeing that these rules were widely advertised and lay on the table of the House of Commons for twenty-one days before they became law, during which time any objections could have been raised. While required by the Act to work in agreement as far as possible with the General Nursing Councils of Scotland and Northern Ireland, the Irish Free State Registration Act is quite independent, the Irish Free State occupying the same position as the Overseas Dominions.

[*"In default" refers to "opposition." The Association "defaulted" in not raising objection. The Association is a self-respecting body. It had just arrived at some sort of agreement with the G.N.C. and was hopeful that the examinations might be held simultaneously—perhaps by the same examiners—certainly in regard to the Final. It would have ill become the Association to oppose these rules at that moment and under these circumstances.*

Para. 10 is a statement of fact to which there can be no reasonable objection. The rules are, of course, "law," just as much as the Act.]

11. These are all well-established historical facts of which there is documentary and other evidence.

12. The members of the Committee on State Registration, however, are prepared to discuss any of these points with your Council if and when an interview takes place.

13. My present purpose is rather to explain exactly what the Association's application is and the reason why it is put forward.

14. It is necessary, in the first place, to emphasize the fact that State registration, as far as the nurse is concerned, is not compulsory, but is a purely voluntary act. The unregistered nurse has no disability in regard to the practice of nursing except that she is unable to call herself a "registered" nurse.

15. In the second place, the State did not make it compulsory for the General Nursing Councils to become examining bodies. It was a voluntary act on their part and not one prescribed by the State.

16. So it is just as legal and law-abiding for other interested bodies to conduct nursing examinations and issue certificates of proficiency in nursing.

17. It has been the historic policy of the Association to secure for the mental nurse a place on the State register of nurses on an equality with her sister nurses.

Interview, May 23, 1929.

Para. 14. The Council most strongly combat the statement that unregistered nurses are under no disability. Unregistered nurses are already finding great difficulty in obtaining higher posts in institutions, posts in the Public Health services, private nursing co-operations, charge posts in nursing homes, and also posts overseas. This disability will increase as the fact of registration becomes more widely known. The law already demands that certain posts shall be held only by registered nurses.

[The disability here referred to is "legal," and the text implies this. It was largely because of the other disabilities that the resolution of November 17, 1927, was brought forward (vide Dr. Lord's speech in seconding the motion).]

Para. 15. The rules made under the Act are law, having been passed by Parliament, and under these rules the Council have the duty of examining.

[Apparently not understood by the G.N.C. This paragraph refers to the past, not to the present. Again the rules are, of course, law—a fact never disputed by the Association.]

See Para. 29.

18. Though this had been recognized by the State in the Nurses' Registration Act of 1919, with the exception of "existing nurses" and "nurses with intermediate qualifications," the majority of mental nurses found themselves unable to avail themselves of the opportunity afforded by the Rules of the General Nursing Councils. Only 126 mental nurses since 1925 (now only 188 in England, 61 in Scotland, 0 in Northern Ireland, total 249) had obtained admission to the State registers, while 96.5% of all fully trained mental nurses during the same period remained unregistered.

19. The Association's effort to facilitate registration (Birmingham resolution, 1925) had largely proved a failure. This resolution recommended that the course of training in the public mental hospitals should be so planned that the mental nurse might, subject to the convenience of the hospital service, sit for both R.M.P.A. and G.N.C. examinations—the latter solely in order to become eligible for State registration.

20. This duplication of almost identical examinations, though regrettable, was inevitable.

Para. 18. It is not clear why mental nurses found themselves unable to avail themselves of the opportunity to be registered afforded by the rules, as the period of grace was widely advertised, and the mental nurses had a wider basis on which to apply than any other nurses in that they were allowed to register on "experience" only.

With reference to the figures put forward by the Royal Medical-Psychological Association to demonstrate the failure of the examinations to attract mental nurses, the Council regard them as of little value, except to confirm their opinion that until the advantages of registration have been properly put before the mental nurses, and until they occupy a similar position to that of their sisters in other branches of the profession, the so-called "failure" of the examinations will persist.

[A misinterpretation. Para. 18 plainly states that the nurses who were qualified as existing or intermediate nurses for registration and did not register have no grievance. The Association has no sympathy for them; it was their plain duty to register. It is the nurses since 1925 who have found themselves for various reasons unable, etc. The second paragraph evades the point raised: the "failure" of the G.N.C. examinations to attract nurses is not referred to or implied.]

See Para. 20.

[Para. 19 is a concrete fact, and both paras. 18 and 19 demonstrate the Association's concern that the majority of trained mental nurses are not State registered. The public sooner or later will want to know the reason why, and will only be satisfied with facts and not merely opinions.]

Para. 20. It is not clear to the Council why duplication of examinations is inevitable, as other voluntary bodies ceased to hold their examinations when a statutory body came into being, as in the case of the Fever Nurses' Association and the General

Nursing Council, and in the case of the London Obstetrical Society and the Central Midwives' Board.

[In the great majority of mental hospitals, the local authorities insist upon the nurse having a certificate of proficiency before probationership can be concluded and pay raised (practice varies a little as regards pay and Preliminary and Final Examinations). So the nurse has to pass one or two recognised examinations for this purpose. Para. 21 sketches why she cannot take the G.N.C.'s; so she has to take the R.M.P.A.'s examination. Only in a few instances apparently can she take the G.N.C. examination for grading. If she wishes to register she has to pass the G.N.C. examination whether she has the R.M.P.A. certificate or not.]

Para. 21. It is thought probable that the words "bedside nursing" have been differently interpreted. The General Nursing Council, under this term, require for the Preliminary Examination elementary bedside nursing involving the bodily care of the patients, bedmaking, washing, etc., and not necessarily experience of any form of acute illness. Further details such as the question whether "general duties" and "first-aid" could be included in the Preliminary Examination are matters for consideration and consultation. They are not matters which affect the basic principle of the independence of the State Examinations. The inclusion of mental nurses in the Preliminary Examination has made it necessary to exclude from that examination many subjects which for the general nurse and other special nurses might with advantage be included.

[Nobody needs to be in any doubt as to what nursing knowledge and experience is required of the nurse for the G.N.C. Preliminary Examination. A list of the equipment required for the practical nursing examination is conclusive on these points. It is absurd to refer to these as "elementary." This knowledge and experience have to be acquired within the first twelve or fifteen months' service or the nurse is much handicapped at the Preliminary Examination. If the Preliminary is delayed, then the Final is delayed, and the grading of the probationer as a staff nurse and increase of pay are also delayed. Surely the facts are plain.]

21. The G.N.C. examination system could not generally replace the R.M.P.A. system for the purpose of the "local authority" grading of nurses, especially as regards male nurses. *The difficulty of providing the training in bed-side nursing required by the G.N.C. preliminary examination* is fully borne out by the Report of the Departmental Committee on Nursing in County and Borough Mental Hospitals (England and Wales) dated July 25, 1924 (*vide pp. 16 to 20*). The report on the Questionnaire referred to in para. 2 of this letter confirms this, and details other reasons for the non-adoption of the G.N.C. examinations which the Council of the Association thinks are conclusive.

22. To secure registration the certificated mental nurse had therefore to comply with the training and examination regulations of the General Nursing Councils.

Paras. 24, 25. The Council have not viewed with equanimity the failure of the mental nurses to enter in larger numbers for the State Examinations. It is a cause of anxiety to the Council as well as to the Royal Medico-Psychological Association. The Council realize that patience is required until the full advantage of registration and membership of a profession affording a definite legal status has been brought home to the nurses in training in mental hospitals through the authorities in charge of those hospitals.

[Whether the Council has "viewed" or has "not viewed," it took no appropriate action. The R.M.P.A. did this and sent out a questionnaire and a summary of the G.N.C.'s regulations. In this questionnaire the R.M.P.A. and G.N.C. examinations received equal treatment. Information merely advantageous to the R.M.P.A. was not the object of the questionnaire.]

See Para. 9.

23. The Report of the Royal Commission on Lunacy and Mental Disorder (England and Wales) quite rightly animadverted on this obvious anomaly.

24. Your Council apparently viewed the situation with equanimity, and took no steps either to inquire why this anomaly existed or how it could be remedied. It was left to the Association to do this.

25. Furthermore the mental hospital nurse and the local authorities were not persuaded that there were any advantages in State registration, despite the fact that the Association was always a loyal supporter of this policy and had used all its influence to have mental nurses included in the Nurses' Registration Act. It may be recalled that on June 13, 1907, the Association sent to the Prime Minister a petition in favour of the State Registration of Nurses signed by 8,150 persons—a policy then strongly opposed by many leading physicians, general hospital matrons and nurses and their organizations [e.g., the Deputation to the Lord President of the Council on June 14, 1906].

26. Thus it came about that a feeling took root in the Association that a closer co-operation with the General Nursing Councils might remove the difficulties mental nurses were experiencing in their efforts to reach the State register—some inherent and peculiar to the public mental hospital.

27. The General Nursing Councils seemed of themselves unable to meet the situation, being bound to a formula, "the one-portal entry," which, curiously, also bound the Association, but in a different way.

28. The only solution which seemed possible under the circumstances was for the Association to offer to adapt its educational machinery to the requirements of the General Nursing Councils for the purposes of the State registration of mental nurses as far as the exigencies of employment in mental hospitals would allow.

29. It meant that the General Nursing Councils would accept certain voluntary services in place of much they now paid for and reclaimed from the mental nurse in fees, and perhaps lighten the load of sick nursing requirements for the Preliminary Examination and other adjustments of subjects between the two examinations, particularly in regard to "General Duties" and "First Aid," which the Association thinks are a vital part of a probationer mental nurse's training.

Para. 29. It is the opinion of the Council that nurses should no longer depend solely on examinations conducted by voluntary bodies and voluntary examiners. The small fees charged by the Royal Medico-Psychological Association are insufficient to provide an independent examination, and moreover the fact of having passed that examination does not grant a legal status to the nurse. In their own interests the mental nurses should undoubtedly be prepared to meet the expense of an independent examination.

If and when it becomes possible to reduce the fees, the Council fully intend to do so, but they would remind the Royal Medico-Psychological Association that the sum was originally fixed at 7 guineas—5 guineas for the two examinations and 2 guineas for registration—and that as this was found to be more than was required, it was reduced to 5 guineas, the registration fee being for the sake of convenience included with the fees for examination. The mental nurses, though the highest paid, are the only branch from which objections to the fees have arisen.

[R.M.P.A. examiners receive a fee which covers all personal expenses. The services of the examiners are voluntary in some respects only. In other respects examiners are paid a fee proportionately to work done. The Association has no expenditure in regard to the places where the examinations are held; this is perhaps the main economy. The local authorities foot this bill. Nurses are expected to pay a reasonable fee for examination, certificate and registration, and if this can be done economically, why shouldn't it?]

30. And so it came about that the Association passed the resolution of November 17, 1927, and which has given rise to this application.

31. So much for the "Why?" of that resolution. Now as to "How?"

Paras. 32, 33. From the very first the Council have declined, as already stated in the replies to Paragraphs 1 and 6, to accept the

State registration. The terms of acceptance submitted for consideration are:

- (1) To be without prejudice to any examination in mental nursing the General Nursing Councils may think fit to hold.
- (2) The R.M.P.A. examinations to be subject in the future to such supervision and standards as the General Nursing Councils may think fit to impose.

33. These mean (1) that the Association very properly leaves the question of continuance or cessation of the G.N.C. mental nursing examinations entirely to these bodies to decide. It is their business and not that of the Association. As to (2), it means that the Association offers to conduct qualifying examinations for the purpose of State registration which will satisfy regulations imposed by the General Nursing Councils and be open to their supervision.

34. The Advisory Sub-Committees of the Association to the General Nursing Councils will continue to function, and it is hoped that their advice will be considered regarding both preliminary and final examinations qualifying for entry to the Mental Nurses' Section of the State Register.

35. The Royal Medico-Psychological Association will also accept such examinations as qualifying for its register and certificate in mental nursing, thus solving the vexed question of duplication of examinations in Great Britain and Northern Ireland.

36. The Royal Medico-Psychological Association will withdraw its certificate from those nurses holding it whose names are removed from the State register for unprofessional conduct.

certificate of any other body for registration, except during the period of grace.

Para. 34. When occasion arises the General Nursing Council will no doubt be glad of the advice of any expert body.

37. The Committee on State Registration seeks an interview with your Council to make this application in person, and to discuss matters arising out of the proviso of the Association's resolution of November, 1927. The Chairman of the Committee is Prof. G. M. Robertson, and the Secretary Dr. W. M. Buchanan, who will shortly approach you in the hope of fixing a date on which your Council may be disposed to receive the Committee.

In conclusion, the Council of the Association has decided that it will not recommend the Association to ratify any proposed agreement which will not be reasonably retrospective in its operation.

Yours faithfully,

J. R. LORD

(for the General Secretary).

*To the Secretary of the
General Nursing Council for
England and Wales.*

Concluding paragraph.—The Council wish to emphasize the fact that the period of grace was fixed in the rules, and was very widely advertised, and that to re-open the Register to "Existing" and "Intermediate" nurses without examination would not only create confusion but would be unfair to those many thousands of nurses who, since June, 1925, have registered by examination. The Council can but repeat their opinion that the advisability of taking the State Examinations has not been sufficiently made known to the nurses in some of the mental hospitals, and they note that no adequate explanation was offered by the representatives of the Royal Medico-Psychological Association for the failure of the majority of mental nurses to enter for the State Examinations in order to become State registered.

[*"Reasonably retrospective" is stated. The Association has no sympathy with those nurses who had the opportunity of State registering and who failed to do so. The Association does not expect the Council to register any nurse not qualified by examination and would strongly oppose it.*]

CONCLUDING COMMENTS BY GENERAL SECRETARY.

In conclusion it is obvious that no material point in the Royal Medico-Psychological Association's letter has been refuted or damaged, and if this is all the General Nursing Council can advance against co-operation with the Royal Medico-Psychological Association, the General Nursing Council has a very poor case. The replies to our Questionnaire are practically ignored.

The Royal Medico-Psychological Association's system of training and examination has been a development of years. It has been purposely designed and moulded to meet the special circumstances and requirements of the mental hospitals, and for which the Association and local authorities have a joint responsibility. The former could not have developed or maintained the system without the sympathy, encouragement and co-operation of the latter.

Certain essential requirements of the mental hospitals and local authorities in respect of training and examination of nurses are :

(1) The allotment of subjects as between the Preliminary and Final Examinations, so that the former can act as a filter as regards temperament and general suitability, and be a test of knowledge and experience that a mental nurse should acquire during the first 12 to 15 months of training.

(2) Candidates should not be required to leave the hospital for examination except to a hospital or centre in the neighbourhood. This is to avoid dangerous depletion of the nursing staff at these times. Under the best circumstances a large number of nurses cannot be absent without inconveniencing the hospital administration both as regards staff and patients.

Any system of training and examination of mental nurses which does not meet these two requirements cannot hope to be universally adopted.

Now, the scheme of training and examination of the Royal Medico-Psychological Association is specially designed to satisfy these essential requirements. Surrender on these two points should not be required to enable trained nurses to be eligible for State registration. Yet this is just what the training and examination scheme of the General Nursing Council demands. The General Nursing Council in adopting a rigid one-portal system of entry to the nursing profession had to sacrifice the interests and convenience in some degree of every kind of nurse. The least to be sacrificed was the general nurse and the most was the

mental nurse. When the terms of entry were made known it was obvious that the latter had fallen a victim to extreme idealism.

(a) "General Duties of Nurses in a Mental Hospital" and "Accidents and Emergencies" were omitted from the Preliminary Examination in favour of an examination in surgical nursing (written and practical). The preliminary training as a rule would take 18 months, and if a mental nurse hoped to pass it was essential that during this period she should take her 6 months' training in bedside nursing.

(b) The oral and practical examinations were invariably to be held at the General Nursing Council's examination centres, and also the written examinations except under special conditions, one being that 25 candidates must be guaranteed.

The General Nursing Council still shuts its eyes to the essential facts of the situation. It *will* view mental hospitals in the same light as it does general hospitals and the care of mental patients in the same light as that of sane patients. It will not provide an examination which in practice can meet the local authorities' needs for the grading of nurses. So the Royal Medico-Psychological Association will have to continue its examination if only for this reason. The nurse will continue to pass almost a duplicate examination if she desires to be State registered. So the responsibility for the future for this duplication rests entirely with the General Nursing Council, since an adjustment of the fees of the Royal Medico-Psychological Association's examinations or the preaching of the advantages of registration will not remove the essential difficulties here pointed out. Only a recasting of the administration and syllabus of the General Nursing Council's examinations on the lines of those of the Royal Medico-Psychological Association will meet the situation, and it is plain that the General Nursing Council cannot do this so long as it maintains the invariability of the subjects for its one-portal entry.

Rigid idealism must surrender to practical necessity if the intentions of the Legislature are to be carried out.

The only practical solution, having regard to the attitude the General Nursing Council intends to maintain, is the proposal submitted by the Royal Medico-Psychological Association.

J. R. LORD
(for the General Secretary).

APPENDICES TO ASSOCIATION'S APPLICATION.

I.

Copy of Letter to the Ministry of Health.

SPRINGFIELD MENTAL HOSPITAL,
TOOTING, S.W. 17;

December 28, 1927.

SIR,

I beg to inform you that at a General Meeting of the Royal Medico-Psychological Association held on November 17, 1927, the following motion was proposed by Professor G. M. Robertson, M.D., F.R.C.P.E., and seconded by Lt.-Col. J. R. Lord, C.B.E., M.D., F.R.C.P.E., and adopted by a large majority :

" Arising out of the Report of the Royal Commission on Lunacy and Mental Disorder (p. 107, para. 102) and in accordance with the recommendations of the Report of the Select Committee on Registration of Nurses (para. 32), it is resolved that the Royal Medico-Psychological Association makes every endeavour by negotiation, or failing that, by obtaining the insertion of a provision in any new Lunacy Bill, to secure that the possession of the Certificate of Proficiency in Mental Nursing of the Association entitles the holders thereof (both present and future) to be registered, on payment of the fees, in the Mental Section of the Registers of Nurses of the General Nursing Councils, and to enjoy all the privileges of registered mental nurses ; this to be without prejudice to any examination in mental nursing which the General Nursing Councils may think fit to hold, and to be subject in the future to such supervision and standard as the General Nursing Councils may think fit to impose, as in the analogous case of the General Medical Council and medical professional examinations."

And further, that a Special Meeting of the Council of the Association will be held sometime during the last week of January to consider what steps should be taken to carry out the policy of the Association, as embodied in this resolution.

For the information and guidance of the Council on this occasion, will you please inform me :

(1) By what machinery the Rules of the General Nursing Council can be amended or revoked, (2) whether the same procedure under the Nurses' Registration Act of 1919 by which rules are made can be used to amend or revoke them, (3) or whether an amendment to the Nurses' Registration Act would now be necessary

before the General Nursing Council could accept the Certificate of Proficiency in Mental Nursing as qualifying for admission to the Supplementary Part of the Register for Mental Nurses.

I am,

Sir,

Your obedient servant,

R. WORTH,

General Secretary.

The Secretary,
The Ministry of Health,
Whitehall, S.W. 1.

(The Reply.)

MINISTRY OF HEALTH,
WHITEHALL, S.W. 1 ;

20 January, 1928.

Reference 11308/3/27.

SIR,

I am directed by the Minister of Health to refer to your letter of the 28th December, forwarding a resolution adopted at the meeting of your Association on the 17th November, and requesting information regarding the procedure requisite for an amendment of the Rules made by the General Nursing Council.

In reply to the first two questions raised in your letter, I am to state that the procedure for amending or revoking a rule is the same as that for making a rule under Section 3 of the Nurses' Registration Act, 1919. With regard to the third question it is regretted that a reply cannot be given at this stage. I am to explain that it is for the General Nursing Council to formulate any new rule on the subject, and that until such a rule is formulated the Minister cannot undertake to express an opinion on the question whether it would or would not be permissible under the terms of the present Act.

I am, Sir,

Your obedient Servant,

(Signed) L. V. BROCK.

The General Secretary,
Royal Medico-Psychological Association.

II.

Counsel's Opinion for the Royal Medico-Psychological Association.

I understand that my opinion is desired on the following questions, *viz.* :

1. Whether it is within the power of the General Nursing Council for England and Wales to alter or add to the Rules which have been made by them under Section 3 of the Nurses' Registration Act, 1919, and have, after the prescribed approval and procedure, become effective.

2. Whether it would be within the power of the General Nursing

Council under Section 3 of the Act of 1919 to make a new rule or to modify their existing Rules so as to admit of the acceptance of examinations conducted by the Royal Medico-Psychological Association as qualifying for admission to the supplementary part of the Register containing the names of mental nurses.

1. In my opinion the General Nursing Council have power not only once and for all but from time to time to make Rules for the purposes enumerated in Section 3 (1) of the Acts of 1919. This power extends to the alteration of existing Rules, as well as to the making of new Rules, as occasion may require. The approval of the Minister of Health would be necessary in the case of any change and the prescribed Parliamentary procedure would require to be followed.

2. The General Nursing Council is by Section 3 (1) of the Act of 1919 required, and therefore empowered, to make Rules *inter alia* "(b) for regulating the conditions of admission to the Register." Subsection (2) of Section 3 requires the Rules to contain provisions relating to certain matters not affecting the present question, but otherwise the Council's power of prescribing the conditions of admission to the Register is not fettered in any way. There is no statutory requirement that examination shall be a pre-requisite of admission. The Council are no doubt required to make Rules "(c) for regulating the conduct of any examinations which *may* be prescribed as a condition of admission to the Register," but they are nowhere required to prescribe any examination as a condition of admission. I am therefore of opinion that the General Nursing Council under their general power to make Rules regulating the conditions of admission to the Register are entitled to make a Rule admitting to registration mental nurses who possess any qualification which the Council may deem satisfactory, including the qualification of having passed the examinations of the Royal Medico-Psychological Association. To such recognition the General Nursing Council may of course attach such conditions as regards standards and supervision as they may think fit. There being no express duty imposed on the General Nursing Council themselves to conduct any examinations, I do not think that any question arises as to their power to delegate to any appropriate body the conduct of qualifying examinations, on such conditions as they please.

In the case of the Scottish General Nursing Council the position under the Nurses' Registration (Scotland) Act, 1919, is in my opinion the same.

(Signed) H. P. MACMILLAN.

20, Abingdon Street,
Westminster, S.W. 1;
27th February, 1928.

Part II.—Reviews.

Colour and Colour Theories. By CHRISTINE LADD-FRANKLIN.
London: Kegan Paul, Trench, Trubner & Co., 1929. Demy 8vo.
Pp. xv + 287. Price 12s. 6d.

The topic of this book is the Ladd-Franklin theory of colour. Ladd-Franklin supposes that the first response of a rod or cone to light is a purely chemical reaction. She postulates that a light-sensitive "mother-substance" in the rods and cones is decomposed by the action of light, and gives off cleavage products which arouse the vital activity of the rods and cones, and thus start nerve currents coursing towards the brain. In the "first stage," she supposes, a single big cleavage product, which we may call W, is split off by the action of light upon the mother-substance, and the vital response to W is the sensation of white.

In the second stage, the mother-substance is capable of giving off two smaller cleavage products, Y and B. Y is split off by the long waves of light, and B by the short waves, and the vital response to Y is the sensation of yellow, that to B the sensation of blue. But suppose that, chemically, $Y+B=W$, that is, $R+G+B=W$, then if Y and B are both split off at the same time in the same cone, they immediately unite into W, and the resulting sensation is neither yellow nor blue but white.

Similarly in the third stage, the mother-substance is capable of giving off three cleavage products, R, G and B, and there are three corresponding vital responses, the sensations of red, green and blue. But chemically, $R+G=Y$, and therefore, if R and G are split off at the same time, they unite chemically as follows: $R+G=Y$, and $Y+B=W$; and therefore the resulting sensation is that of white.

The editor states that Dr. Ladd-Franklin has been the first physiologist to consider colour always in the light of the development of the colour sense. This is not the case. My theory of colour-vision, which is an evolutionary one, was given several years before Ladd-Franklin wrote on the subject. It will probably help the reader if the two be contrasted. I propounded that the first sensation was light and that colour sensations became subsequently developed, the first colours to be seen being red and violet, corresponding to the rays which are physically most different in wave-length. We should now have an individual who would see the spectrum nearly all a uniform grey of different degrees of luminosity, but with a tinge of red at one end and a tinge of violet at the other. As the colour sense developed, it was not necessary

that the rays should be so far apart before a difference was seen, so the two colours, red and violet, gradually encroached on the grey band until they met in the centre of the spectrum. A third colour then appeared, namely green, and the colour-sense now assumed a trichromic form, red, green and violet being seen in the spectrum. In the next stage a fourth colour, yellow, replaced the red-green of the trichromic, then in further stages blue, orange and indigo were developed.

In my theory the visual purple is the visual substance and the rods are not percipient elements, but regulate the sensitiveness of the photo-chemical film by diffusing the visual purple into the liquid surrounding the cones, vision taking place through photo-chemical decomposition of the visual purple by light, which sets up nerve impulses in the cones.

Ladd-Franklin is a strong advocate of the duplicity theory which assumes that the rods are percipient elements in a faint light. Helmholtz and Nagel stated that there was no evidence that the rods were percipient elements. Apart from the numerous facts against the duplicity theory, it will be found that it is supported almost entirely by mis-statements, namely, (1) that certain animals have only cones and others have only rods; (2) that the periphery of the retina is colour-blind; (3) that the eye is totally colour-blind in dark adaptation; (4) that the Purkinje phenomenon and the recurrent image are not found with the fovea. With regard to these I offer the following criticisms:

1. Though I have examined numerous collections I have never been able to find any animal with only rods or only cones, neither have I found anyone who has seen such a retina. The tortoise is the most quoted; it is stated to have only cones. The rods and cones in the retina of the tortoise are as clearly defined and distinct as in the human retina.

2. The periphery of the retina is not colour-blind when colours of sufficient intensity are used. The reader can test this for himself with a doctor's red lamp. He will find he can see it as red to the extreme periphery.

3. In dark adaptation the eye is not totally colour-blind. Further, there is no scotoma or blind area corresponding to the rod-free portion of the macula, which is equal to a visual angle of about three degrees.

4. The Purkinje phenomena and recurrent image are found with the fovea. Hess showed not only that the recurrent image was found with the fovea, but also that it was bent outwards at this region as it would be if the visual purple had to flow into the fovea.

Sufficient attention has not been paid to subjective experiments. It is forgotten that all our sensations are subjective. The duplicity theory entirely fails to explain the change in position in the field of vision of after-images on movement of the eye. Two after-images may combine into one, or a red after-image may go right through a green one. This proves conclusively that the stimulus is liquid. (See the very able paper by Ferree on this point.) Hartridge is quoted as stating that the Young-Helmholtz theory explains the

APPLICATION (DATED FEBRUARY 6, 1929) BY THE COUNCIL OF THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION FOR THE RECOGNITION OF THE ASSOCIATION'S NURSING CERTIFICATE AS QUALIFYING FOR ADMISSION TO THE STATE REGISTER OF NURSES. (Resolution, General Meeting, London, November, 1927, confirmed Annual Meeting, Wakefield, July, 1927.)

1. The Council of the Association, on July 10 last, appointed a special Committee on State Registration of Nurses with instructions to seek an interview with each General Nursing Council for the purpose of discussing the Association's proposals for co-operation in the matter of the State Registration of Mental Nurses within the terms of the resolution of the Association dated November 17, 1927, a copy of which was forwarded to you on March 12, 1928.

2. Every effort was made to ensure that the decision on this motion should rightly express the views of the Association and especially of its recognized training schools, and the steps taken to this end are recorded in an extract from the Annual Report of the Council for 1928. A copy of this report and of a report on the Questionnaire addressed to the recognized training schools were sent you in August last.

The Council has also been at great pains to make sure that the resolution did not ask the General Nursing Councils to do what was either impossible or illegal. In evidence of this, copies of correspondence with the Minister of Health and Counsel's Opinion are appended.

MEMORANDUM ATTACHED TO THE ABOVE LETTER OF REPLY FROM THE GENERAL NURSING COUNCIL FOR ENGLAND AND WALES, JUNE 14, 1929.

(General Secretary's comments in italics under each paragraph.)

Para. 1. As a Statutory Body the General Nursing Council cannot co-operate with voluntary associations by delegating to outside bodies work for which they are responsible. While welcoming advice and assistance, it is the duty of the Council to keep the control of the examinations in their own hands.

[*Legal point: Local authorities do work with "Voluntary Associations," e.g., M.D. Act, 1913.*

The Association proposed to hand over to the G.N.C. such control.]

Para. 2.—Recognition of Training Schools. The questionnaire issued by the Association was addressed to and the replies signed by the Medical Superintendents. The Council therefore conclude that the opinions expressed have the approval of Medical Superintendents who are for the most part members of the Royal Medico-Psychological Association. The Council consider that the training, education and control of mental nurses should not be left so entirely under the control of the Medical Superintendents as has been the case in the past. It is true of every other branch of the Nursing profession that improvement in training followed an increase in self-government, and of the control exercised by members of their own body, and it is eminently desirable that mental nurses be given the opportunity of occupying a like position.

[*Questionnaire addressed, as courtesy demanded, to the Head of the Hospital, namely the Medical Superintendent. Out of the 14 questions 10 were statistical, or matters of fact and not of opinion. Of the 4 "opinions" asked for, one was addressed (and) (or) your Matron.*

The Association makes no claim to represent or govern mental nurses. It merely provides a certificate of proficiency for which it lays down a scheme of training and syllabus. In regard to this it has a Mental Nurses' Consultative Council and numerous Nurse Examiners. The Educational Committee consists of the Registrar and six Examiners, together with the President, General Secretary, Treasurer and one Editor and five Divisional Secretaries—all ex-officio. Ordinary members are composed of Medical Superintendents, Commissioners-in-Lunacy, Professors and Lecturers, Consultants, and private members. This is surely a body which should know something about mental nursing and the training and syllabus appropriate to it. The Association does not keep a "live register," so no nursing electorate is needed.]

3. The present letter is in reply to yours dated October 11, 1928, asking for the further communication promised in my letter dated March 12, 1928.

4. In doing so care will be taken not to mistake the views recently expressed in the nursing press by admirers and supporters of your Council—views which are critical of, even hostile to, the educational activities of the Royal Medico-Psychological Association—for those of your Council, and which presume that the two bodies are in conflict generally. As a matter of fact, as far as the Association is concerned there is no such spirit of antagonism to your Council, nor does the Association know of any such spirit on the part of your Council, and sincerely hopes that none will ever develop between the two bodies, for such would be detrimental to the interests of the mental nurse, in whose welfare both bodies are gravely concerned.

5. The Council of the Association must, however, note certain conclusions arrived at on the occasion of a conference called by your Council on June 23, 1928, at which representatives of the corresponding bodies in Scotland and Northern Ireland attended, the report of which, though not communicated to the Association, appeared in the press.

6. These conclusions need not be stated here in full, but as regards (I), the report on the Questionnaire, which was issued later, shows conclusively that there are many factors of far greater importance and difficulty of solution than cost, which have prevented the general adoption of the State examinations by mental nurses; (II) the Association has not made any request that the General Nursing Councils should cease to hold its mental nursing examinations (*vide* Proviso of Resolution of November, 1927); (III) (a) Mr. Macmillan's opinion (appended) may be regarded as a complete answer; (III) (b) merely conveys an opinion and omits what would be of interest to the Association, *i.e.*, the grounds upon which this conclusion was reached; and as regards (IV), the Association has not envisaged any change in the present system of appointing the G.N.C. mental nursing examiners.

7. It is to be regretted that these decisions were made before the Council of the Association was in a position to submit this formal application with supporting documents.

8. The Council of the Association has now completed its preliminary inquiries in this matter which have taken some time, and submits the following application relating thereto for the consideration of your Council.

9. The fact need not be stressed that the Association was the first body in the world to organize a National or Imperial system of training and examination of mental nurses which was the first "one-portal system" in regard to the nursing profession; nor the fact that it has issued over 24,000 certificates of proficiency in mental nursing—a certificate which is recognized, with one or two

Para. 6. Referring in passing to this paragraph, we would point out that the question of cost was one most strongly brought forward by the advocates of the Royal Medico-Psychological Association's examination.

The question of Counsel's opinion and the legality or otherwise of recognition of the Royal Medico-Psychological Association's examination by the General Nursing Council in no way alters the attitude of the General Nursing Council. The General Nursing Council instituted the examinations by rules formulated under the Act. The Council have throughout maintained the position that as a statutory body they cannot accept for purposes of registration the certificate and examination of an outside body, and their position was further confirmed at the Conference of the three Nursing Councils on June 23, 1928.
(Appendices attached.)

[*The first sentence must refer to some document unknown to the Association.*]

Para. 9. While recognizing once again the value of the work of the Royal Medico-Psychological Association, the Council would point out that the term "*one-portal system*" as applied by the Royal Medico-Psychological Association apparently means a one-portal system for the mental nursing profession, whereas as used by the General Nursing Council it means the one-portal preliminary

examination for all nurses in this country to all parts of the Register.

exceptions, by all the local authorities in Great Britain and Ireland, in India and some of the Dominions Overseas and Crown Colonies, in the United States of America (where it confers a recognized status and increased remuneration), and in the Irish Free State (where it admits to the State Register of Nurses); nor yet again that the Association has ever been a firm supporter of the principle of the State registration of all nurses, and has for over 25 years claimed this recognition for its nursing certificate.

10. Nor, on the other hand, need the fact be stressed that the General Nursing Councils are State bodies, which have the statutory duty of keeping a State Register of nurses and certain duties relating thereto, and that later it was found necessary to obtain the permission of the State to conduct examinations, which permission was granted in default of opposition; nor yet, again, that they (the Irish Free State Council excepted) did not see their way in regard to the registration of mental nurses to taking action on the lines recommended in para. 22 of the Report of the Select Committee on the Registration of Nurses, 1905.

Para. 10. The words "that later it was found necessary to obtain the permission of the State to conduct examinations" are misleading. The rules relating to the admission to the Register by examination were formulated under Section 3 (1) (c) of the Act, and are law just as much as the Act. The Council also take exception to the words "in default," seeing that these rules were widely advertised and lay on the table of the House of Commons for twenty-one days before they became law, during which time any objections could have been raised. While required by the Act to work in agreement as far as possible with the General Nursing Councils of Scotland and Northern Ireland, the Irish Free State Registration Act is quite independent, the Irish Free State occupying the same position as the Overseas Dominions.

"In default" refers to "opposition." The Association "defaulted" in not raising objection. The Association is a self-respecting body. It had just arrived at some sort of agreement with the G.N.C. and was hopeful that the examinations might be held simultaneously—perhaps by the same examiners—certainly in regard to the Final. It would have ill become the Association to oppose these rules at that moment and under these circumstances.

Para. 10 is a statement of fact to which there can be no reasonable objection. The rules are, of course, "law," just as much as the Act.)

11. These are all well-established historical facts of which there is ample documentary and other evidence.

12. The members of the Committee on State Registration, however, are prepared to discuss any of these points with your Council if and when an interview takes place.

13. My present purpose is rather to explain exactly what the Association's application is and the reason why it is put forward.

14. It is necessary, in the first place, to emphasize the fact that State registration, as far as the nurse is concerned, is not compulsory, but is a purely voluntary act. The unregistered nurse has no disability in regard to the practice of nursing except that she is unable to call herself a "registered" nurse.

Interview, May 23, 1929.

Para. 14. The Council most strongly combat the statement that unregistered nurses are under no disability. Unregistered nurses are already finding great difficulty in obtaining higher posts in institutions, posts in the Public Health services, private nursing co-operations, charge posts in nursing homes, and also posts overseas. This disability will increase as the fact of registration becomes more widely known. The law already demands that certain posts shall be held only by registered nurses.

[The disability here referred to is "legal," and the text implies this. It was largely because of the other disabilities that the resolution of November 17, 1927, was brought forward (vide Dr. Lord's speech in seconding the motion).]

Para. 15. The rules made under the Act are law, having been passed by Parliament, and under these rules the Council have the duty of examining.

[Apparently not understood by the G.N.C. This paragraph refers to the past, not to the present. Again the rules are, of course, law—a fact never disputed by the Association.]

See Para. 29.

15. In the second place, the State did not make it compulsory for the General Nursing Councils to become examining bodies. It was a voluntary act on their part and not one prescribed by the State.

16. So it is just as legal and law-abiding for other interested bodies to conduct nursing examinations and issue certificates of proficiency in nursing.

17. It has been the historic policy of the Association to secure for the mental nurse a place on the State register of nurses on an equality with her sister nurses.

Para. 18. It is not clear why mental nurses found themselves unable to avail themselves of the opportunity to be registered afforded by the rules, as the period of grace was widely advertised, and the mental nurses had a wider basis on which to apply than any other nurses in that they were allowed to register on "experience" only.

With reference to the figures put forward by the Royal Medical-Psychological Association to demonstrate the failure of the examinations to attract mental nurses, the Council regard them as of little value, except to confirm their opinion that until the advantages of registration have been properly put before the mental nurses, and until they occupy a similar position to that of their sisters in other branches of the profession, the so-called "failure" of the examinations will persist.

[*A misinterpretation. Para. 18 plainly states that the nurses who were qualified as existing or intermediate nurses for registration and did not register have no grievance. The Association has no sympathy for them; it was their plain duty to register. It is the nurses since 1925 who have found themselves for various reasons unable, etc.*

The second paragraph evades the point raised: the "failure" of the G.N.C. examinations to attract nurses is not referred to or implied.]

See Para. 20.

[*Para. 19 is a concrete fact, and both paras. 18 and 19 demonstrate the Association's concern that the majority of trained mental nurses are not State registered. The public sooner or later will want to know the reason why, and will only be satisfied with facts and not merely opinions.*]

Para. 20. It is not clear to the Council why duplication of examinations is inevitable, as other voluntary bodies ceased to hold their examinations when a statutory body came into being, as in the case of the Fever Nurses' Association and the General

18. Though this had been recognized by the State in the Nurses' Registration Act of 1919, with the exception of "existing nurses" and "nurses with intermediate qualifications," the majority of mental nurses found themselves unable to avail themselves of the opportunity afforded by the Rules of the General Nursing Councils. Only 126 mental nurses since 1925 (now only 188 in England, 61 in Scotland, 0 in Northern Ireland, total 249) had obtained admission to the State registers, while 96.5% of all fully trained mental nurses during the same period remained unregistered.

19. The Association's effort to facilitate registration (Birmingham resolution, 1925) had largely proved a failure. This resolution recommended that the course of training in the public mental hospitals should be so planned that the mental nurse might, subject to the convenience of the hospital service, sit for both R.M.P.A. and G.N.C. examinations—the latter solely in order to become eligible for State registration.

20. This duplication of almost identical examinations, though regrettable, was inevitable.

Nursing Council, and in the case of the London Obstetrical Society and the Central Midwives' Board.

[In the great majority of mental hospitals, the local authorities insist upon the nurse having a certificate of proficiency before probationership can be concluded and pay raised (practice varies a little as regards pay and Preliminary and Final Examinations). So the nurse has to pass one or two recognized examinations for this purpose. Para. 21 sketches why she cannot take the G.N.C.'s; so she has to take the R.M.P.A.'s examination. Only in a few instances apparently can she take the G.N.C. examination for grading. If she wishes to register she has to pass the G.N.C. examination whether she has the R.M.P.A. certificate or not.]

21. The G.N.C. examination system could not generally replace the R.M.P.A. system for the purpose of the "local authority" grading of nurses, especially as regards male nurses. *The difficulty of providing the training in bed-side nursing required by the G.N.C. preliminary examination is fully borne out by the Report of the Departmental Committee on Nursing in County and Borough Mental Hospitals (England and Wales) dated July 25, 1924 (vide pp. 16 to 20).* The report on the Questionnaire referred to in para. 2 of this letter confirms this, and details other reasons for the non-adoption of the G.N.C. examinations which the Council of the Association thinks are conclusive.

Para. 21. It is thought probable that the words "bedside nursing" have been differently interpreted. The General Nursing Council, under this term, require for the Preliminary Examination elementary bedside nursing involving the bodily care of the patients, bedmaking, washing, etc., and not necessarily experience of any form of acute illness. Further details such as the question whether "general duties" and "first-aid" could be included in the Preliminary Examination are matters for consideration and consultation. They are not matters which affect the basic principle of the independence of the State Examinations. The inclusion of mental nurses in the Preliminary Examination has made it necessary to exclude from that examination many subjects which for the general nurse and other special nurses might with advantage be included.

[Nobody needs to be in any doubt as to what nursing knowledge and experience is required of the nurse for the G.N.C. Preliminary Examination. A list of the equipment required for the practical nursing examination is conclusive on these points. It is absurd to refer to these as "elementary." This knowledge and experience have to be acquired within the first twelve or fifteen months' service and experience have handicapped at the Preliminary Examination. If the Preliminary or the nurse is much the Final is delayed, and the grading of the probationer as a staff nurse and increase of pay are also delayed. Surely the facts are plain.]

22. To secure registration the certificated mental nurse had there-fore to comply with the training and examination regulations of the General Nursing Councils.

23. The Report of the Royal Commission on Lunacy and Mental Disorder (England and Wales) quite rightly animadverted on this obvious anomaly.

24. Your Council apparently viewed the situation with equanimity, and took no steps either to inquire why this anomaly existed or how it could be remedied. It was left to the Association to do this.

25. Furthermore the mental hospital nurse and the local authorities were not persuaded that there were any advantages in State registration, despite the fact that the Association was always a loyal supporter of this policy and had used all its influence to have mental nurses included in the Nurses' Registration Act. It may be recalled that on June 13, 1907, the Association sent to the Prime Minister a petition in favour of the State Registration of Nurses signed by 8,150 persons—a policy then strongly opposed by many leading physicians, general hospital matrons and nurses and their organizations [e.g., the Deputation to the Lord President of the Council on June 14, 1906].

26. Thus it came about that a feeling took root in the Association that a closer co-operation with the General Nursing Councils might remove the difficulties mental nurses were experiencing in their efforts to reach the State register—some inherent and peculiar to the public mental hospital.

27. The General Nursing Councils seemed of themselves unable to meet the situation, being bound to a formula, "the one-portal entry," which, curiously, also bound the Association, but in a different way.

28. The only solution which seemed possible under the circumstances was for the Association to offer to adapt its educational machinery to the requirements of the General Nursing Councils for the purposes of the State registration of mental nurses as far as the exigencies of employment in mental hospitals would allow.

Paras. 24, 25. The Council have not viewed with equanimity the failure of the mental nurses to enter in larger numbers for the State Examinations. It is a cause of anxiety to the Council as well as to the Royal Medico-Psychological Association. The Council realize that patience is required until the full advantage of registration and membership of a profession affording a definite legal status has been brought home to the nurses in training in mental hospitals through the authorities in charge of those hospitals.

[Whether the Council has "viewed" or has "not viewed," it took no appropriate action. The R.M.P.A. did this and sent out a questionnaire and a summary of the G.N.C.'s regulations. In this questionnaire the R.M.P.A. and G.N.C. examinations received equal treatment. Information merely advantageous to the R.M.P.A. was not the object of the questionnaire.]

See Para. 9.

certain voluntary services in place of much they now paid for and reclaimed from the mental nurse in fees, and perhaps lighten the load of sick nursing requirements for the Preliminary Examinations and other adjustments of subjects between the two examinations, particularly in regard to "General Duties" and "First Aid," which the Association thinks are a vital part of a probationer mental nurse's training.

Para. 29. It is the opinion of the Council that nurses should no longer depend solely on examinations conducted by voluntary bodies and voluntary examiners. The small fees charged by the Royal Medico-Psychological Association are insufficient to provide an independent examination, and moreover the fact of having passed that examination does not grant a legal status to the nurse. In their own interests the mental nurses should undoubtedly be prepared to meet the expense of an independent examination.

If and when it becomes possible to reduce the fees, the Council fully intend to do so, but they would remind the Royal Medico-Psychological Association that the sum was originally fixed at 7 guineas—5 guineas for the two examinations and 2 guineas for registration—and that as this was found to be more than was required, it was reduced to 5 guineas, the registration fee being for the sake of convenience included with the fees for examination. The mental nurses, though the highest paid, are the only branch from which objections to the fees have arisen.

[R.M.P.A. examiners receive a fee which covers all personal expenses. The services of the examiners are voluntary in some respects only. In other respects examiners are paid a fee proportionately to work done. The Association has no expenditure in regard to the places where the examinations are held; this is perhaps the main economy. The local authorities foot this bill. Nurses are expected to pay a reasonable fee for examination, certificate and registration, and if this can be done economically, why shouldn't it?]

30. And so it came about that the Association passed the resolution of November 17, 1927, and which has given rise to this application.

31. So much for the "Why?" of that resolution. Now as to "How?"

32. The resolution of November, 1927, asks for the recognition of the Association's mental nursing certificate for the purposes of

Paras. 32, 33. From the very first the Council have declined, as already stated in the replies to Paragraphs 1 and 6, to accept the

State registration. The terms of acceptance submitted for consideration are :

(1) To be without prejudice to any examination in mental nursing the General Nursing Councils may think fit to hold.

(2) The R.M.P.A. examinations to be subject in the future to such supervision and standards as the General Nursing Councils may think fit to impose.

33. These mean (1) that the Association very properly leaves the question of continuance or cessation of the G.N.C. mental nursing examinations entirely to these bodies to decide. It is their business and not that of the Association. As to (2), it means that the Association offers to conduct qualifying examinations for the purpose of State registration which will satisfy regulations imposed by the General Nursing Councils and be open to their supervision.

34. The Advisory Sub-Committees of the Association to the General Nursing Councils will continue to function, and it is hoped that their advice will be considered regarding both preliminary and final examinations qualifying for entry to the Mental Nurses' Section of the State Register.

35. The Royal Medico-Psychological Association will also accept such examinations as qualifying for its register and certificate in mental nursing, thus solving the vexed question of duplication of examinations in Great Britain and Northern Ireland.

36. The Royal Medico-Psychological Association will withdraw its certificate from those nurses holding it whose names are removed from the State register for unprofessional conduct.

certificate of any other body for registration, except during the period of grace.

Para. 34. When occasion arises the General Nursing Council will no doubt be glad of the advice of any expert body.

37. The Committee on State Registration seeks an interview with your Council to make this application in person, and to discuss matters arising out of the proviso of the Association's resolution of November, 1927. The Chairman of the Committee is Prof. G. M. Robertson, and the Secretary Dr. W. M. Buchanan, who will shortly approach you in the hope of fixing a date on which your Council may be disposed to receive the Committee.

In conclusion, the Council of the Association has decided that it will not recommend the Association to ratify any proposed agreement which will not be reasonably retrospective in its operation.

Yours faithfully,

J. R. LORD

(for the General Secretary).

*To the Secretary of the
General Nursing Council for
England and Wales.*

Concluding paragraph.—The Council wish to emphasize the fact that the period of grace was fixed in the rules, and was very widely advertised, and that to re-open the Register to "Existing" and "Intermediate" nurses without examination would not only create confusion but would be unfair to those many thousands of nurses who, since June, 1925, have registered by examination. The Council can but repeat their opinion that the advisability of taking the State Examinations has not been sufficiently made known to the nurses in some of the mental hospitals, and they note that no adequate explanation was offered by the representatives of the Royal Medico-Psychological Association for the failure of the majority of mental nurses to enter for the State Examinations in order to become State registered.

["Reasonably retrospective" is stated. The Association has no sympathy with those nurses who had the opportunity of State registering and who failed to do so. The Association does not expect the Council to register any nurse not qualified by examination and would strongly oppose it.]

CONCLUDING COMMENTS BY GENERAL SECRETARY.

In conclusion it is obvious that no material point in the Royal Medico-Psychological Association's letter has been refuted or damaged, and if this is all the General Nursing Council can advance against co-operation with the Royal Medico-Psychological Association, the General Nursing Council has a very poor case. The replies to our Questionnaire are practically ignored.

The Royal Medico-Psychological Association's system of training and examination has been a development of years. It has been purposely designed and moulded to meet the special circumstances and requirements of the mental hospitals, and for which the Association and local authorities have a joint responsibility. The former could not have developed or maintained the system without the sympathy, encouragement and co-operation of the latter.

Certain essential requirements of the mental hospitals and local authorities in respect of training and examination of nurses are :

(1) The allotment of subjects as between the Preliminary and Final Examinations, so that the former can act as a filter as regards temperament and general suitability, and be a test of knowledge and experience that a mental nurse should acquire during the first 12 to 15 months of training.

(2) Candidates should not be required to leave the hospital for examination except to a hospital or centre in the neighbourhood. This is to avoid dangerous depletion of the nursing staff at these times. Under the best circumstances a large number of nurses cannot be absent without inconveniencing the hospital administration both as regards staff and patients.

Any system of training and examination of mental nurses which does not meet these two requirements cannot hope to be universally adopted.

Now, the scheme of training and examination of the Royal Medico-Psychological Association is specially designed to satisfy these essential requirements. Surrender on these two points should not be required to enable trained nurses to be eligible for State registration. Yet this is just what the training and examination scheme of the General Nursing Council demands. The General Nursing Council in adopting a rigid one-portal system of entry to the nursing profession had to sacrifice the interests and convenience in some degree of every kind of nurse. The least to be sacrificed was the general nurse and the most was the

mental nurse. When the terms of entry were made known it was obvious that the latter had fallen a victim to extreme idealism.

(a) "General Duties of Nurses in a Mental Hospital" and "Accidents and Emergencies" were omitted from the Preliminary Examination in favour of an examination in surgical nursing (written and practical). The preliminary training as a rule would take 18 months, and if a mental nurse hoped to pass it was essential that during this period she should take her 6 months' training in bedside nursing.

(b) The oral and practical examinations were invariably to be held at the General Nursing Council's examination centres, and also the written examinations except under special conditions, one being that 25 candidates must be guaranteed.

The General Nursing Council still shuts its eyes to the essential facts of the situation. It *will* view mental hospitals in the same light as it does general hospitals and the care of mental patients in the same light as that of sane patients. It will not provide an examination which in practice can meet the local authorities' needs for the grading of nurses. So the Royal Medico-Psychological Association will have to continue its examination if only for this reason. The nurse will continue to pass almost a duplicate examination if she desires to be State registered. So the responsibility for the future for this duplication rests entirely with the General Nursing Council, since an adjustment of the fees of the Royal Medico-Psychological Association's examinations or the preaching of the advantages of registration will not remove the essential difficulties here pointed out. Only a recasting of the administration and syllabus of the General Nursing Council's examinations on the lines of those of the Royal Medico-Psychological Association will meet the situation, and it is plain that the General Nursing Council cannot do this so long as it maintains the invariability of the subjects for its one-portal entry.

Rigid idealism must surrender to practical necessity if the intentions of the Legislature are to be carried out.

The only practical solution, having regard to the attitude the General Nursing Council intends to maintain, is the proposal submitted by the Royal Medico-Psychological Association.

J. R. LORD
(for the General Secretary).

APPENDICES TO ASSOCIATION'S APPLICATION.

I.

Copy of Letter to the Ministry of Health.

SPRINGFIELD MENTAL HOSPITAL,
TOOTING, S.W. 17;

December 28, 1927.

SIR,

I beg to inform you that at a General Meeting of the Royal Medico-Psychological Association held on November 17, 1927, the following motion was proposed by Professor G. M. Robertson, M.D., F.R.C.P.E., and seconded by Lt.-Col. J. R. Lord, C.B.E., M.D., F.R.C.P.E., and adopted by a large majority :

" Arising out of the Report of the Royal Commission on Lunacy and Mental Disorder (p. 107, para. 102) and in accordance with the recommendations of the Report of the Select Committee on Registration of Nurses (para. 32), it is resolved that the Royal Medico-Psychological Association makes every endeavour by negotiation, or failing that, by obtaining the insertion of a provision in any new Lunacy Bill, to secure that the possession of the Certificate of Proficiency in Mental Nursing of the Association entitles the holders thereof (both present and future) to be registered, on payment of the fees, in the Mental Section of the Registers of Nurses of the General Nursing Councils, and to enjoy all the privileges of registered mental nurses ; this to be without prejudice to any examination in mental nursing which the General Nursing Councils may think fit to hold, and to be subject in the future to such supervision and standard as the General Nursing Councils may think fit to impose, as in the analogous case of the General Medical Council and medical professional examinations."

And further, that a Special Meeting of the Council of the Association will be held sometime during the last week of January to consider what steps should be taken to carry out the policy of the Association, as embodied in this resolution.

For the information and guidance of the Council on this occasion, will you please inform me :

(1) By what machinery the Rules of the General Nursing Council can be amended or revoked, (2) whether the same procedure under the Nurses' Registration Act of 1919 by which rules are made can be used to amend or revoke them, (3) or whether an amendment to the Nurses' Registration Act would now be necessary

before the General Nursing Council could accept the Certificate of Proficiency in Mental Nursing as qualifying for admission to the Supplementary Part of the Register for Mental Nurses.

I am,

Sir,

Your obedient servant,

R. WORTH,

General Secretary.

The Secretary,
The Ministry of Health,
Whitehall, S.W. 1.

(The Reply.)

MINISTRY OF HEALTH,
WHITEHALL, S.W. 1 ;

20 January, 1928.

Reference 11308/3/27.

SIR,

I am directed by the Minister of Health to refer to your letter of the 28th December, forwarding a resolution adopted at the meeting of your Association on the 17th November, and requesting information regarding the procedure requisite for an amendment of the Rules made by the General Nursing Council.

In reply to the first two questions raised in your letter, I am to state that the procedure for amending or revoking a rule is the same as that for making a rule under Section 3 of the Nurses' Registration Act, 1919. With regard to the third question it is regretted that a reply cannot be given at this stage. I am to explain that it is for the General Nursing Council to formulate any new rule on the subject, and that until such a rule is formulated the Minister cannot undertake to express an opinion on the question whether it would or would not be permissible under the terms of the present Act.

I am, Sir,

Your obedient Servant,

(Signed) L. V. Brock.

The General Secretary,
Royal Medico-Psychological Association.

II.

Counsel's Opinion for the Royal Medico-Psychological Association.

I understand that my opinion is desired on the following questions, *viz.* :

1. Whether it is within the power of the General Nursing Council for England and Wales to alter or add to the Rules which have been made by them under Section 3 of the Nurses' Registration Act, 1919, and have, after the prescribed approval and procedure, become effective.

2. Whether it would be within the power of the General Nursing

Council under Section 3 of the Act of 1919 to make a new rule or to modify their existing Rules so as to admit of the acceptance of examinations conducted by the Royal Medico-Psychological Association as qualifying for admission to the supplementary part of the Register containing the names of mental nurses.

1. In my opinion the General Nursing Council have power not only once and for all but from time to time to make Rules for the purposes enumerated in Section 3 (1) of the Acts of 1919. This power extends to the alteration of existing Rules, as well as to the making of new Rules, as occasion may require. The approval of the Minister of Health would be necessary in the case of any change and the prescribed Parliamentary procedure would require to be followed.

2. The General Nursing Council is by Section 3 (1) of the Act of 1919 required, and therefore empowered, to make Rules *inter alia* "(b) for regulating the conditions of admission to the Register." Subsection (2) of Section 3 requires the Rules to contain provisions relating to certain matters not affecting the present question, but otherwise the Council's power of prescribing the conditions of admission to the Register is not fettered in any way. There is no statutory requirement that examination shall be a pre-requisite of admission. The Council are no doubt required to make Rules "(c) for regulating the conduct of any examinations which *may* be prescribed as a condition of admission to the Register," but they are nowhere required to prescribe any examination as a condition of admission. I am therefore of opinion that the General Nursing Council under their general power to make Rules regulating the conditions of admission to the Register are entitled to make a Rule admitting to registration mental nurses who possess any qualification which the Council may deem satisfactory, including the qualification of having passed the examinations of the Royal Medico-Psychological Association. To such recognition the General Nursing Council may of course attach such conditions as regards standards and supervision as they may think fit. There being no express duty imposed on the General Nursing Council themselves to conduct any examinations, I do not think that any question arises as to their power to delegate to any appropriate body the conduct of qualifying examinations, on such conditions as they please.

In the case of the Scottish General Nursing Council the position under the Nurses' Registration (Scotland) Act, 1919, is in my opinion the same.

(Signed) H. P. MACMILLAN.

20, Abingdon Street,
Westminster, S.W. 1 ;
27th February, 1928.

Part II.—Reviews.

Colour and Colour Theories. By CHRISTINE LADD-FRANKLIN.
London: Kegan Paul, Trench, Trubner & Co., 1929. Demy 8vo.
Pp. xv + 287. Price 12s. 6d.

The topic of this book is the Ladd-Franklin theory of colour. Ladd-Franklin supposes that the first response of a rod or cone to light is a purely chemical reaction. She postulates that a light-sensitive "mother-substance" in the rods and cones is decomposed by the action of light, and gives off cleavage products which arouse the vital activity of the rods and cones, and thus start nerve currents coursing towards the brain. In the "first stage," she supposes, a single big cleavage product, which we may call *W*, is split off by the action of light upon the mother-substance, and the vital response to *W* is the sensation of white.

In the second stage, the mother-substance is capable of giving off two smaller cleavage products, *Y* and *B*. *Y* is split off by the long waves of light, and *B* by the short waves, and the vital response to *Y* is the sensation of yellow, that to *B* the sensation of blue. But suppose that, chemically, $Y+B=W$, that is, $R+G+B=W$, then if *Y* and *B* are both split off at the same time in the same cone, they immediately unite into *W*, and the resulting sensation is neither yellow nor blue but white.

Similarly in the third stage, the mother-substance is capable of giving off three cleavage products, *R*, *G* and *B*, and there are three corresponding vital responses, the sensations of red, green and blue. But chemically, $R+G=Y$, and therefore, if *R* and *G* are split off at the same time, they unite chemically as follows: $R+G=Y$, and $Y+B=W$; and therefore the resulting sensation is that of white.

The editor states that Dr. Ladd-Franklin has been the first physiologist to consider colour always in the light of the development of the colour sense. This is not the case. My theory of colour-vision, which is an evolutionary one, was given several years before Ladd-Franklin wrote on the subject. It will probably help the reader if the two be contrasted. I propounded that the first sensation was light and that colour sensations became subsequently developed, the first colours to be seen being red and violet, corresponding to the rays which are physically most different in wave-length. We should now have an individual who would see the spectrum nearly all a uniform grey of different degrees of luminosity, but with a tinge of red at one end and a tinge of violet at the other. As the colour sense developed, it was not necessary

that the rays should be so far apart before a difference was seen, so the two colours, red and violet, gradually encroached on the grey band until they met in the centre of the spectrum. A third colour then appeared, namely green, and the colour-sense now assumed a trichromatic form, red, green and violet being seen in the spectrum. In the next stage a fourth colour, yellow, replaced the red-green of the trichromatic, then in further stages blue, orange and indigo were developed.

In my theory the visual purple is the visual substance and the rods are not percipient elements, but regulate the sensitiveness of the photo-chemical film by diffusing the visual purple into the liquid surrounding the cones, vision taking place through photo-chemical decomposition of the visual purple by light, which sets up nerve impulses in the cones.

Ladd-Franklin is a strong advocate of the duplicity theory which assumes that the rods are percipient elements in a faint light. Helmholtz and Nagel stated that there was no evidence that the rods were percipient elements. Apart from the numerous facts against the duplicity theory, it will be found that it is supported almost entirely by mis-statements, namely, (1) that certain animals have only cones and others have only rods; (2) that the periphery of the retina is colour-blind; (3) that the eye is totally colour-blind in dark adaptation; (4) that the Purkinje phenomenon and the recurrent image are not found with the fovea. With regard to these I offer the following criticisms:

1. Though I have examined numerous collections I have never been able to find any animal with only rods or only cones, neither have I found anyone who has seen such a retina. The tortoise is the most quoted; it is stated to have only cones. The rods and cones in the retina of the tortoise are as clearly defined and distinct as in the human retina.

2. The periphery of the retina is not colour-blind when colours of sufficient intensity are used. The reader can test this for himself with a doctor's red lamp. He will find he can see it as red to the extreme periphery.

3. In dark adaptation the eye is not totally colour-blind. Further, there is no scotoma or blind area corresponding to the rod-free portion of the macula, which is equal to a visual angle of about three degrees.

4. The Purkinje phenomena and recurrent image are found with the fovea. Hess showed not only that the recurrent image was found with the fovea, but also that it was bent outwards at this region as it would be if the visual purple had to flow into the fovea.

Sufficient attention has not been paid to subjective experiments. It is forgotten that all our sensations are subjective. The duplicity theory entirely fails to explain the change in position in the field of vision of after-images on movement of the eye. Two after-images may combine into one, or a red after-image may go right through a green one. This proves conclusively that the stimulus is liquid. (See the very able paper by Ferree on this point.) Hartridge is quoted as stating that the Young-Helmholtz theory explains the

facts of colour-matching and of complementary colours as well as that of Ladd-Franklin, and that in the case of colour-blindness neither of the theories explains anything.

The facts of colour-blindness are so inconsistent with the old theories that it has been extraordinarily difficult to get them recognized. For instance, it took me twenty-five years to establish the fact that colour-blind people can get through the wool test, though 50% of the dangerously colour-blind can pass this test even with the use of five test colours; see statistics of Board of Trade. No attempt has been made to explain this fact. The large class of the trichromic who see only three colours in the spectrum, red, green, and violet, yellow being seen as red-green, is not mentioned. If all mankind were like this there would be no such colour as yellow. Defects of light perception should be distinguished from defects of colour discrimination. For instance, a man with good colour discrimination may have shortening of the red end of the spectrum and fail to see a blazing red light when it consists only of the waves in the shortened portion. See report of British Association Committee, 1927.

Ladd-Franklin assumes that the colour of the dichromic at the red end is yellow. This has not been so with the cases I have examined. The colours seen have been red and violet in monocular cases and cases of temporary colour-blindness. There are many dichromics bordering on the trichromics who in favourable circumstances see three colours, red, green and violet, and in ordinary circumstances red and violet. In cases where yellow is much the brightest, as for instance in the spectrum, it may be chosen.

Ladd-Franklin quotes Pole as an example, but Pole writes as follows: "The full red by gaslight is to me a most superb colour. Dalton could never bring himself to believe it was really a yellow sensation. I have heard other colour-blind persons declare it to be a red which only appears in that way; and although I myself cannot detect any new colour-sensation in it, I am obliged to admit that, as yellow, it is extraordinarily saturated and powerful." When red and yellow are made of equal luminosity the red is selected as the representative colour.

F. W. EDRIDGE-GREEN.

Epidemiology, Old and New. By Sir WILLIAM HAMER, M.D., F.R.C.P. London: Kegan Paul, Trench, Trubner & Co., 1929. Demy 8vo. Pp. 175. Price 9s. net.

This little work, which is an expansion of the Chadwick Lectures of 1928, deals mainly with the history of influenza and of its settings in the last five centuries. The descriptions of prevalent continued fevers have from time to time become confused owing to the appearance, in the course of epidemics, of aberrant forms, which in recent years at least have tended to be described as special entities. In the time of Sir William Jenner,

the three main continued fevers—typhus, typhoid and relapsing fever—seemed to have been crystallized out of the chaos, but he found some difficulty in interpreting the history of past epidemics on the basis of these, plague and smallpox having been the elements into which the prevalences must be resolved. Graves had found difficulty in interpreting the occurrence of gastric, cerebral and pulmonary symptoms in the fevers generally described as typhus in his time. The possibility of influenza as another fever or group of fevers seems in the past to have been strangely overlooked. It is necessary now to talk of groups of fevers rather than of a fever, for with the ascendancy of bacteriology at the moment each fever is being split up. Several organisms give rise to variants of typhoid, several spirochætes have been associated with relapsing fevers and more than one typhus has been described. A study of the history of sweats and influenzas shows not only predominant forms, but various aberrant forms appearing chiefly just before a pandemic or as trailers after an outbreak.

Preceding the great outbreak of influenza in 1918–19 there had been some trailing cases throughout. An outbreak of poliomyelitis in Sweden had been associated with influenza by Brorström and a similar association had been suspected to occurrences of cerebro-spinal fever in Glasgow and Belfast in 1907. In 1915 cerebro-spinal fever assumed epidemic proportions in London, and the cases showed a history of recent attacks of influenza or of contact with influenza much greater than would have been the case from mere chance. A similar association was noted in the great prevalence of poliomyelitis in New York in 1916. Then came the disease first termed “botulism,” then “an obscure disease with cerebral symptoms,” later “encephalitis lethargica”; and lastly the fully recognized influenza. There had been a series of epidemics of disease in various institutions in 1917–18 variously notified as dysentery or typhoid which did not conform to type and were suspected to be gastro-intestinal influenza; and being followed by clearly demonstrable influenza, they must really have been examples of that condition. Following the pandemic were trailers of encephalitis, influenzas with cerebro-spinal symptoms, prevalences of dengue in America and Calcutta, with regard to which an American author wrote of their resemblance to influenza. There was an outbreak of Heine-Medin disease in Germany, a disease with myoclonic twitches and mental confusion with headaches in Minnesota, epidemic hiccough in Winnipeg, and a new disease in Japan. It is clear then that, as pointed out in the report of the Ministry of Health, “there are concurrences, similarities and inter-relationships between outbreaks of cerebro-spinal fever and poliomyelitis, and outbreaks of influenza, bronchitis and pneumonia.” It was also noted that as encephalitis became a favourite diagnosis the cases of notified cerebro-spinal fever fell off, so that possibly some cases called encephalitis in later years might have been termed cerebro-spinal fever in earlier years.

Tracing back the history of influenzas and sweats, the author finds the same phenomena throughout: each major epidemic being

preceded and followed by references to cases of diseases, often looked upon as new, with obscure nervous and mental symptoms. In the earlier years sweats are associated with brain fevers, comatose fevers and lethargies. It is also clear that there was an increase in deaths ascribed to typhus or relapsing fever at the times of the prevalence of disease of the influenzal type. He compares the recent events with those described by Sydenham and shows how closely they resemble one another. This leads to the suggestion that there may be an underlying cause, one common disease which shows itself in different forms at different stages of an epidemic. From this the lesson is to be drawn that in investigating a disease, or group of associated diseases, it is necessary not only to study each supposed entity, but the whole association to find the common factors which may lead to the changes, whether in the seed or the soil. The factors and association are described as settings in modern reports, but are the same as Sydenham's concept of "epidemic constitutions" of various years. Apparently disease types can change from the manifestations in the trough between pandemics to those at the peak, in such a way as to suggest that they are quite different ailments, but when studied in historic perspective the associations are such as to indicate a common factor, a factor that can be studied in the field more readily than in the laboratory. The association of conduct disturbances with influenza, and with the epidemic diseases of the nervous system linked with it, makes the subject of special interest to psychiatrists.

F. C. SHRUBSALL.

Health, Disease and Integration. An Essay Based on Certain Aspects of Encephalitis Lethargica. By H. P. NEWSHOLME, M.D., F.R.C.P., B.Sc., D.P.H.Lond. London: G. Allen Unwin, Ltd., 1929. Demy 8vo. Pp. 327. Price 12s. 6d. net.

No one who has watched the change in opinion which is following the decline of the materialistic philosophy will be surprised that a book of this kind should appear. It is the first time, however, that materialism has been flouted in the house of its friends, for whatever the opinions of individuals might be, the medical profession has been for long one of its strongholds.

It is not for a moment suggested that the book was written with any such purpose, but there was a time, within the memory of many of us, when its publication would have been inconceivable. Further, it is in several respects at variance with the methods of the previous century. Two examples will suffice to explain what is meant. (1) Anything savouring of mysticism or religion in medical literature was abhorrent to nineteenth century standards; in this book the influence of religion, spirit and mind on health and on disease are freely discussed. (2) In the past century cause and effect were regarded as separate and independent phenomena, connected certainly, but neither co-terminous nor synonymous; in the book

before us they are treated as a complex of varied and often contemporaneous events.

The essay is admittedly speculative, but its speculations are not irrelevant; many of them are based on bacteriology, cytology, immunity and metabolism, subjects with all of which comparatively few readers can claim to be familiar.

The arguments which sustain the essay are discursive and scattered broadcast up and down its pages; it appears preferable, therefore, even at the risk of wrenching them from their context, to present them in series as follows:

There exists, normally, a state of balance between the katabolic action of the nervous system on the one hand and the anabolic action of the somatic tissues on the other. To and fro across the mean position of this balance there is a constant sway. When the sway is towards the katabolic side there is a tendency to leanness and wasting; when towards the anabolic side to fatness and grossness. When the balance itself shifts more or less permanently to one side or the other the individual becomes abnormal, with a small margin between him and ill-health and with a reduction in the elasticity of his reaction towards disease. In certain diseases a pathological, periodic swing of the balance may be observed.

This neuro-somatic balance depends ultimately upon the psychical mechanism, proximately upon the nervous system. It may be upset by extrinsic agencies such as infection or by intrinsic causes. Thus the occurrence of mental traumata, such as shock, fear or suppressed emotion, diverts mind from the control of abstract thought and of the nervous mechanisms of the body. This is followed by disturbance not only of the neuro-somatic balance, but also of the relations between spirit, mind and body.

The nerve-cells form katabolic enzymes and the somatic-cells anabolic enzymes. Pathogenic bacteria are classified into two corresponding groups, each group forming its own enzymes which are either katabolic (toxic) or anabolic (suppurative). These two bacterial enzymes have affinities for nervous and for somatic tissues, respectively. It is these enzymes (ultra-microscopic viruses), not the bacteria themselves, which are the extrinsic agencies in disease.

Psychical influences affect the production of the cellular enzymes of the body, and suppressed emotion can transform certain of the harmless saprophytic organisms of the body into virulent bacteria which are transmissible in the ordinary way to other people. The body enzymes can modify or arrest the specific virulence of bacterial enzymes, and in this way may produce immunity.

"Our present views on the ætiology of disease, and particularly of infectious disease, are largely dominated by the conception of physical action on the body by an invading organism; and although we pay lip service to the importance both of soil and of seed we have concentrated chiefly on the seed and on a partial (physical) aspect of the soil . . . it has been to a considerable extent forgotten that the individual . . . is body, mind and spirit, and that the robustness of his personality depends on a steady balance between these several aspects of his life" (p. 125).

" It appears to me that much, if not all, disease, regarded from the aspect of its psychic constituent, may be found to be fundamentally a swing to the somatic or corporeal side, arising at its root from a refusal of the highest faculties; a drop, that is to say, towards the fleshly or material and away from the intellectual or spiritual side " (p. 180).

After referring to the theological view of sin as a rebellion or the assertion of self-will, the author proceeds—" The factor of a rebellion of the will, of assertion of self-will, underlying the particular cases of disease here under review, may have its reverberations on a number of planes of individuality. It may be a factor of sin, in the broader sense, on the spiritual plane reflecting itself in deviations from the normal on the intellectual, emotional and mental planes and then, in turn, in dislocations on the plane of bodily activities and health " (p. 231).

No definition is vouchsafed of the terms " spiritual " and " psychical " which occur so often in the text. They are used in one place in the Bergsonian sense of the spirit of creative evolution; in another as the indwelling spirit of man which touches nature on one side and the unseen spiritual power of the universe on the other; and in yet another place in the theological sense of the soul which may or may not be in communion with God. That the last is the meaning the author attaches to them is probable from the context as well as from the following quotation :

" Medicine is usually regarded as being concerned primarily with the health of the body and the mind. But if the health of both depends ultimately on the health of the spirit then medicine to be effective in its proper domain must be ultimately interwoven with the art and science of religion " (conclusion).

The essay opens with a dissertation on 12 cases of encephalitis lethargica. Two or three of the cases were anomalous in respect that there was, probably, no specific infection. Specific infection in other cases is not denied, but it is denied that every manifestation of the syndrome is due to specific infection or that all the cases which present the syndrome have had a specific infection.

From encephalitis lethargica the author goes on to apply the same type of reasoning to anterior poliomyelitis and from that to various other diseases including tuberculosis, rheumatism, acute infections, cancer, leukæmia, epilepsy and insanity. The arguments used have been set forth at some length already and need not be repeated; nor is it necessary to follow them through the long list of diseases dealt with.

With regard to epilepsy and insanity it is a pity that Dr. News-holme's acquaintance with psychiatry is merely literary, for some of his theories bear upon problems which have exercised us for a long time, and, to some extent, illumine them. As it is his imperfect knowledge does not enable him to seize what—to us—are obvious opportunities.

The responsibilities of the reviewer of a book of this description are unusually onerous. It marks a complete breach with a past in which most of us have had our spiritual home and it introduces a

subject into medical discussion which, from a sense of propriety, we have been accustomed to exclude.

This novel attitude cannot be brushed aside as an isolated eccentricity. We must remember that we are passing through a crisis which is revolutionizing science and that medicine cannot much longer remain unaffected—indeed this book may be the writing on the wall. It is also probable that we are rebounding from materialism, back to a form of idealism not unlike that of our forefathers; in that case the introduction of religious ideas into medical literature will excite no more comment than does the present adoption of Kantian idealism by some physicists.

The construction of the book is somewhat involved, which does less than justice to its undoubted merits and throws an unnecessary strain upon the attention. The essay is, however, courageously conceived and ably sustained; it ought to be widely read even by those who may be unable to agree with its conclusions.

JOHN MACPHERSON.

Methods and Uses of Hypnosis and Self-Hypnosis. By BERNARD HOLLANDER, M.D., M.R.C.S., L.R.C.P. London: George Allen & Unwin, Ltd., 1928. Cr. 8vo. Pp. 191. Price 6s.

In his new book *Hypnosis and Self-Hypnosis*, Dr. Hollander puts forward a strong plea for the extended use of this form of psychiatric treatment. Thirty years study and practical experience of this subject entitles the author to a fair hearing, and the reader cannot fail to be convinced of his sincere belief in this form of therapy for physical and moral ills.

The book begins with an explanation of universal suggestibility and the subconscious mind, suitable for the lay reader. The author maintains throughout that the task of the physician is to train the latent forces and talents of the subject in the desired channels, freeing the trends for good and towards health which are fettered by subconscious inhibitions. By these methods Dr. Hollander states that he has enabled many patients to fill responsible positions, who otherwise would have remained useless, inhibited individuals.

Dr. Hollander believes that "what mind can cause, mind can cure," and he considers that hypnosis is one of the best means of getting in touch with the contents of the subconscious mind and of teaching the subject to use this store to its greatest effect and thereby to accomplish what the conscious mind has failed to achieve.

The method advocated is to induce, not sleep, but merely a state of unawareness. Conscious cortical control being in abeyance, the subconscious content is set free and becomes available for analysis and subsequent suggestion. Dr. Hollander stresses the importance of creating the right emotional background and the imperative need for re-education. He considers that suggestion acts through the vegetative nervous system, the higher control being temporarily suspended. He emphasizes the need for other therapeutic measures whenever indicated.

The author believes that many relapses arise from a failure on the part of the physician to consider the home conditions and to ensure the patient's adaptation to them whenever possible.

The book seems to be written more for the lay public than for the medical man, for no scientific explanation is attempted of any of the phenomena or experiments quoted. D. N. HARDCASTLE.

Psychology from the Standpoint of a Behaviourist. By JOHN B. WATSON, Lecturer on Psychology, New School for Social Research. Third Edition revised. J. B. Lippincott Company, 1929. Pp. xvii + 458. Price 12s. 6d. net.

The first edition of this book was published in 1919, and was reviewed at some length in this Journal (lxvii, Jan., 1921, p. 64). The present now includes a number of changes in the original text and some additional material. The first nine pages are new. Much of the section on vision is rewritten, and has been prepared by a specialist in this subject, Prof. Johnson of the Ohio State University. Much new material is given in the chapter on glands, and the author's experiments on the conditional reaction are included, as well as a more detailed analysis of thinking—a process defined in this volume as "implicit language activity or other activity substitutable for language activity."

In the preface (written in 1924 for the second edition), Dr. Watson observes that since his book was first published, behaviourism has been passing through an emotional and logical evaluation, and that whether it is to become a dominant system of psychology or to remain merely a methodological approach is still not decided. It is difficult to see how behaviourism can become the dominant system in psychology until objective methods are devised which will supply information at present only obtainable by introspection. No purely objective method enables us to read or "photograph" the thoughts of others, nor is the process of thinking fully covered by the term "implicit language activity." Thus, visualists think largely in image-pictures—definitely private experiences, the contents of which can only be revealed by their subjects. It is true that recent work at the Maudsley Hospital shows that it is possible to discover by instrumental methods whether the subject thinks in words or in images, but the content of thought is not revealed by these methods. It has been suggested that Dr. Watson himself does not possess the faculty of visualizing; hence his view that practically all natural thought goes on the lines of sensori-motor processes in the larynx. Since, then, visual imagery is an important component of the thinking of many individuals, there are some facts of importance of a peculiarly "mental" nature which the psychologist cannot know about except by information obtained from the subject. It should be mentioned that Dr. Watson admits the necessity of the verbal report or self-observation method in many spheres of psychology, and especially in psychiatry, though he

emphasizes its untrustworthiness for scientific purposes. He admits, also, the value of dream study and analysis. From the practical point of view, indeed, the psychiatrist will find little reason to quarrel with the behaviourist, since the psychological methods employed by the latter are such as the former is accustomed to employ in the study of his clinical material.

Though Dr. Watson may exclude from his system certain problems which other psychologists consider interesting and important, there is no doubt that he has made positive contributions to psychology of considerable value. The behaviourist school has given a new orientation to psychology and has done much to rescue it from the morass of subjectivism in which it was formerly entangled. This book may be recommended to the student as a useful introduction to psychology. It cannot now be regarded as revolutionary, for behaviourism has become thoroughly respectable. H. D.

Stammering: A Psycho-analytic Interpretation. By ISADORE H. CORIAT, M.D. Nervous and Mental Disease Monograph Series, No. 47. New York and Washington: Nervous and Mental Disease Publishing Company, 1928. 8vo. Pp. viii + 68. \$2.

In Chapter I the author reviews various theories of stammering and refutes them, chiefly on the ground that they deal with effects and not causes. We can agree with his own view that "stammering is pre-eminently a nervous disorder and not a mere speech defect" (p. 2). But when he suggests that "the term 'stammering' be dropped from our descriptive classification and the term 'oral neurosis' be substituted in its place" (p. vii), one is inclined to think that he forgets that there are other possibilities of oral neurosis besides stammering. Stammering, however, may certainly be regarded as a variety of "oral neurosis."

Dr. Coriat writes in his introduction, "The conception of stammering in these pages is consequently not a mere theoretical speculation or a philosophical system of ideas, but is the result of practical experience in psycho-analysis" (p. vii). If we look through the book for evidence of the "empirical method which was preferred by Freud in the presentation of analytic doctrines and in the development of the structure of psycho-analysis" (p. vii) we find on p. 25: "In notes concerning several young stammering children kindly placed at my disposal by intelligent and observing mothers, there was observed in all cases a persistent thumb-sucking associated with biting of objects or of other children, and motivated by little or no provocation." The reviewer is astounded at this "empirical" method; and also at the author's apparent assumption of some special connection between stammering, thumb-sucking and biting, as if non-stammering children did not also suck thumbs and bite. The only other *evidence* of contact with actual cases is on p. 41: "The motor mechanisms of speech in stammerers

and the position of the lip muscles in attempts at speaking are characteristically those of the nursing child. This is clearly seen from notes made on stammerers while they were under analytic treatment, as observed for a period of over twelve years." The author gives six selections, all much the same, from which the reviewer quotes the shortest :

" 3. In talking, shows rapid breathing and sucking movements with the lips."

Now the reviewer maintains that a monograph purporting to be scientific should adopt either or both of two methods: either extensive, *i.e.*, statistical results of measurements extending over a number of cases; or, intensive, *i.e.*, detailed descriptions of single cases showing all the relevant interactions of cause and effect. Dr. Coriat gives us no scientific evidence whatever (except the quotations above): he asserts. He does, in fact, furnish us with "mere theoretical speculation" and a "system of ideas," though he denies that he is doing so. Freud writes in his article on negation "To deny something in one's judgment is at bottom the same thing as to say, 'That is something I would rather repress.'"

Presumably this psychological scotoma enables the author to obtain pleasure from the book that insight would make impossible.

It seems to the reviewer that the author is talking without understanding what he is saying; that he is merely word spinning; that the book consists largely of generalities in the jargon of psycho-analysis; indeed, that the author has learnt psycho-analysis like a parrot, so that phrase after phrase slips meaninglessly off his tongue in endless and senseless repetition. The same thing is said over and over again, sometimes in the same words, usually with some slight verbal or syntactical variations. So much so that the reviewer is led to describe the book as an example of "thought stammering"; just as the stammerer's sentence is continually held up by repetition, so this author's thought sequence is largely static by constant reiteration of the same idea.

Dr. Coriat's view is that stammering is a retention of oral libido pleasure in nursing. The stammerer has not been weaned (p. 44). But why that is so he does not tell us. The reviewer considers that the author lays far too much stress on the libido fixation of stammerers and far too little on the environmental factors that control such fixation and development. His thought seems indeed to be unconsciously fixated about "oral libido" and such phrases, which are practically equivalents in his jargon to stammering itself. So that although he makes much ado about ignoring the speech defect for character factors, he is really all the time revolving around that very speech defect with a system of synonyms that leaves no one the wiser.

The most noteworthy theoretical standpoint of the author is the classification of stammering as a narcissistic neurosis. "Events or fears in childhood do not produce stammering, the sole cause is a failure in the developmental process of the libido." Now, that stammerers are not properly developed, are childish, is a fact easy

to observe; but then all psychopaths are more or less pronouncedly childish and infantile. Dr. Coriat's view does not further our ætiological knowledge unless we know what causes a failure in the developmental processes of the libido. What causes a fixation at the narcissistic stage? Why does stammering develop rather than any other neurosis?

Dr. Coriat is not very illuminating in such a phrase as this, "Stammerers are allowed by their parents to grow up and retain their childhood characteristics." What should parents do? (p. 65) "The child should not be nursed for too long a period, thumb-sucking should be prevented, and all sucking at rubber nipples and at 'all-day suckers' and, finally, the use of chewing gum should be absolutely forbidden." He goes on "the stammering child should never be scolded or corrected, as such a procedure tends to make it anti-social and over-sensitive to various situations in life. It is better to ignore the stammering altogether; the child should be encouraged to sublimate its activities and energies in other directions, such as play, and not have its attention directed to the speech defect, as this merely reinforces the pleasure-principle of the oral libido." The reviewer does not understand how such activities as chewing gum can be absolutely forbidden without the child ever being corrected! This advice to sublimate is not only far too facile, but is simply another form of the distraction therapy, and its advocacy seems strange as coming from a professed psychoanalyst. Distraction from the symptoms is the general method of the suggestion-monger and the Christian Scientist. The advice to ignore the stammering corresponds with Dr. Coriat's own practice of relegating the symptoms and anxiety to a secondary position while he analyses the deeper character trends. The reviewer is not surprised that the author finds the cure of stammering very difficult by this method of treatment; in his own experience, the theory of specific anxiety situations has been enough to bring about a cure. Therefore Dr. Coriat's theoretical assumptions are certainly not necessary in every case.

Dr. Coriat's emphasis on "the wish to hold fast to the primary oral gratification which is the motivating force in the production of stammering" (p. 62), is really not narcissism at all, but autoerotism. Moreover Dr. Coriat only uses the word narcissism, whereas egocentricity has other subdivisions. The normal egocentricity of the child should be distinguished from the egocentricity of the psychopath. Pathological egocentricity is divisible into that characterized by positive self-feeling or narcissism, and that characterized by negative self-feeling or hypochondria. Now the egocentricity that is typical of conversion-hysterias, such as stammering, is hypochondriacal. The reviewer does not wish to deny that narcissism is present, albeit largely unconscious; but all that Dr. Coriat attributes to stammering can be attributed not only to stammerers but to most other psychopaths, while he ignores those traits which are most typical of stammerers. This attitude is to some extent justified by ordinary psycho-analytic procedure which may, where active therapy is permissible, direct the stammerer's

attention from the speech defect to the typical situation in which the defect is at its worst, and so to the usual character mechanisms. But the reviewer feels that Dr. Coriat tends to ignore the importance of anxiety and its causal traumatic situations, though his position might be a corrective to a corresponding neglect of the pleasure situations.

It is doubtful if anyone unacquainted with Freudian theory would find this book intelligible. The author repeatedly falls into the typical psycho-analytic fallacy of confusing relations of analogy with those of causation.

There is a good bibliography, but the author does not appear to have made full use of the material contained in it.

H. D. J. W.

An Introduction to the Theory of Perception. By Sir JOHN PARSONS, C.B.E., D.Sc., F.R.C.S., F.R.S. Cambridge University Press, 1927. Royal 8vo. Pp. viii + 254. Price 18s. net.

No more important contribution to physiological psychology has been made in recent years than Sir John Parsons' *Introduction to the Theory of Perception*. The central thesis of the work is the existence of a dual mechanism of the sensory system founded on the original theory of Head and Rivers. This theory has been modified by Parsons to the extent of postulating a primitive dyscritic mechanism upon which an epicritic is superposed, and at a still higher level he assumes a syncritic mechanism, subserved by the cortex cerebri, having the function of integrating epicritic phenomena. The author was fully alive to the validity of the criticisms of the fundamental experiments of Head at the time of writing, though he perhaps underestimates their cogency. Since then the destructive criticisms of Trotter have been reinforced by those of a number of other investigators, notably Schäfer in this country, and on the whole the anatomical existence of peripheral nerve-fibres subserving epicritic and protopathic sensation can hardly be seriously supported, whilst the physiological aspect of the question must certainly be reinterpreted. At the time that this book was published the work of Adrian on the conduction of sensory impulses was not yet fully available, and we venture to prophesy that the study of the discharge rate and frequency of the sensory impulse will before long throw a new light on the protopathic-epicritic question, just as it has enabled us to distinguish the conduction of postural, tactile and painful impulses. Be this as it may, the author is justified in holding that, whatever the views tenable about the peripheral nervous system, there is ample evidence of a dual sensory mechanism in the central nervous system. His chapter on the evidence from comparative anatomy is a masterly exposition of his thesis, and will be read with profit by anyone whose task it is to lecture on the physiological anatomy of the nervous system. The dyscritic motor response is then dealt with in a summary discussion

of the postural and static reflexes. We miss, however, a reference to the other important type of dyscritic motor response that is manifested by the so-called emotional responses of muscular tension, the visceral, vasomotor and the glandular reflexes. In view of the enormous part that these responses play in the organic resonance to stimulation of the dyscritic sensory system, we hope that in a future edition this aspect of the question will be more fully dealt with. The chapter on perception of space is both concise and admirably clear in its treatment of a subject that has proved a stumbling-block to every writer on physiological psychology. Everything that can be said about the visual mechanisms that subservise spatial perception is said, but we are still confronted by the old difficulty of getting extensity out of non-extensive subjectivity. The author makes no mention of the gallant attempt made by Cyon many years ago to solve the problem by assuming a projection of exteroceptive visual and tactile sensations on a ground plan of continuous sensation from the vestibule or, as he termed it, "the organ of space." Some of his experiments on the Japanese dancing mice and some investigations by later writers on avestibular patients are suggestive. No one is more competent than the author to write the succeeding chapters on the evidence for a dyscritic and epicritic theory of vision. The evidence is convincingly presented and, together with the author's book on colour vision, should be read by everyone interested in the subject. It appears to us that he has amply proved his case.

Much importance is attached throughout the book to the "all or none" quality of the dyscritic response. We think that this alleged attribute of dyscritic sensibility, which was first enunciated in the very *kritikloses* book of Rivers, *Instinct and Emotion*, is altogether unwarranted. The "all or none" law of nervous action is in reality a physiological abstraction applicable only to the isolated nerve-fibre, and in the living animal only instanced in the single giant nerve-fibre of the electrical organ of *malapterurus*. As a conception of functional activity it applies nowhere in the living animal since, whilst the isolated neurone gives an "all or none" response, gradation is effected by the greater or lesser number of neurones stimulated by any submaximal stimulus. Gradation, if properly looked for, may be demonstrated in every known reflex. The "all or none" hypothesis cannot be usefully involved as a qualitative test of a dyscritic reflex response.

The author postulates a syncritic mechanism subserved by the cortex cerebri to integrate epicritic phenomena. The evidence that he advances is scanty and largely unsupported, if not directly refuted, by the very remarkable later experiments of Graham Brown on the chimpanzee. It is difficult to find any evidence for a pious belief that we have all held in the epicritic functions of the cortex either in the work of Graham Brown or of Carville and Duret.

The introductory chapters on instinct, presentation and consciousness hardly add to the enormous scientific value of this remarkable book. We are not convinced that the attribution of awareness to primitive forms of life is other than an "overbelief," to use James's

convenient word, which in no way affects the scientific presentation of a work on the mechanism of perception. So far as we can judge the author is chiefly influenced by a desire for continuity which is strangely at variance with his unqualified acceptance of Lloyd Morgan's metaphysic of "emergence." We have never regarded the theory of "emergence" as other than a psychological restatement of the impracticability of causation as a metaphysical concept, but it surely knocks away any ætiological argument for continuity of consciousness in organic life. The chapter on instinct is, to our thinking, marred by the same insistence on the universality of awareness as evidenced in that well-worn fable of Lloyd Morgan's first peck of a chick. Surely the views of Bergson on instinct accord better with the facts and with introspective analysis. Much water has flowed under London Bridge since James wrote his celebrated essay, "Does consciousness exist?," but the whole tendency of both the neo-realists and of psychiatric observers is to relate consciousness to choice or spiritual tension in the Bergsonian sense. All this, however, belongs to another story. Sir John Parsons has given us a book on the mechanisms of perception that forms a landmark in physiological psychology, and that will for many years to come be indispensable to all serious students.

F. L. GOLLA.

The Problem Child at Home. By MARY BUELL SAYLES. New York: The Commonwealth Fund, 1928. Medium 8vo. Pp. x + 342. Price \$1.50.

The author, in a previous book, dealt with the problems which are presented by "difficult" children in school, and urged that the home and the parents are the root factors in the situation. She now advances her study another stage, describing, in the light of investigations made at a child guidance clinic, some of the ways in which parents adversely affect their children. Much of the present book consists of a series of illuminating case histories. It must be understood that the author is not dealing with cases of deliberate ill-treatment on the part of parents. A home may, on superficial examination, appear to be all that could be desired, the children's physical needs may be adequately and even lavishly supplied, and yet there may exist the elements of most serious mental conflict. Nearly all the parents whom Miss Sayles mentions were actuated by the desire to do well by their children; but from exaggerated parental love, from mistaken ideas as to discipline, from the impulse to dominate, or from other causes, much harm was occasioned to the children. It is satisfactory to learn that the advice given by the clinic workers was often successful in attaining the desired results. All the cases can be paralleled in the experience of readers of the book. Where all is good, it is not easy to select any feature for special praise. But we may mention the chapter which deals with mistaken views on heredity. The importance of heredity is

not ignored ; but it is pointed out that undue stress is sometimes laid on this factor, and that a fatalistic attitude is thereby created in the minds of many parents. This attitude reacts upon the child. It is easy, but quite futile, to blame heredity for any difficulty which may arise. Our task is to investigate, and to improve the conditions which are within our powers of correction. It is pointed out how, quite apart from heredity, a feeble-minded mother may occasion much harm to her children.

The different, but not incompatible emotional needs of parent and child form the subject of a sane and balanced discussion. All those whose work lies among children, whether in school, in a clinic, or elsewhere, will find this book of great value.

The days are past when any adult who managed to become a parent was considered to be fitted for that most exacting of professions. It is not uncommon for psychologists to be consulted by parents who appreciate the gravity of their task. Such parents may be recommended to study this book, which also contains a guide to further reading.

M. HAMBLIN SMITH.

Anatomy and the Problem of Behaviour. By G. E. COGHILL. Cambridge University Press, 1929. Demy 8vo. Pp. xii + 113. Price 7s. 6d.

The three lectures in this book were delivered at University College, London, and are, apparently, chiefly intended for those who are particularly interested in biological interpretations of psychological problems. The first lecture deals with the development of behaviour and its anatomical explanation in amblystoma, explaining its gradual development of motive power, and the relation of posture to local reflex. The second lecture deals with the anatomical relations and histological features of the pre-neural gradients, and the localized centres of differentiation and the development of conduction paths.

The final lecture considers differentiation in the cerebral cortex and structural counterparts in behaviour.

The book is cited as "a study of the psychology of animal behaviour based on a parallel study of the anatomy of the nervous system."

JOHN P. STEEL.

Mental Handicaps in Literature. By EDWIN MARION COX, M.D. London: Baillière, Tindall & Cox, 1929. Foolscep 8vo. Pp. xi + 93. Price 3s. 6d.

This is another of the "Mental Handicaps" series, and is a very readable book, which considers the effect of external stimuli on the output of writers. A somewhat sharp dividing line is hinted at between literature and technical productions ; probably with considerable justification. Certainly, the many authors who

come under review in the book are accepted either as stylists or as masters. In the chapter on "Alcohol and other Narcotics," an interesting comparison is made between the drug intake and the quality and amount of work done by several famous writers, while that on "Toxæmic Conditions" is peculiarly apposite in view of the tendency to look for focal infection in almost every mental state which does not conform to the accepted standard.

We do not often find physical health regarded as having a definite bearing upon the value of literary work, and it is refreshing to read an analysis from a physician's standpoint of many of the accepted classics.

JOHN P. STEEL.

Taking the Doctor's Pulse. By J. F. MONTAGUE, M.D. Messrs. J. B. Lippincott Company. For private circulation at a nominal price of \$1.

This little book consists of two essays, one of which gives it its title; the other is on "The Possibilities of Medical Movies."

It is of American origin, and the first essay is a criticism, in part, of the culture of the "personnel of the medical profession," which is said to suffer from a "plethora of didactic material" which the student is "obligated to learn." A remedy for the alleged unsatisfactory teaching is suggested in the use of motion pictures. Whether actual dissection can be replaced by repeated exhibition of cinematographic representation we take leave to doubt. The practical work done in the anatomy and *post-mortem* rooms during the student's first years is of incalculable value to him. It is much easier to agree that dissection might well be *supplemented* by a "thorough cinema study."

The subject matter of the second essay, which is based on an address given to the National Board of Review in 1928, has already been brought to the notice of our readers (*vide Journ. Ment. Sci.*, April, 1928, p. 289).

JOHN P. STEEL.

Part III.—Epitome of Current Literature.

1. Neurology.

The Development of Human Motility and Motor Disturbances.
(*Arch. of Neur. and Psychiat.*, October, 1928.) Schaltenbrand, G.

The author describes sundry peculiar reflexes which appear and disappear during the development of human motility. A number of them, present during the second half of the first year of life, are similar to reflexes of four-legged animals. In pathological conditions of the brain all the primitive reflexes of childhood may reappear or may be preserved for an abnormally long time. Tonic neck reflexes and a kind of Moro reflex may be observed in the decerebrate condition. In other cases of brain disease a "quad-rupedal syndrome" may appear. This syndrome consists of (1) a positive neck-righting reflex, (2) the primitive form of standing up from the recumbent position, and inability to sit up symmetrically, (3) difficulty in maintaining the upright position on the hind legs alone, and (4) impairment of the finer voluntary movements. It is often associated with difficulties of speech and sometimes with an impairment of mental activity.

G. W. T. H. FLEMING.

Muscle Tone. 1. Extensibility of Muscles in Decerebrate Rigidity.
(*Arch. of Neur. and Psychiat.*, January, 1929.) Pollock, L. F.,
and Davis, L.

The authors conclude that the extensibility of a muscle intoned by a tonic reflex is due to a peculiar physical property of such a muscle. This property may be an intermediate stage in the development of true muscular contractibility, the relation between the two being analogous to that of gum to rubber. The opposing muscle is dependent on the integrity of the posterior roots for its property of shortening to accommodate itself to the lengthening of the agonist, with a proper adjustment to length and to the load against which it works.

G. W. T. H. FLEMING.

The Cerebral Circulation. IV. The Action of Hypertonic Solutions.
Part II, A Study of the Circulation in the Cortex by Means of
Colour Photography. (*Arch. of Neur. and Psychiat.*, October,
1928.) Kubie, L. S., and Hetler, D. M.

Kubie and Hetler find that the intravenous injection of hypertonic solutions is followed by a dilatation of the vessels of the cortex, but by a narrowing of the vessels of the pia. The injection of distilled water produces the opposite effect. The authors consider that their results support the Monro-Kellie doctrine.

G. W. T. H. FLEMING.

Aneurysms of the Cerebral Vessels. (*Arch. of Neur. and Psychiat.*, January, 1929.) Sands, I. F.

Cerebral aneurysms may be caused by arterio-sclerosis, septic emboli, or congenital weakness of the vessel-walls. In the vast majority of instances, cerebral aneurysms are recognized only after they have ruptured. The signs of ruptured cerebral aneurysm are those due to the disease causing the aneurysm, those due to pressure or irritation of the surrounding brain structure, and those due to subarachnoid hæmorrhage. In a person suffering from hypertension or arterio-sclerosis, or from a general or local infection, especially infective endocarditis, the sudden onset of headache, nausea, vomiting, unconsciousness and convulsions, and the presence of cervical rigidity and Kernig's sign, disturbances in pupillary reflexes, blurring of the discs, papillœdema, diplopia, paralysis of the cranial nerves and disturbances of deep reflexes, together with a bloody spinal fluid, point to a ruptured intracranial aneurysm. Absolute rest in bed is the most important therapeutic measure.

G. W. T. H. FLEMING.

Cerebral Hæmorrhage Consequent on Softening due to Thrombosis [*L'Hémorragie cérébrale massive consécutive au ramollissement cérébral thrombotique*]. (*L'Encéph.*, June, 1928.) Lhermitte and Kyriaco, N.

The authors cast doubt upon the usually accepted belief that the main cause of large cerebral hæmorrhages is the rupture of a miliary aneurysm. Inspired by the almost forgotten work of Rochoux and the more recent researches of Artobus and Strauss, they have investigated a number of cases, and have come to the conclusion that a considerable number of sudden, large and fatal hæmorrhages occur in parts of the brain where sclerosis and softening have already prepared the way.

A number of cases are given, and the symptoms in life and *post-mortem* findings carefully recorded.

R. S. GIBSON.

Cerebro-hepatic Syndrome with Cystic Degeneration of the Liver-cell Nuclei [*Syndrôme hépato-encéphalique : transformation kystique des noyaux des cellules hépatique*]. (*L'Encéph.*, April, 1928.) Guiraud, P.

This paper adds a case to those observed and described by Marchand and Courtois. In 1913, at the age of 2 years, the patient had a rather vague, feverish, nervous illness. During the following fifteen years he suffered from epileptiform seizures, and a condition closely resembling the Parkinsonian syndrome. He died at the age of seventeen from pulmonary tuberculosis.

The *post-mortem* findings included extensive degeneration and sclerosis throughout the cerebrum. The most interesting feature, however, was the condition of the liver. Here there was profound lobular disintegration with overgrowth of fibrous tissue and formation of new bile capillaries. There was also extensive cystic formation of a peculiar type.

The author discusses the resemblance to progressive lenticular degeneration, and adduces evidence in support of his thesis that the condition is due to a toxin and is really an infective process.

The article is illustrated by reproductions of microscope slides.

R. S. GIBSON.

A Clinical Example of Acute Ataxia [Un cas clinique d'ataxie aiguë]. (*L'Encéphale*, May, 1928.) Nuica, D., and Parvulescu, N.

The case is recorded of a man who was suddenly seized by complete paralysis of all four limbs, with fever, delirium and profound dysarthria. The acute illness lasted about eight days, after which recovery set in slowly, and eventually became complete.

The authors quote records of similar cases, and consider that the syndrome is liable to occur after certain infectious diseases, such as pneumonia, diphtheria, smallpox, enteric and puerperal fevers. In the majority of cases the prognosis appears to be good.

R. S. GIBSON.

Ocular Symptoms in Tabes. (*Riv. di Pat. Nerv. e Ment.*, September-October, 1927.) Santonastaso, A.

The author describes at length 16 cases of "superior" tabes and 34 cases of dorsal tabes.

The pupil showed changes in 94% of cases: absence of the reaction to light was less frequent in superior tabes (81%); unequal pupils were present in 56%, myosis in 25% of dorsal tabes, loss of accommodation in 25% of superior and 17% of dorsal, mydriasis in 6% of superior tabes, atrophy of all or part of the iris in 6% of superior and 14% of dorsal tabes.

Vision was impaired in 94% of superior and 70.6% of dorsal tabes. The fundus oculi showed many early ophthalmoscopic lesions. In 60% of cases there was a primary optic atrophy. The field of vision showed alterations in 87% of superior tabes and in 76% of dorsal tabes. Bitemporal hemianopsia was only found in superior tabes. Central scotomata were found in 18% of superior tabes and in 12% of dorsal tabes.

G. W. T. H. FLEMING.

The Relation of Neuro-Recurrences to Late Syphilis. (*Arch. of Neur. and Psychiat.*, January, 1929.) Moore, J. E.

Neuro-recurrences occur in at least 2% of patients with early syphilis and occur more often in males than in females. They are limited to patients with early syphilis who have been inadequately treated, and do not appear late in the course of the infection. The type and severity of early lesions play no part in the production of neuro-recurrences. They are rare after bismuth treatment. The Wassermann in the blood is frequently negative at the time of appearance of a neuro-recurrence. The spinal fluid at the time usually gives positive tests, but does not show anything characteristic. The immediate clinical response to treatment is usually satisfactory, except in lesions of the auditory nerve; here

the paralysis is often permanent. Paresis was observed in 3 out of 81 cases. The interval between infection and the development of late clinical neuro-syphilis may be greatly shortened by an antecedent neuro-recurrence. It is not possible to recognize the potential neuro-recurrent patient before the condition develops. The author thinks that the phenomenon is due to inadequate treatment, which kills the spirochætes in the body except for those in the brain, which are not accessible to arsenicals. These brain spirochætes continue to multiply, and after an incubation period of about eight weeks, corresponding roughly to the interval between infection and the appearance of secondary syphilis, the inflammatory reaction in the nervous system has progressed to the point of producing symptoms, *i.e.*, the neuro-recurrence. A neuro-recurrence may develop in a "silent area" and give rise to no symptoms.

G. W. T. H. FLEMING.

Significance of Infection in the Vegetative Symptomatology of the Neuroses. (*Fourn. of Nerv. and Ment. Dis.*, January, 1929.) Savitsky, N., and Goodhart, S. P.

The authors think that injury to the vegetative nervous system by infectious processes determines or influences its ability to respond to cortico-subthalamic impulses. In some cases the functional changes in the vegetative nervous system may be due to an effect of the infection on the endocrine glands. The authors quote cases of post-encephalitic disorders of gastric function, showing no organic basis in the abdomen, which would have been classified as "gastric neuroses" if it had not been for the history of encephalitis.

Various authors, by pharmacological methods, have found constant evidence of lack of vegetative balance in the acute stages of scarlet fever, diphtheria, measles, typhus and tuberculosis.

Mogilnitzky reports constant and characteristic changes throughout the entire vegetative nervous system in cases dying during the acute stages of diphtheria and scarlet fever.

G. W. T. H. FLEMING.

Studies in Stuttering. IV, Studies of Action Currents in Stutterers. (*Arch. of Neur. and Psychiat.*, January, 1929.) Orton, S. T., and Travis, L. E.

These studies are based on the work of Golla on action currents from both forearms. The authors find that when the action currents from both forearms are recorded during simultaneous voluntary contractions, they may appear simultaneously in the two arms, but in by far the greater number of trials the action currents from one arm precede those from the other by a short interval. In records of right-handed normal speakers the number of times that the action currents precede in the right arm far exceeds the precedence in the left, and also far exceeds the incidence of the simultaneous leads. In "right-handed" stutterers the greatest number of leads is in the left arm, and the number of simultaneous leads is much greater than in the normal speakers. Amongst 14

normal speakers 81% had a right lead, and amongst 17 stutterers only 15.6% had a right lead. Amongst the normal 9% had a left lead and 10% a simultaneous lead; amongst the stutterers, 53% had a left lead and 31% a simultaneous lead.

G. W. T. H. FLEMING.

Progressive Degenerative Subcortical Encephalopathy (Schilder's Disease). (*Arch. of Neur. and Psychiat.*, December, 1928.) Globus, F. H., and Strauss, I.

The authors consider 4 cases of their own and discuss 22 from the literature. They point out that the pathological alterations are restricted to the white matter and are degenerative in nature. This degeneration consists of a diffuse demyelination and a destruction of axis cylinders, with changes in the latter not unlike those seen in multiple sclerosis, combined sclerosis and familial degenerative diseases. As the parenchyma undergoes dissolution it is replaced by diffuse glial hyperplasia and other glial alterations in which fibroblastic astrocytes and compound granular cells play a prominent rôle, with the participation of microglia in its various modifications. There is no infiltration by mesodermal elements. The disease may be due to a toxic factor of unknown nature, which affects the normal growth of the parenchymatous structures in the subcortical regions of the brain, causes their dissolution and results in proliferative glial changes. The disease occurs in young children, and is characterized by a rather abrupt onset, which often takes the character of a gastro-intestinal disturbance, followed by a series of cerebral manifestations—mental dilapidation, spastic paralysis accompanied by advancing rigidity, contractures and convulsive seizures. Advancing blindness with or without optic atrophy, deafness and aphasia may develop at any stage of the illness. The authors consider that this disease includes some of the conditions described as chronic encephalo-myelomalacia, diffuse sclerosis, perivascular myelin necrosis, encephalitis periaxialis diffusa, sclerosing encephalo-leukopathia and interlobar symmetrical sclerosis.

G. W. T. H. FLEMING.

Encephalitic Respiratory Sequelæ. (*Journ. of Nerv. and Ment. Dis.*, October, 1928.) Wolff, H. G., and Lennox, W. G.

The authors studied three patients who showed respiratory phenomena following encephalitis. One had respiratory seizures of rapid breathing without apnœa, and generalized convulsive attacks occurring independently of, or following, the respiratory disturbance. The other two patients had paroxysms of apnœa in full inspiration with spasm of the respiratory muscles, followed by loss of consciousness and convulsive movements. The authors think that convulsions produced in experimental animals by greatly increasing the intrathoracic pressure are comparable to the symptoms observed in the last two patients. In one of these patients the intensity of respiratory seizures, like convulsions occurring in other conditions, could be altered by changes in the chemical composition of the blood.

G. W. T. H. FLEMING.

On Some Exceptional Forms of Oculogyric Crises [Sur des Modalités exceptionnelles des crises oculogyres]. (Journ. Neur. et Psychiat., June, 1928.) Van Bogaert, L.

The author first describes crises of convergent strabismus with diplopia in a boy of 11, who had recurrent attacks in which he complained of great tiredness and finally was unable to make spontaneous movements. There was no tremor and the symptoms passed off in about ten days. The writer considers this to be a case of the myasthenic form of encephalitis which has been described in the adult.

The second case was that of a man who, after vomiting, pain and tenderness, followed by somnolence, showed ocular crises, the eyes being fixed in a forward stare, but without exophthalmos. The Parkinsonian syndrome with tremor and a series of sexual obsessions marked this case.

The third case was a girl of 22, who had three or four attacks daily, lasting about ten minutes, in which the eyes were fixed downwards. Violent headache and vomiting frequently accompanied the attacks. Ten years after the first attack she showed the hemiplegic form of encephalitis.

In all three cases the Wassermann reaction was negative in the blood and cerebro-spinal fluid.

L. M. D. MILL.

On a Case of Suprasellar Tumour with Cerebellar Symptoms. The Diagnostic Interest of Ventriculography [Sur un cas de tumeur suprasellaire à symptomatologie cérébelleuse. Intérêt diagnostique de la ventriculographie]. (Journ. de Neur. et Psychiat., June, 1928.) Van Bogaert, L., and Martin, P.

The writers describe the case of a boy of 17, who for some months showed symptoms of cerebellar tumour. At operation 40 c.c. of cerebro-spinal fluid were withdrawn from the ventricle and replaced by an equal quantity of air. Radiograms showed the left ventricle to be greatly distended, and small calcareous deposits were seen above the sella turcica. A suprasellar tumour was diagnosed. Later, after an extensive decompression operation, the cerebellar symptoms disappeared, but the patient took on the characteristic appearance of the adiposo-genitalis syndrome. In taking this as a final diagnostic sign the writers remark on the difficulty of differentiating between a suprasellar and a cerebellar tumour, and think that ventriculography in well-selected cases is a help to the neurologist.

L. M. D. MILL.

The Symptomatology of Tumours of the Frontal Lobe. (Arch. of Neur. and Psychiat., September, 1928.) Kubitschek, P. E.

The first symptoms, according to Kubitschek, are headache, vomiting and failing vision. Psychic disturbances and unilateral failure of vision seem most suggestive of frontal lobe involvement. In many cases, both gliomata and endotheliomata, the onset was abrupt and the progression rapid. Disturbance of smell, impairment of vision, unilateral exophthalmos and central type of motor

weakness are the most significant and constant symptoms. Disturbance of smell is usually bilateral. Ventriculography and ventricular estimation were of great value. The author considers that psychic disturbances depend more on the personality make-up of the patient and on impairment of the functional capacity of the brain as a whole than on the involvement of a given portion of the brain.

G. W. T. H. FLEMING.

Glioma of the Medulla. (*Journ. of Nerv. and Ment. Dis.*, January, 1929.) Perkins, O. C.

The author reports a glioma of the medulla with local symptoms only. These consisted of the syndrome of the circumferential and intermediate zones of the medulla oblongata, usually produced by a lesion of the posterior inferior cerebellar artery, with the addition of involvement of the hypoglossal nerve and the pyramid. The glioma stretched from the pyramidal decussation to the mid-olive region, and was classified as a medullo-blastoma.

G. W. T. H. FLEMING.

Complete Removal of the Right Cerebral Hemisphere in Cases of Localized Cerebral Tumour with Hemiplegia. Unilateral Suprathalamic Decerebration [L'ablation complète de l'hémisphère droit dans les cas de tumeur cérébrale localisés compliqués d'hémiplégie. La décérébration suprathalamique unilatérale chez l'homme]. (*L'Encéphale*, April, 1928.) Lhermite, J.

This article is largely a review of five cases of suprathalamic decerebration carried out by Walter Dandy, of Baltimore. All the cases survived long enough to prove that the operation was not necessarily fatal and to demonstrate several surprising results. In all cases it was the right hemisphere which was removed.

In the first place the intellectual functions seemed to be unimpaired. There was no paralysis of the bilaterally innervated muscles of expression and mastication. Epicritic sensation in the left side was lost, but protopathic sensation was retained. The hemiplegia on the left side was not absolutely complete, certain limited movements being retained.

The technique of the operation is described. R. S. GIBSON.

Experimental Convulsions. (*Arch. of Neur. and Psychiat.*, October, 1928.) Davis, L., and Pollock, L. J.

The authors discuss the possible "site" of origin of a convulsion and its relation to decerebrate rigidity. They produced a preparation in the cat by ligaturing the basilar artery and transfusing the area of brain supplied by the carotids with heparinized blood. By this means picrotoxin injected into the general circulation only acted on the lower part of the pons and medulla. By compressing the tubing supplying the blood to the carotids, a decerebrate preparation could be made. The usual myoclonic twitchings found with picrotoxin were absent in animals with an artificial cerebral circulation. The convulsions consisted of tonic spasms followed

by tumultuous irregularly distributed clonic movements not related to any pattern of running or stepping movements. If the cerebral circulation of heparinized blood was interrupted by clamping the tubing a decerebrate preparation was formed, and in this preparation, after picrotoxin, the convulsions were of the same character as occur in an ordinary decerebrate animal. The authors conclude that typical convulsions do occur in decerebrate animals, and that the character or degree of the tonic fit is dependent, not on the level of decerebration, but on the presence in a particular animal of certain tonic reflex patterns prior to the administration of the convulsant drug. The complete pattern of a convulsion necessitates a background of normally distributed tone and motor function. The clonic element of an experimentally produced convulsion is not due to the toxic stimulation of the cerebral cortex. Typical tonic and clonic convulsions can be produced in an animal in which the cerebral cortex is intact, but in which the brain-stem alone is stimulated by picrotoxin. G. W. T. H. FLEMING.

Studies in Epilepsy. VIII. The Clinical Effect of Fasting. (*Arch. of Neur. and Psychiat.*, October, 1928.) Lennox, W. G., and Cobb, S.

Twenty-seven patients subject to convulsions fasted for periods of from four to twenty-one days. In only one patient was there any permanent effect. In the majority, the seizures were absent or greatly reduced during the fast itself. The authors consider that fasting may be useful in helping patients over a period of frequent seizures, but is of most use as a means of inaugurating a high fat diet. G. W. T. H. FLEMING.

The Hyperpnœa Test in Epilepsy. (*Arch. of Neur. and Psychiat.*, December, 1928.) Fettermann, J.

The author carried out experiments with hyperpnœa in epilepsy and found it of great value both in diagnosis and in localizing the lesion. Apnœa may be employed as a means of preventing fits. The author observed what he terms as "muscle ripple," which is a sign of increased irritability. He also found this sign in (1) a patient who had had a hæmorrhage into the pons, (2) a case of exophthalmic goitre, and (3) a patient who had chronic anterior poliomyelitis. G. W. T. H. FLEMING.

2. Psychology and Psycho-Pathology.

A Theory of Circuit Integration; A Criticism of the "Centrally Aroused Process." (*Amer. Journ. of Psych.*, xl, No. 4, October, 1928.) Wheeler, R. H.

The issue raised in this paper is whether centrally aroused processes exist. The conclusion arrived at is negative and is based upon indications from experimental work on the brains of animals, the circuit concept of the reflex arc, the continuous functioning of the sense-organs, the prevalence of kinæsthesia in mental life, the

principle of the conditioned reflex, etc. The view suggested assumes that integrations do not arise in the cortical centres, but are functions of complete reflex circuits and of continuous peripheral stimulation from more than one sense modality, one of which, however, is always kinæsthetic. The brain is regarded as an amplifier and battery whose activities depend upon an open circuit. The sense-organs are regarded as necessary for the supplying of those differentiated energy-patterns which result in the appearance of images of different qualities. This hypothesis has been called a total-integration theory of mental processes, because all such integrations as presumably subserve mental life in any of its forms are neuro-muscular, and based upon complete reflex circuits. It is strictly opposed to the prevailing conception that certain mental processes are cortically or centrally aroused.

A. WOHLGEMUTH.

The Intelligence Factor in the Solution of Space Problems with the Two-storey Maze. (*Amer. Journ. of Psych.*, xl, No. 4, October, 1928.) Cox, Catharine M.

The Miles two-storey duplicate maze consists of a combination of two identical stylus mazes, one placed at a little distance right above the other. The upper one is in full view and is traced with one hand, whilst the lower maze is out of view and traced with the other hand. In these experiments the upper maze remained in the same position, whilst the lower one was given different positions by rotating or reversing it.

The problem was: Is the adequacy of adjustment or procedure in situations involving new motor space experiences conditioned to a greater extent by imagery type or by intelligence? What is the rôle of each in solving problems in motor space?

The subjects in these experiments were 67 university students, members of a class in elementary psychology. Their intelligence was measured by their score on the Thorndike College entrance test, and a further criterion of ability was supplied by the term grade of the subject in the class.

The results showed that in solving motor space problems under the given experimental condition, success (measured by time scores) and intelligence showed a significant correlation. In the series of five problems, one was found that appeared, when preceded by a practice problem, to offer a favourable performance test of intelligence. The correlation between time scores on problem 2 and Thorndike's score was $+ 0.59 \pm 0.06$. With a wider intelligence range than a college group offers, it might be standardized into a useful discriminative test.

A. WOHLGEMUTH.

False Suggestion and the Piderit Model. (*Amer. Journ. of Psychol.*, xl, No. 4, October, 1928.) Fernberger, S. W.

This is a repetition of the experiments of Buzby and of Jardon and Fernberger. The same Piderit's models were used, viz., anger, dismay, horror, disdain, disgust and bewilderment. There were

three series of experiments carried out with over 600 subjects in each. In the first series no suggestions were made and the subject had to pick out the best descriptive term from a list of eighteen. In the second and third series the judgments had to be made under two degrees of false suggestion, *viz.*, "face named" and "face analysed."

The results, when no suggestion was given, showed a wide variation with failure in the interpretation of the expression of emotion. With the lower and higher degrees of false suggestion there was a great increase in the percentage of correct judgments. These results, says the author, seem to indicate that the perception of emotional states in others by their expression is of the nature of social meanings, and that they are much more dependent on the stimulus attention than on anything characteristic in the facial expression or reaction. It seems, however, doubtful to the reviewer whether any conclusions can be drawn from these or similar experiments, for they all assume the absolute correctness of the Piderit models.

A. WOHLGEMUTH.

Sensitivity to Odours and other Phenomena during a Fast. (*Amer. Journ. of Psychol.*, *xl*, No. 4, October, 1928.) Glaze, J. A.

These experiments were carried out with two subjects, one of whom fasted for five and the other for ten days. The following conclusions are drawn: (1) That there is a marked increase in the sensitivity to odours during a fast. (2) That steadiness, measured by the pointing test, tends to increase as the fast progresses. (3) That the higher mental processes are not improved while the fast is in progress. (4) That the most pronounced success, both in mental and muscular activity, is attained during the post-fast period.

A. WOHLGEMUTH.

Effects of General Distraction on the Higher Thought Processes. (*Amer. Journ. of Psychol.*, *xl*, No. 4, October, 1928.) Hovey, H. B.

"Some effects of general distraction have been experimentally investigated. This was done by giving a mental test to a group of college students under standard conditions and a re-test under severe general distraction. A control group was given the same tests without the use of distractions. The following inferences seem justified from the data: (1) Higher mental processes are comparatively unimpeded by distraction. (2) Intelligence is not related to susceptibility to distraction. (3) There are no individual differences in susceptibility to distraction. (4) True mental ability is more nearly approximated under distraction than under standard conditions."

A. WOHLGEMUTH.

The Relation between Different Measures of Ability to Report. (*Amer. Journ. of Psychol.*, *xl*, No. 4, October, 1928.) McGeoch, A.

Intelligence and the Ability to Report. (*Amer. Journ. of Psychol.*, *xl*, No. 4, October, 1928.) McGeoch, A.

In the light of these experiments the ability to report appears to be largely a question of the material and the method of reporting.

There remains a slight degree of correlation between the performances under the various given conditions even after the removal of the intelligence differences. The fact that relationships are so low can only indicate that the ability which has been measured in these experiments is largely a specific function, or, otherwise stated, that the reliability of these report experiments is very low.

The relationship between intelligence and the ability to report is specific to three factors: (1) The material upon which the report is made, (2) the method of making the report, (3) the method of scoring, or measuring the report.

A. WOHLGEMUTH.

A Study of Emotional Specificity. (*Amer. Journ. of Psychol.*, xl, No. 4, October, 1928.) Wechsler, D., and Jones, H. E.

Galvanometric Technique in Studies of Associations. (*Amer. Journ. of Psychol.*, xl, No. 4, October, 1928.) Jones, H. E., and Wechsler, D.

Two papers on the psycho-galvanic reflex as an indicator of emotional processes which, however, offer little help in overcoming the criticisms raised against the interpretation of the phenomenon.

A. WOHLGEMUTH.

An Investigation of Bluffing. (*Amer. Journ. of Psychol.*, xl, No. 4, October, 1928.) Thelin, E., and Scott, P. C.

Bluffing is defined, for the purpose of this investigation, as "pretending to greater knowledge than is actually possessed." The tests consisted of the presentation to about 150 students of examination papers in English. A number of answers followed each question and the correct answer had to be underlined. Some of the questions and answers were legitimate, others fictitious. The answering of a fictitious question was considered as bluffing, and it was found that bluffing was universal among the students to whom the tests were given. This inference is, however, unwarranted, and the method of the investigation is ill-conceived.

A. WOHLGEMUTH.

The Emotional Factor in Neuro-Muscular Hyperthermia [Du rôle de l'affectivité dans l'hyperthermie neuro-motrice]. (*L'Encéph.*, May, 1928.) Porak, R.

The author adopts a theory closely resembling that of Lange and William James, that the affective state of well-being is dependent on sensation due to visceral and neuro-muscular activity. Activity, however, results in slight elevation of temperature, and the conclusion is arrived at that the rise in temperature is proportional to the *quality* of the activity. The quality of the activity is dependent on the nature of the idea which is associated with it.

The article is illustrated by examples of personal observation.

R. S. GIBSON.

The Physiology of the Cerebral Hemispheres and Modern Psychiatry [*La Physiologie des grands hémisphères et la psychiatrie moderne*]. (*L'Encéph.*, May, 1928.) Ivanoff-Smolensky, A.-G.

This article is an attempt to preach the gospel of the reflex as the foundation of all behaviour. The author follows Pavloff and in general the behaviourist school in reducing all conscious behaviour to the level of the conditioned reflex. He admits instinctive activity, but fails to find any distinction between it and reflex action. In support of his contention he quotes many illustrious names, but it is possible that some of the authors quoted, particularly William MacDougall, would be surprised to find themselves included, implicitly at least, among the supporters of this theory.

The psychoses and psycho-neuroses are explained by postulating disturbance of the reflex arcs, and the function of education is, of course, the securing of useful conditioned reflexes.

R. S. GIBSON.

The Heredity of Inborn Perversions [*L'hérédité des pervers instinctifs*]. (*L'Hyg. Ment.*, June, 1928.) Heuyer, G., and Badonnel, Mlle. M.

This article is really a study of the ætiology of juvenile delinquency. The authors are of opinion that in the great majority of cases the cause of delinquency is to be found in innate perversions, and that purely environmental conditions account for a comparatively small proportion of the total. The term "hereditary" is rather loosely used, as one of the most frequent factors found by the authors is congenital syphilis.

A long series of statistics is given and numerous cases are described, showing that in many instances at least hereditary psychopathic factors are prominent.

R. S. GIBSON.

The Psycho-Analysis of Children [*La Psychanalyse infantile*]. (*L'Hyg. Ment.*, June, 1928.) Morgenstern, Mme. S.

The author describes mainly the methods of Melanie Klein and Anna Freud. The former practitioner depends for her analysis largely on the empirical interpretation of the symbolisms of play, while the latter conducts a genuine analysis comparable to that usually done with an adult patient. It is with the methods of Anna Freud that Mme. Morgenstern agrees.

She gives numerous examples of successful analysis, and finds that in all cases neurotic symptoms have their origin in conflict engendered by family life, the sexual root of neurotic behaviour being prominent. She points out the great difficulty of successful analysis in the overcoming of resistance, and finds that this can only be done by the analyst's becoming the friend, and to a certain extent the champion of the child.

R. S. GIBSON.

A View of the Child's Mind [*Le profil mental de l'enfant*]. (*L'Hyg. Ment.*, June, 1928.) Abramson, J.

This article is founded on the work done in the Clinique Annexe de Neuro-Psychiatrie. After describing the preliminary investigation

of the patient, the author discusses briefly the various methods of mental examination and measurement which are current. These he rejects as being both unsatisfactory in their results and cumbersome in their application. He then proceeds to describe in detail the method adopted in the clinic. This consists of an examination directed to investigate reason and understanding, attention, memory, imagination and observation. The tests used bear a general resemblance to those of the Binet-Simon system, but are greatly simplified, and can be carried out in about twenty minutes.

The article is profusely illustrated by statistical tables and graphic records, and the author seems to have reason to rely on his results.

R. S. GIBSON.

The Mental Health of the Pre-School Child. (*Brit. Journ. of Med. Psychol.*, November, 1928.) Isaacs, S. S.

The author points out how what may be regarded by admiring parents or educationists as signs of high intelligence in the pre-school child are really signs of a neurotic instability in development—the dominance of the super-ego.

G. W. T. H. FLEMING.

Is there an Epilepsy Personality Make-up? (*Arch. of Neur. and Psychiat.*, October, 1928.) Notkin, J.

The author studied the make-up of non-psychotic epileptic persons in a general hospital, and found in the great majority little or none of the so-called epileptic make-up. He then examined 75 male and 75 female epileptics at the Manhattan State Hospital, and was impressed with the number who showed a normal type of personality. When he examined the patients' ages at the onset of their first seizure, he found that when it occurred in infancy or early childhood the make-up was decidedly epileptoid, and the more remote from infancy it was, the more benign the make-up. The so-called epileptic make-up was apparent only in 16.6% of this group of 150 cases. Such peculiarities as develop in epileptic persons are looked on as the result of the epileptic reaction, and not as the cause of the convulsion in a so-called idiopathic personality.

G. W. T. H. FLEMING.

Contributions of Psychological Medicine to the Estimation of Character and Temperament. (*Brit. Journ. of Med. Psychol.*, November, 1928.) Gillespie, R. D.

The author suggests that the word "idiosyncrasy" is a very desirable substitute for "personality" to denote the integration of traits of temperament and character in the individual. The only satisfactory method of estimating temperament and character is by history-taking, checked by accounts from the patient's relatives and friends, and by observation if possible under social conditions of a restricted kind, e.g., in hospital. A considerable change in idiosyncrasy may appear in the course of an "individual's" life, determined sometimes by endogenous or even inherited factors and

sometimes by a change in the environment. Idiosyncratic development may be accelerated or retarded by environmental influences, of which the family is the earliest and probably the most important.

G. W. T. H. FLEMING.

The Emotional Problems of the Physically Handicapped Child. (Brit. Journ. of Med. Psychol., November, 1928.) Allen, F. H., and Pearson, G. H. J.

The authors studied twelve children with serious physical handicaps. In those children who have developed some behaviour problem there is a very strong tendency to retain infantile, dependent relationships with the parents, especially with the mother. When the deformities occur later in childhood the child reacts to them in the same manner as he has learned to meet other new and difficult situations. If the personality is not too crippled, therapy should be directed toward the attitudes of the parents to the child at the time the disability occurs. It is just as important to treat the attitude of the parents to the children as it is to treat the child.

G. W. T. H. FLEMING.

The Psychology of Schizophrenia [*Psychologie de la Schizophrénie*]. (L'Encéph., June, 1928.) Stocker, A.

The author regards schizophrenia essentially from the psychogenetic point of view. His theory, which is not by any means new, is that the human mind is composed of tendencies which are innate on the one hand, and tendencies which are acquired as the result of environment on the other. In the normal mind these are suitably fused and work in harmony. In the schizophrenic, however, there is no proper synthesis, and the whole symptomatology of schizophrenia is to be traced to conflict between these two unreconciled sets of forces.

R. S. GIBSON.

3. Clinical Psychiatry.

Advances in Neurology, Psychiatry and their Allied Sciences [*Fortschritte der Neurologie, Psychiatrie und ihrer Grenzgebiete*, 1st Year, No. 1, January, 1929.]

This is a new monthly publication edited by Prof. A. Bostroem and Prof. J. Lange, and published by Georg Thieme in Leipzig. The monthly numbers are to be of about 48 pp. each and the price is 6 marks quarterly.

This first number opens with a short editorial, pointing out that this publication will supply a strongly felt want for those who wish to keep up to date in neurology and psychiatry. There are the following three papers:

"Non-Systematic Injury of the Spinal Cord, its Roots and its

Meninges [Nicht-systematische Schädigung des Rückenmarks, seiner Wurzeln und seiner Hüllen],” by Erich Gutmann (16 pp.). There are four chapters discussing the latest work on myelitis, myelography, spinal cord tumours and the vertebral column. There are over two pages of references.

“Advances in Psychotherapy [Fortschritte der Psychotherapie],” by Arthur Kronfeld (17 pp.). The author admits that the subject is risky, and that with the best intentions the personal equation cannot be eliminated. This is borne out by a perusal of the paper, for the psycho-analytic literature receives most attention.

“The Endogenous Psychoses [Die endogenen Psychosen],” by Gottfried Ewald (27 pp.). The author deals first with manic depressive insanity, and discusses the crisis that has been caused in psychiatry since Hoch pronounced his doubts about Kraepelin's classification. He reviews the work done during the last decade though some of the references go further back. The second part of the paper is concerned with schizophrenia (dementia præcox), and gives the varying views of the last ten years. There is a bibliography of about 300 references, nearly all German.

A. WOHLGEMUTH.

Studies in the Constitutional Aspect of Mental Disorder [Les études de psychiatrie constitutionnelle]. (L'Hyg. Ment., June, 1928.) Wahl, L.

This article is a report of a discussion at the Italian “Société Phreniatrique” contributed to mainly by Prof. Kobylinski and Dr. Vidoni. These authorities hold that the human organism is potentially hermaphroditic, or at least bi-sexual, and trace all neurotic trouble to lack of equilibrium between the two opposing sexual forces. The masculine aspect of the organism is associated with anabolic processes, the feminine with katabolic. Several other authors are quoted in connection with the discussion.

R. S. GIBSON.

The Constitutional Aspect of Mental Disorder in the United States [Le psychiatrie constitutionnelle aux États-Unis]. (L'Hyg. Ment., June, 1928.) Boyer, H.

This paper reviews the work of F. J. Wertheimer and Florence E. Hesketh in the United States. These workers have approached their subject from the anthropometric standpoint, and with some slight variations have adopted th classification of types first suggested by Kretschmer. Working on these lines they have constructed an index dependent on bodily measurements which, they state, gives a fairly accurate differentiation between the types of individual usually classified as manic-depressive and schizoid.

M. Boyer considers the statistical results of the investigation of these two workers sufficiently striking to encourage further research along similar lines.

R. S. GIBSON.

Researches into the Ætiology of Nervous and Mental Disorders of Childhood [*Quelques recherches étiologiques en neuro-psychiatrie infantile*]. (*L'Hyg. Ment.*, May, 1928.) Heuyer, G.

In the ætiology of the psycho-neuroses of childhood the author lays the greatest stress on congenital syphilis, which he states is present, or at least cannot with confidence be excluded, in at least 50% of cases.

He discusses infantile convulsions, which he considers are almost always due to definite lesions of the nervous system. Considerable space is devoted to the description and classification of various types of early dementia præcox.

R. S. GIBSON.

Neuropathic Reaction and Tuberculosis [*Reactions névropathiques et tuberculose*]. (*Fourn. de Neur. et Psychiat.*, May, 1928.) Callewaert, H.

After mentioning briefly the influence of endocrine disturbance in functional nervous disease, the author describes a form of anxiety state, commonest among women of twenty to forty years of age, and characterized by intense fear of becoming insane and by many visceral symptoms. This neurosis is frequently associated with tuberculosis, and the question arises, which condition is antecedent to the other.

Numerous cases are quoted, and the general conclusion is arrived at that the neuropathic condition initiates a disturbance in the sympathetic nervous system, which prepares the way for infection by the tubercle bacillus.

R. S. GIBSON.

Constitutional Psychological Factors in "Functional" Psychoses; II. Dementia Præcox. (*Fourn. of Nerv. and Ment. Dis.*, November, 1928.) Lundholm, H.

The author, after a lengthy discussion of the altrocentric and egocentric traits of the personality and their relation to cycloid and schizoid states, concludes that—

(1) Manic-depressive insanity is predisposed to by strong egocentric tendency in combination with the cycloid trait. The manic-depressive personality may also possess the altrocentric tendency, but in a lesser degree.

(2) Schizophrenia or dementia præcox is predisposed to by strong egocentric tendency in combination with the schizoid trait. If an individual with these characteristics has, in addition, a strong cycloid trait, which according to the theory is possible, his psychosis may show signs of a mixture of manic-depressive disorder and schizophrenia.

(3) Hysteria is predisposed to by the schizoid trait alone in a person with proper balance between the altrocentric and the egocentric tendency. The strong altrocentric tendency will in this individual prevent a widespread injury and conflict due to friction with environment on extensive stretches of his line of activity, and consequently dissociation need only be partial.

(4) Neurasthenia is predisposed to by a strong egocentric tendency combined with the cycloid trait. This brings neurasthenia very close to manic-depressive insanity.

G. W. T. H. FLEMING.

Recurrence of Stuttering following Shift from Normal to Mirror Writing. (*Arch. of Neur. and Psychiat.*, February, 1929.)
Travis, L. E.

The author describes an interesting case of a medical student, who had had extraordinary difficulty in learning to write and could not even read his own writing. The production of mirrored writing caused a recurrence of the stuttering, from which he had suffered badly when about twelve years of age. Once the new form of writing was mastered, the stuttering stopped.

G. W. T. H. FLEMING.

Pluriglandular Syndrome Involving Calcium Deficiency and Correlated with Behaviour Disturbances. (*Arch. of Neur. and Psychiat.*, February, 1929.) Timme, W.

Timme has had under his observation during the last ten years a number of cases showing a behaviour disorder consisting of incorrigibility, non-amenability to discipline and a tendency to violence. The patients were easily aroused to a high pitch of anger at the slightest provocation. Practically all showed myotatic irritability and myoidema. In some cases the myotatic irritability was so great that a Chvostek reaction of a moderate degree was obtained. Nineteen of the 23 showed deficient blood calcium. Of 19 cases in which the skull was examined by X-rays, 14 showed a pineal shadow despite the fact that their ages were 16 years or less. Five of this group of 14 cases showed pineal physico-sexual symptoms, and in several others psycho-sexual precocity was pronounced. A large number of the cases showed intense muscular fatigability—probably the pineal effect on muscular activity. Thirteen were 2 or more inches below the normal height. The blood-sugar of 12 was between 110 and 140 mgrm. A high blood pressure was frequently found. In most of the cases intelligence was above the normal. The cases were treated with calcium lactate by the mouth, parathyroid extract (Collip) hypodermically and direct or artificial sunlight regularly administered. All improved, but in varying degree. Hypercalcæmia has to be guarded against; its presence is shown by albuminuria and the presence of casts in the urine. The blood-calcium should be estimated regularly.

G. W. T. H. FLEMING.

Post-partum Schizophrenias. (*Journ. of Nerv. and Ment. Dis.*, October, 1928.) Zilboorg, G.

The author states that pregnancy and childbirth, particularly the latter, give rise to a variety of psychic reactions ranging from severe compulsive neurosis to frank schizophrenia. The depressions develop rapidly, the compulsive neuroses more slowly and

the schizophrenias in an altogether insidious manner. Most post-partum psychoses occur in multiparæ, and in many cases in women who have entered matrimony reluctantly. The post-partum schizophrenias are based on the castration complex of the revenge type, which is intimately combined either with an unresolved positive œdipus situation or with its anal regressive resultant—father identification.

G. W. T. H. FLEMING.

The Importance of Associated Syndromes in Clinical Psychiatry [*Importance des associations en clinique mentale*]. (*Ann. Med.-Psychol.*, July, 1928.) Damaye, H.

The author compares chronic confusional insanity and dementia præcox. He believes the former is always toxic in origin, whereas the latter may be either constitutional or toxic. He points out that difficulties in diagnosis arise from mixed forms, and gives as examples cases of chronic confusional insanity with a manic graft or with a complete but transitory schizophrenic syndrome. Treatment is to be directed to the underlying toxic infection, in subacute cases this is often pulmonary tuberculosis.

L. M. D. MILL.

Certain Curable Forms of Insanity simulating Schizophrenia [*À propos de certains états d'aliénation curables simulant la schizophrénie*]. (*L'Encéph.*, June, 1928.) Rossi, Santin-Carlos.

The author describes five cases bearing a close resemblance to dementia præcox, which, however, made complete recoveries. The treatment consisted in intestinal disinfection, the administration of lecithin and the induction of artificial pyrexia.

The main points which differentiated these cases clinically from dementia præcox were, first, the rapidity of the onset, and, second, the retention of a marked degree of affective contact with the world. The author considers that there is still a tendency to regard many curable cases as hopeless because labelled dementia præcox.

R. S. GIBSON.

Cataleptic Seizures: Their Diagnosis from Pathological Sleep and their Relation to Hysteria and Catatonia [*Les crises de catalepsie: Leur diagnostic avec le sommeil pathologique; leur rapports avec l'hystérie et la catatonie*]. (*L'Encéph.*, May, 1928.) Claude, H., and Baruk, H.

After a brief *résumé* of the history of the recognition of catalepsy, the authors describe the cataleptic state. They divide catalepsy into two forms—the hysterical and the catatonic. In the former, consciousness, though modified, is not lost, and the condition is followed by typical hysterical symptoms of the conversion type. In the latter there is a profound dissociation of consciousness along with marked negativistic behaviour. A comparison is made with the catatonic form of dementia præcox, and the ætiology and differential diagnosis are very fully discussed. The article is illustrated by numerous photographs, and several cases are described in detail.

R. S. GIBSON.

On Cataplexy, more especially on the Cataplexy of Awakening [*Sur la cataplexie et plus spécialement sur la cataplexie au réveil*]. (*L'Encéph.*, May, 1928.) Lhermitte, J., and Dupont, Yves.

The authors describe the cataplectic state as one of sudden onset in which the patient loses all muscular tonus, falls to the ground and lies in the attitude of profound sleep, retaining all the time his full consciousness, although quite unable to utter a word or make a movement. The case observed by Kinnier Wilson is described, in which, on examination, temporary abolition of all reflexes and an extensor plantar reflex were found.

The authors distinguish sharply between cataplexy on the one hand and hysterical trance, catalepsy and periodic paralysis on the other. They show the resemblance in many respects to normal sleep, and are inclined to support the theory of v. Economo that in sleep there are two elements, the psychic and the somatic, which normally function together. In cataplexy they find a case of somatic sleep occurring independently of the psychic phenomena.

R. S. GIBSON.

Pathological Sleep and Similar Conditions Studied by the Electrical Skin Resistance Method. (*Arch. of Neur. and Psychiat.*, February, 1929.) Richter, C. P.

The author's records show that narcoleptic patients and other persons suffering from similar conditions are physiologically abnormal, even in the intervals between the somnolent and cataplectic attacks. All the narcoleptics showed a high back-to-back and a relatively high palm-to-palm resistance, with marked fluctuations in both, not only from day to day, but even from moment to moment. There is undoubtedly a condition of great instability of the vegetative nervous system, which involves both the mechanisms that control sleep and those that control the tone of the skeletal muscles. On the evidence of the skin-resistance records, the sleep during the short cataplectic attacks is not deep. The author obtained similar records from three patients who were diagnosed as schizophrenics. All were semi-stuporose, and all showed marked depressive features in addition to the schizophrenic symptoms. All three recovered sufficiently to be sent home, although they remained dull and retarded. Possibly they were really suffering from some encephalitic process. These observations help to confirm Hoch's suggestion that some of the benign depressive stupors have much in common with normal sleep. Records from one patient with attacks of sleep, supposedly hysterical in origin, were similar to those obtained from narcoleptic patients, suggesting an organic basis in this case.

G. W. T. H. FLEMING.

Behaviour Problems in Encephalitis. (*Arch. of Neur. and Psychiat.*, January, 1929.) Strecker, E. A.

Behaviour disorders are a common accompaniment of epidemic encephalitis in children, and are severe in about 50% of cases. Typical cases of acute encephalitis are more liable than atypical

examples. In the author's series of 50 cases the behaviour disturbances tended to be more severe in the boys than in the girls, but the more studied and deliberate type of misconduct was relatively more common in the girls. Deviation of conduct in the sexual sphere was somewhat more pronounced in the girls. When the onset of the encephalitis fell between 6 and 13 years of age there was a somewhat greater likelihood of severe behaviour disorders. In the large majority of cases the behaviour difficulty was practically a continuation, rather than a sequel, of the acute illness. When Parkinsonianism occurred, the behaviour was only slightly involved.

G. W. T. H. FLEMING.

An Undescribed Syndrome as a Sequel to Encephalitis Lethargica [*Un type non décrit de syndrome résiduel post-encéphalitique*]. (*L'Encéph.*, April, 1928.) Lama, A.

This is a record of the post-encephalitic features of three cases.

The arms of the patients were almost continuously maintained in a position which the author likens to that of the wings of a dead fowl.

On assuming the erect posture the patients showed a tendency to fall backward, this being due to a relaxation of all the muscles first of one leg and then of the other.

The facial muscles were held rigid, producing a sardonic smile which only changed very slowly, and the speech was of the scanning type.

The article is illustrated by photographs.

R. S. GIBSON.

Epidemic Encephalitis and Epilepsy with Hyperthermia [*Encéphalite épidémique et crises épileptiques avec hyperthermie*]. (*L'Encéph.*, June, 1928.) Claude, H., Lamache, A., and Ceul, F.

The authors describe a series of cases taken from the literature in which encephalitis lethargica was followed by typical epileptic seizures. They then proceed to describe a case which came under their own observation. This patient had a protracted illness in which the symptoms were very suggestive of cerebral neoplasm, and which was accompanied by epileptiform seizures with elevation of temperature. The patient died, and *post-mortem* examination revealed no tumour, but gave evidence of a very diffuse encephalitis. The case is fully described, and the *post-mortem* findings exhaustively dealt with. The relation of the pathological changes to the pyrexia is discussed, and the opinion is expressed that the fever was probably due to recrudescences of the encephalitic infection. The great variety of ways in which encephalitis lethargica may manifest itself is emphasized.

R. S. GIBSON.

Delusions of Persecution following Acute Encephalitis [*Délire de persécution consécutif à une encéphalopathie aiguë*]. (*Bull. Soc. Clin. de Med. Ment.*, Jan.-Feb., 1928.) Marchand, L., Picard, F., and Courtois, A.

In this case, after a state of stuporose confusion with narcolepsy and increase of albumen and globulin in the cerebro-spinal

fluid, there followed multiple persistent hallucinations with associated delusions of persecution. The demonstrators remark on the rarity of this sequence, and take the case as an argument for the organic origin of certain cases of chronic delusions of persecution.

L. M. D. MILL.

Contagion from a Post-Encephalitic Parkinsonism [*Contagiosité du Parkinsonisme encéphalitique*]. (*Bull. Soc. Clin. de Med. Ment., March-April, 1928.*) Picard, J., and Masquin, P.

In showing a case which they consider proved to have been infected as above, MM. Jean Picard and Pierre Masquin emphasize the fact that epidemic encephalitis is contagious in its chronic as well as in its acute phase, and urge the necessity for prolonged treatment.

L. M. D. MILL.

4. Pathology.

The Nervous Constitution and its Pathology [*La doctrine de la constitution et la pathologie nerveuse*]. (*L'Hyg. Ment., April, 1928.*) Zanelli, G. F.

This article commences with a brief historical sketch of the theories of disease from the days of Hippocrates, and emphasizes the fact that during the nineteenth century the bacteriological and infective theories of disease assumed too great an importance. The author then proceeds to discuss the influence on neurotic conditions of the ductless glands and of the vegetative nervous system following the lines of work of de Giovanni and Viola.

The remainder of the article is devoted to the exposition of the author's own views on the subject, paying particular attention to affections of the autonomic nervous system and the influence of the ductless glands on it.

R. S. GIBSON.

The Mechanism of the Production of Pain in Ischæmia or Vascular Spasm [*Sur le mécanisme des douleurs ischémiques ou angio-spasmodiques*]. (*L'Encéph., April, 1928.*) Salmon, A.

The author reviews the current opinions of the ætiology of intermittent claudication, Raynaud's disease, acro-paræsthesia, angina pectoris and migraine. He points out that in several of these and allied conditions the patient frequently shows a tendency to venous engorgement, as manifested by the presence of such conditions as varicose veins and hæmorrhoids. He adduces arguments to show that the cause of the extreme pain in these conditions is not the arterial spasm, but the venous engorgement which accompanies and succeeds the spasm. This in turn, he considers, is caused by the action of the toxic products of metabolism acting on the sympathetic nerve-endings in the capillaries and veins.

R. S. GIBSON.

Body Acidity as Related to Emotional Excitability. (*Arch. of Neur. and Psychiat.*, September, 1928.) Rich, G. F.

The author examined amongst other features the H-ion concentration of the saliva, the acidity of the urine, the alkali reserve of the blood, the creatinine content of the blood and the creatinine excretion in the urine. Definite results were obtained only in cases with aggressiveness and emotional excitability. Rich found that the least excitable persons tend to have the most acid saliva, while the most excitable tend toward neutrality or even alkalinity of the saliva. Less excitable persons tend to have a more acid urine.

The author quotes the effect of the ketogenic diet in epilepsy as additional verification of the relation between acidity and excitability. With regard to creatinine, the more excitable persons tend to produce less creatinine. The alkali reserve of the blood does not show any tendency to vary with emotional excitability, but the alkali reserve of the blood as well as the amino-acids of the urine correlate negatively with ratings of aggressiveness. The author thinks that possibly the products of metabolism of other tissues may act as internal secretions and continually stimulate or depress the nervous system.

G. W. T. H. FLEMING.

The Sugar Content of the Blood in Emotional States. (*Arch. of Neur. and Psychiat.*, February, 1929.) Bowman, K. M., and Kasanin, J.

The authors found that in persons with mental disease the blood-sugar during fasting is usually within normal limits. There is no correlation between the mood of the patient and the height of the blood-sugar. That the blood-sugar content is not increased in psychotic patients with abnormal emotional states may be accounted for on the following hypotheses: (1) Lowered kidney threshold; (2) depletion of the glycogen content of the liver; (3) emotion in the psychotic patient may be a qualitatively different condition from emotion in a normal person.

G. W. T. H. FLEMING.

The Blood-Sugar Reaction to Insulin in Psychoses. (*Arch. of Neur. and Psychiat.*, January, 1929.) Appel, K. E., and Farr, C. B.

The authors found that in psychotics a relatively sharp fall of 29% occurs in the majority of cases within 90 minutes. The recovery process is more gradual and is not complete in 3½ hours. There is no difference between the reactions of patients with affective and those with schizophrenic psychoses. The type of reaction closely resembles that occurring in subjects who are under weight.

G. W. T. H. FLEMING.

Studies in Epilepsy. VII. The Basal Metabolism. (*Arch. of Neur. and Psychiat.*, October, 1928.) Lennox, W. G., and Wright, L. H.

The authors measured the basal metabolic rate in 130 patients with epilepsy. They found the average rate to be 3% below standard.

31% of cases were outside the "normal" zone of 10% above or below standard. 23% were 10% or more and 12% were 15% or more below standard. In certain of the patients the low rates could be explained by a disturbed function of the pituitary gland; in others the organs were probably functioning below their normal level because of poor musculature and faulty posture.

G. W. T. H. FLEMING.

The Brain-Liver Weight Ratio in Epilepsy. (*Arch. of Neur. and Psychiat.*, October, 1928.) Patterson, H. A., and Weingrow, S. M.

It has been stated that the brain-liver weight ratio in epilepsy, is greater than unity, whereas in the normal individual it is about .87. The authors' series consisted of 368 cases, of which 250 were non-emaciated persons with idiopathic epilepsy, 42 non-emaciated persons with non-idiopathic epilepsy, and 76 emaciated persons with idiopathic epilepsy. In the series with idiopathic epilepsy the weight of the liver fell below normal in 70% of the cases analysed. In the series with non-idiopathic epilepsy the weight of the liver fell below normal in 71.4% of cases. When both emaciation and epilepsy were present the weight of the liver was below normal in 85.5% of cases.

The authors conclude that the brain-liver weight ratio is not constant in epilepsy.

G. W. T. H. FLEMING.

The Weight of the Pancreas and the Ratio of the Weight of the Brain to that of the Pancreas in Epilepsy. (*Arch. of Neur. and Psychiat.*, January, 1929.) Patterson, H. A., and Weingrow, S. M.

The authors examined 378 cases, which fell into three groups: (a) Idiopathic epilepsy without emaciation, 277 cases; (b) non-idiopathic epilepsy without emaciation, 14 cases; and (c) idiopathic epilepsy with emaciation, 87 cases. All were over 16 years of age at the time of death. The normal weight of the pancreas is stated to lie between 60-120 grm. In all three groups the weight range of the pancreas exceeds the limits accepted as normal, being wider in the cases of idiopathic epilepsy. In idiopathic epilepsy without emaciation the weight increases with retardation in onset, up to the age of 40; after that it shows a decline in weight. The cases of idiopathic and non-idiopathic epilepsy without emaciation show no relationship between the weight of the pancreas and the duration of the disease. When the weights of the brains in a series are arranged in order of ascending magnitude, the corresponding weights of the pancreas assume the same order in the group of cases of idiopathic epilepsy without emaciation, but not the other groups.

In the cases of idiopathic epilepsy without emaciation the weight of the pancreas fell below normal in 37.5%, while the weight of the brain fell below normal in 48.4%. In the cases of idiopathic epilepsy with emaciation the weight of the pancreas fell below normal in 58.6%, while the weight of the brain fell below normal

in 51.7%. In the reduction of the weights of the pancreas and of the brain, the element due to epilepsy *per se* is greater than the element due to emaciation. Microcephaly accounts for a small proportion of the brains which are subnormal in weight. There was no evidence of retrograde changes in the weight of the pancreas with the advent of senescence. The ratio of the weight of the brain to that of the pancreas is not constant in epilepsy.

G. W. T. H. FLEMING.

Some Observations on the Leucocyte Count in Epilepsy. (*Arch. of Neur. and Psychiat.*, February, 1929.) Patterson, H. A., and Weingrow, S. M.

The authors studied 182 cases of epilepsy. 52% showed a leucocytosis, 25% gave normal counts, and 20% showed leucopenia. The leucocytosis noted was not neutrophilic but lymphocytic. Within the limits of physiological variation the rise in the leucocyte count is the same in non-idiopathic as in idiopathic epilepsy. No connection exists between the leucocyte count in epilepsy and the presence or absence of an aura. The leucocyte count in epilepsy does not appear to be affected by the secondary anæmia which often accompanies this condition.

G. W. T. H. FLEMING.

Amaurotic Family Idiocy and General Lipoid Degeneration. (*Arch. of Neur. and Psychiat.*, February, 1929.) Sachs, B.

Sachs points out how clinical and pathological work has revealed a surprising relationship with another group of diseases, *i.e.*, with Gaucher's disease and with the Niemann-Pick type of spleno-hepatomegaly. In both groups there is a general lipoid cellular degeneration with enlargement of the spleen and liver. Pick contends that in Tay-Sachs disease the same disturbance in lipoid metabolism is the predominant factor. Sachs thinks that there is undoubtedly a close relationship between the two diseases and that some endocrine disturbance is at work. In the only cases where the disease had been checked for a time, the children had been given various glandular extracts.

G. W. T. H. FLEMING.

The Brain in Mongolian Idiocy. (*Arch. of Neur. and Psychiat.*, December, 1928.) Davidoff, L. M.

The author thinks that there are few morphological changes that are constant with the exception of a small cerebellum and brain-stem, embryonic convolitional pattern, and a paucity of ganglion cells in the third cortical layer. He thinks that there may be a degenerative process at work in the early months of life. This is shown by the presence of granular corpuscles filled with the remains of the myelin from the axons of the degenerated cells. The brain in Mongolian idiocy shows (1) agenesis evidenced by cell poverty and failure of gyral development (probably there is also a degenerative process in very early life), (2) aplasia, shown by

its small size in comparison with that of children of corresponding age, (3) paragenesis, as demonstrated by the frequent occurrence of anomalies.

G. W. T. H. FLEMING.

The Skull of the Mongolian Imbecile. (*Edin. Med. Journ.*, May, 1927.) Greig, D. M.

The author describes in detail three skulls of typical female mongols, and shows that some of the features generally accepted by clinicians as essential characteristics of mongolism were not present in his skulls. The paper is well illustrated by photographs and by millimetre scale drawings. Tables give indices and measurements in detail, and by superimposing millimetre scale drawings of the three skulls it is shown conclusively they are very closely alike. The skulls are brachycephalic, hypsocephalic and orthognathic, platyrhine and megaseme, and in all the orbital fissures are large. The bones are smooth, and ill-marked with fascial and muscular attachments; none of the tuberosities are well marked, and there is a lack of development of all the accessory respiratory sinuses. The skulls are removed absolutely from those of the true microcephalic imbeciles by their altitude indices. In skull I the nasal bones were absent; in skull II they were present, but narrow; in skull III only the right nasal bone was present, and it was displaced. In the mongolian skull no attempt is made to replace the nasal bones as occurs in certain other cases of facial deformity. Of special interest to clinicians are the following findings: The macerated skull shows a want of development of the alveolar processes of the maxillæ, especially anteriorly, and the palate is well formed, and flat; erroneous clinical deductions have been made owing to inflammatory conditions causing hypertrophy of the gums. The body of the mandible is substantial, and each bulges laterally at its junction with the ramus, giving a breadth and fullness to this part of the face and a characteristic squareness of the jaw, which is one of the most striking features of the mongol's face, and which Greig attributes to the lateral pressure of the large tongue. No outward turning of the zygomatic arches, as was considered characteristic by Shuttleworth, was present, and no flattening of the occiput was found in the macerated skull to explain the characteristic parallelism between this region and the profile, and it is probable that the effect of the soft parts in the nuchal region has been under-estimated.

The disturbance of development is general. From the skull alone there is evidence that development normally begun has marked out all structures and features of the embryo, but has failed to lead them to perfection during fœtal growth. Greig agrees with Ormond and Williams that derangement of a single endocrine organ could not be responsible for poor mental and physical development, brachycephalic skulls, abnormally oblique epicanthic folds, congenital heart lesions, cleft palate, talipes, malformations of ears, syndactyly, etc., but is of opinion that the failure of a combination of endocrine organs might account for them.

R. M. CLARK.

Changes in the Brain in Increased Intracranial Pressure. (*Arch. of Neur. and Psychiat.*, December, 1928.) *Hassin, G. B.*

The author finds that increased intracranial pressure produces degenerative changes in the brain, associated with glial reactions which are analogous to the changes that result from prolonged pressure by a tumour on the brain or spinal cord. In the corpus callosum, optic nerve, chiasma and optic tract the changes are diffuse and noticeable; in the ganglion cells they are mild. The degenerative changes are combined with areas of rarefaction, which are due to stasis of tissue fluids and accumulation in some instances of katabolic products, such as basophil, metachromatic substances, lipoids and methyl-blue granules. The histological changes in pressure are of mechanical origin, and are due, as in the corpus callosum, to the actual tearing of nerve-fibres, or to nutritional disturbances brought on in some parts of the brain by stasis of the tissue fluids. The subarachnoid space and the blood-vessels usually exhibit proliferative reactive phenomena. G. W. T. H. FLEMING.

The Cerebral Circulation. V. Observation of the Pial Circulation during Changes in Intracranial Pressure. (*Arch. of Neur. and Psychiat.*, November, 1928.) *Wolff, H. G., and Forbes, H. S.*

The authors found that alterations in the rate of flow through the cerebral vessels depend on the ratio of intracranial venous to intracranial arterial pressure. The greater the difference the more rapid the flow. When intracranial pressure is raised to a great height there is slowing of the blood-flow and dilatation of the veins and arteries. When the pressure becomes high enough to stop the cerebral circulation the arteries become narrow and empty. Circulation through the cerebral vessels is maintained under moderately increased intracranial pressures without any rise in systemic arterial pressure. It is accompanied by dilatation of the cerebral arteries, and may be accounted for as follows: the rise in pressure of the cerebro-spinal fluid raises the pressure in the capillaries, in the arterioles and in the smaller arteries, causing dilatation of all these vessels. When the intracranial pressure is raised to a still greater height, the cerebral circulation begins to fail. The systemic arterial pressure then rises and the circulation of the brain is re-established. This compensation may occur several times if the intracranial pressure is raised by steps. Sudden release of high intracranial pressure brings about great dilatation of pial arteries, probably from relaxation of their walls, which in turn is due to partial asphyxia from the previous slowing of the cerebral circulation. G. W. T. H. FLEMING.

Barrier between the Blood and the Cerebro-spinal Fluid. I. Changes in Permeability in Mental Diseases. (*Arch. of Neur. and Psychiat.*, October, 1928.) *Malamud, W., Fuchs, D. M., and Malamud, N.*

The authors investigated 270 cases of mental disease. They found the following most characteristic changes: (a) In cases of

psychosis from cerebral arterio-sclerosis and in psychoses belonging to other groups in which there were signs of concomitant sclerosis of the cerebral vessels, a marked increase in permeability was noted (low permeability quotient); (b) untreated patients with paresis and cerebro-spinal syphilis showed a similar increase in permeability, which tended to decrease under treatment; (c) patients with schizophrenia of different types showed a marked tendency to decreased permeability (high permeability quotient). The permeability quotients showed little variation on repeated determinations. No relationship could be shown between the permeability quotient and age, sex or menstruation.

G. W. T. H. FLEMING.

The Rôle played by the Cerebral Capillaries in the Pathogenesis of General Paralysis. (*Fourn. of Nerv. and Ment. Dis.*, February, 1929.) Malamud, W., and Lowenberg, K.

The authors discuss the various views as to the origin of general paralysis, and point out that the discovery of the spirochæte in the cortex has merely served to confirm the syphilitic origin of the disease, but has not helped towards elucidating its pathology. They then present 6 cases of their own in which a careful microscopical examination was made, and offer the hypothesis that the capillaries of the cortex when damaged, serve as a bridge through which the invasion of the cortex takes place. They quote recent work on meningeal permeability, and state that they found after malarial treatment a distinct increase in the resistance to passage through the blood-cerebro-spinal fluid barrier. In one of their cases showing hyaline degeneration of the capillaries of the cortex, those areas which were free from hyaline degeneration were also free from parenchymatous involvement. They think that there exists a definite parallelism between the localization of the capillary involvement and that of the tissues they supply.

G. W. T. H. FLEMING.

Hyaline Degeneration of the Blood-vessels in Neuro-syphilis. (*Arch. of Neur. and Psychiat.*, October, 1928.) Lowenberg, K.

The author points out that hyaline degeneration of the vessels is rare in neuro-syphilis, and describes four cases. In the first the tendency was for the disease process to be restricted to certain areas, well illustrated in some parts of the occipital lobe. This limitation was well shown at the point where the inner granular layer splits into two, illustrating one of the most striking examples of cortical localization. The author then gives a sound discussion of the literature on the subject, and points out how his first case supports the view of the Vogts that the specific physico-chemical structure of the different physiological entities in the brain may make them susceptible to different types of diseases, their most recent work including under this theory the mesodermal as well as the ectodermal structures of the brain.

G. W. T. H. FLEMING.

The Relation between the Wassermann Reactions in the Blood and in the Cerebro-spinal Fluid. (Arch. of Neur. and Psychiat., February, 1929.) Katzenelbogen, S., Rogovine, S., and Monedjikova, V.

The authors studied 80 cases of neuro-syphilis, most of them general paralytics. They come to the conclusion that antibodies may be formed in the cerebro-spinal fluid and pass into the blood. The formation of antibodies in the cerebro-spinal fluid has been proved by Muttermilch at the Pasteur Institute.

G. W. T. H. FLEMING.

The Pathology of Paresis after Treatment with Malaria. (Arch. of Neur. and Psychiat., January, 1929.) Ferraro, A.

The author examined the brains of 29 patients who died at various intervals after inoculation with malaria, and found a favourable influence on the pathological process. There was no parallelism between the clinical and the pathological course of paresis after malarial treatment. In a few cases the clinical recovery is greater than the histological. A rough parallel does exist between clinical improvement and the subsidence of some of the ectodermal reactions (microglia and neuroglia). In two cases the author found the grape-like areas of Buscaino present in both the cortex and the white matter. He considers that the cribriform aspect is the result of solution of the special whitish substance which corresponds to the "X" substance of Buscaino or the mucin of Grynfelt. The beneficial influence of the malaria is chiefly exhibited in its effect in reducing the inflammatory reaction; this, however, appears to be independent of the clinical outcome of the treatment. This change in the inflammatory reaction consists in a diminution of the exudate and in a reduction of the new blood-vessels. While the former is of rapid occurrence, the latter is a more gradual and slower process. The influence on the parenchymatous changes is less definite. The lost nerve-cells are not, of course, restored by the treatment, but the effect on the neuroglial and microglial reactions is quite definite. In favourable cases the beneficial influence of the treatment is evident on both interstitial and mesodermic reactions. The less pronounced the parenchymatous changes, the higher are the chances of clinical improvement. No qualitative change in the pathological formula of the exudate follows the treatment of paresis with malaria. The number of plasma-cells remains in proportion to the number of lymphocytes. Neither gummata nor granulomata of the tertiary syphilitic type are generally encountered in patients treated with malaria; the hypothesis of the transformation of the paretic process into that of cerebral syphilis cannot be substantiated either from the study of the exudate or from the presence of specific reactive tissue. No aggravation of the paretic process in the early stages of the treatment, as claimed by other investigators, has been observed. In the acute stage of malaria a swelling of the endothelium of the small blood-vessels is

observable as the only pathological sign due to the malaria itself, but no granulomata or specific glial nodules can be observed.

G. W. T. H. FLEMING.

Tabes Dorsalis, Pathology and Pathogenesis. (*Arch. of Neur. and Psychiatry.*, February, 1929.) Hassin, G. B.

Hassin mentions the two chief theories of the pathogenesis of tabes dorsalis, the endogenous and the exogenous. He points out that the degenerative changes in the cord and certain portions of the posterior roots are combined with inflammatory phenomena in all three meninges and their spaces. One result of this inflammation is an obstruction of the perineural root spaces; consequently there is an interference with the escape of the spinal fluid; this causes stagnation of tissue fluids in the posterior columns of the cord and their ultimate degeneration. The degeneration is an endogenous process, and is not due to strangulation of the posterior roots. The proliferation of the cells of the arachnoid invades the perineural spaces, obstructs them, and so interferes with the flow of cerebro-spinal fluid from the subarachnoid space, causing stasis in the spinal cord: which results in rarefaction of spinal cord tissue and its ultimate sclerosis, which shows as islands of degeneration in the posterior columns. The pia-arachnoid phenomena are secondary to the distinctly inflammatory conditions of the dura and the epidural space. The strangulation phenomena are merely contributory.

G. W. T. H. FLEMING.

Local Tetanus. (*Arch. of Neur. and Psychiat.*, October, 1928.) Ranson, S. W.

The author discusses very fully the tonic contraction of muscles present in tetanus and the theories thereof. He found that in local tetanus the extensor muscles are in a state of contracture which is due to the formation of an irreversible sarcoplasmic gel, as it is not relaxed by section of the motor nerve or by the death of the animal. Tetanus toxin apparently has a direct action on the muscle-fibres as well as on the central nervous system. The author thinks that the sympathetic nervous system plays no part in the production of the tonic contractions of tetanus. The dorsal roots do not play the important rôle in the genesis of tetanus which has been assigned to them by some investigators. Typical tonic contractions occur in de-afferented muscles under the influence of tetanus toxin. This appears at first sight to be contrary not only to Frank's hypothesis of the antidromic conduction of tonic impulses in the dorsal roots, but also to Sherrington's conception of tonus as a proprioceptive reflex.

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The author discusses the various opinions expressed on the "grape-like areas of disintegration" originally described by Buscaino, and compares them with the "mucocytes" described by Grynfeldt

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The author discusses the various opinions expressed on the "grape-like areas of disintegration" originally described by Buscaino, and compares them with the "mucocytes" described by Grynfeldt

and Pelissier. He concludes that the two structures are identical. Bailey and Schaltenbrand conclude that acute swelling of the oligodendroglial cells and mucocytic degeneration of the neuroglia are different degrees of the same process. However, acute swelling occurs in frozen sections, but neither "mucocyte" nor "grape-like areas" occur unless alcohol has been used. In the present state of our knowledge it is important to realize that the presence of oligodendroglial cells showing a certain amount of mucin in their cytoplasm is not presumptive of a mucinoid degeneration of the cell, nor is the swelling of the oligodendroglia necessarily identical with the grape-like bodies.

G. W. T. H. FLEMING.

Changes in the Brain in Pyæmia and in Septicæmia. (*Arch. of Neur. and Psychiat.*, September, 1928.) Diamond, J. B.

Two cases were studied by the author, one of acute hæmatogenous infection with *Staphylococcus pyogenes aureus*, and the other of unknown origin. Pyæmic changes in the brain show mainly as acute inflammatory conditions, which may be local in the form of multiple foci or nodules which are reactions to the presence of a microbic agent. In contrast septicæmic changes in the brain show as patches or foci of softening. These foci are degenerative and are due merely to the action of toxins. These multiple soft patches contrast with the hard patches of multiple sclerosis. The central nerve changes occurring in septicæmia may be designated as multiple degenerative softening.

G. W. T. H. FLEMING.

So-called "Brain Purpura" or "Hæmorrhagic Encephalitis." (*Arch. of Neur. and Psychiat.*, September, 1928.) Alpers, B. J.

For this condition Alpers considers the term "medullary perivascular necrosis" superior to either brain purpura or hæmorrhagic encephalitis. The condition resembles multiple sclerosis and multiple areas of softening in many ways. The author considers that it may be either primary or secondary. In the former case the foci occur as the direct result of some toxin or infection. In the secondary type the foci occur as the result of circulatory disturbance in the brain. The cells surrounding the central necrotic area are oligodendroglia. There develops an area of coagulation necrosis around a central capillary. In this area are always to be seen cells in various degrees of degeneration. Alpers considers that the necrosis immediately around the vessel is due to local injury from the toxic or infective process, and that the coagulation necrosis at the periphery is due to occlusion of the blood-supply from the central vessel.

G. W. T. H. FLEMING.

Histogenesis of Cranial Meningitic Tumours [*Histogénèse des tumeurs méningées crâniennes, les "chitoneuromes crâniennes"*]. (*Journ. de Neur. et Psychiat.*, May, 1928.) Martin, J. F., Dechaume, J., and Puig.

The authors discuss briefly the normal anatomy of the meninges, and classify for their purposes the arachnoid along with the pia

mater. They then proceed to a short description of the development of the meninges from mesodermal tunica, holding that the meninges are homologous with the sheath of Schwann.

In discussing the actual signs of meningeal tumours the theories of Schmidt and Cushing, and of Oberling are reviewed, and mention is also made of the theory of Ronny, who regards certain tumours as being due to the activity of embryonic rudiments. The authors adopt the views of Oberling, who regards tumour-formation as due to the proliferation of meningoblastic cells.

The conditions favouring tumour-formation are dealt with, and the influence of injury and of infective and irritative processes is discussed. The nature of the neoplasms is fully described, and an interesting comparison is made with the neuro-fibromata found in Recklinghausen's disease.

There are several reproductions of photographs of microscopical preparations.

R. S. GIBSON.

5. Treatment.

Iodide of Potassium and Tuberculous Meningitis [*Iodide de Potassium et Méningite Tuberculeuse*]. (*Gaz. des Hôp.*, June 6, 1928.) Meriel, P.

This article is a warning of the danger of the use of potassium iodide in patients suffering from tuberculosis. In the adult tuberculous meningitis, the author considers, is always secondary to tuberculosis elsewhere, and is frequently latent, being usually lighted up by injury or a secondary infection of some other type.

In the case described, changes, probably tuberculous, occurred in the bones of the hand. Fairly large doses of potassium iodide were given, and a fortnight after the commencement of treatment all the signs and symptoms of acute tuberculous meningitis developed. The patient died.

The author quotes other authorities to support his view that the exciting cause of the onset of the meningitis was the administration of potassium iodide.

R. S. GIBSON.

Bulbocapnine in Diseases manifesting Dyskinesia. (*Arch. of Neur. and Psychiat.*, December, 1928.) Leiner, J. H., and Kaufman, M. R.

The authors injected 1-2 grm. of bulbocapnine hypodermically in 19 cases presenting various dyskinetic phenomena. In 2 out of 4 cases of paralysis agitans the effect was marked. In the encephalitic type of Parkinsonianism definite results were obtained in 3 out of 4 cases. There was no effect on the hypertonicity in the idiopathic Parkinsonian group. In cases of multiple sclerosis there was definite improvement with almost complete cessation of the intention tremor in one case, in three the improvement was slight, and in three long-standing cases there was no improvement. There was no effect on the speech, nystagmus or tremor of the

head. A patient with Huntington's chorea showed definite lessening of the abnormal movements. There was no change in the respiratory or pulse-rate, but headache and dizziness were almost constant. Hypnotic effects were well marked in twelve patients, three of whom went to sleep. Five showed a dulling of mentality, and one showed increased fatigability. It is possible that the soporific effect of this drug may account for the diminution of the abnormal movements, as it is well known that these movements disappear during sleep.

G. W. T. H. FLEMING.

Treatment of Parkinsonian States by Juster's Method. (Fourn. of Nerv. and Ment. Dis., November, 1928.) Shapiro, S.

The author treated 23 cases, of which 16 showed Parkinsonism and 7 were classical paralysis agitans. She administered dry stramonium leaves in doses of up to 24-36 gr. daily, given in small quantities every 1-2 hours. Some cases showed a remarkable improvement in a few days, others improved more slowly. The improvement was most marked in the muscular rigidity, salivation, posture, speech and mental condition. There were few bad effects. Those cases which do not improve at all or improve slightly are aged people with bad arterio-sclerotic conditions and very severe tremor.

G. W. T. H. FLEMING.

Thyroidectomy in Mentally Disturbed Patients with Exophthalmic Goitre. (Fourn. of Nerv. and Ment. Dis., October, 1928.) De Courcy, J. L.

In 14 insane patients with Graves' disease operated on by the author, 12 made complete mental recoveries and remained normal. The patients must have pre-operative rest and treatment with Lugol's solution, because of the danger of increasing the mental symptoms by a period of exacerbation which might otherwise follow immediately after the operation. The mental improvement usually takes from several months to a year to manifest itself.

G. W. T. H. FLEMING.

Insulin in Under-Nutrition in the Psychoses. (Arch. of Neur. and Psychiat., January, 1929.) Appel, K. E., Farr, C. B., and Marshall, H. K.

The authors gave to 33 patients insulin three times a day from 15-30 minutes before the three usual meals. Ten units were given the first day—5 before breakfast and 5 before supper—and the dosage increased by 5 units per day until 40 units per day was reached, unless intolerance was shown. The appetite and amount of food intake was increased in practically all cases. The dry, grey, flabby skin seen in most of these patients soon became healthy, even although the gain in weight had been slight. Many patients reached a weight they had never been in their lives although most of them were over 45. Two neurasthenic patients showed mental improvement, one schizophrenic who during the previous

year had refused weighing, medicines and physiotherapy, became agreeable and cooperative, and four patients with involutional melancholia improved.

G. W. T. H. FLEMING.

Chloride-Bromide Treatment of Epilepsy. (*Arch. of Neur. and Psychiat.*, January, 1929.) *Notkin, J.*

The author reduced the sodium chloride intake to 70 gr. daily and added at first a small dose of bromide (8-17 grains daily), and increased this gradually until the optimum dosage was reached. The bromide was combined with 10% sodium chloride. A quantitative analysis of the blood bromide by Bernouilli's or better by Wuth's method is desirable. The treatment of patients with bromide poisoning is based on the elimination of bromide and administration of sodium chloride, which is best given in the form of enemas of physiological saline.

G. W. T. H. FLEMING.

6. Sociology.

The Society for the Protection of Children, its Origin and Advance [*Le patronage de l'enfance, son origine, ses débuts*]. (*L'Hyg. Ment.*, May, 1928.) *Rollet, H.*

This article is a description of the work of a society founded in Paris in 1890 for the purpose of caring for children of the streets in danger of falling into vagabondage. It had a small beginning, but gradually enlisted wide sympathies, until it now cares for over three thousand children annually. An account is given of the increasingly sympathetic attitude of the legislature towards the work of the society, and of the evolution during the last forty years of the children's penal code.

R. S. GIBSON.

The Social Services for Abnormal Children at the Neuro-Psychiatric Observation Centre for Children [*Le service social pour enfants anormaux au centre d'observation de neuro-psychiatrie infantile*]. (*L'Hyg. Ment.*, May, 1928.) *Llevelyn-Roberts, Mme.*

This is a description of the work of the "Patronage de l'enfance" from the more strictly medical point of view. The importance of this work is emphasized, and the need for funds is stressed.

R. S. GIBSON.

The Work of the Children's Annexe of the Psychiatric Clinic [*Fonctionnement de la clinique-annexe de psychiatrie infantile et de son centre d'observation*]. (*L'Hyg. Ment.*, May, 1928.) *Heuyer, G., and Badonnel, Mlle. M.*

The extent of the work of this Clinic may be gathered from the fact that since 1925 over 2,000 children of the delinquent type have

been examined and disposed of. The examination comprises an inquiry into previous health, habits and social surroundings, a psychological examination on the lines laid down by Binet, Simon and others, investigation of memory and imagination, radiological investigations and even research into basal metabolism.

The authors classify the results of their investigations, and describe the methods of disposal and treatment of their patients.

They emphasize the difficulty of dealing with epileptic and post-encephalitic cases.

R. S. GIBSON.

Part IV.—Notes and News.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

QUARTERLY MEETING.

THE usual Quarterly Meeting of the Association was held on Wednesday, May 22, 1929, at University College, Gower Street, London, W.C., at 2 p.m., under the Presidency of Prof. J. Shaw Bolton, D.Sc., M.D.

The Council met the same morning and the Standing and Special Committees on the previous day.

THE MINUTES.

THE SECRETARY (Dr. REGINALD WORTH) read the minutes of the meeting held on February 14, and they were approved and signed.

A LOYAL MESSAGE TO HIS MAJESTY THE KING.

THE PRESIDENT proposed that the following message be despatched to the Private Secretary to His Majesty the King :

"The President, Council and other Members of the Royal Medico-Psychological Association, in general meeting assembled, May 22, 1929, desire that an expression of their joy, thankfulness and profound satisfaction should be conveyed to His Majesty the King on his recovery from his recent severe illness, and that His Majesty may be long spared to reign over his loyal and dutiful subjects."

This was carried amid applause.

Later the following reply was received :

"The King has received with much pleasure the message from the President, Council and Members of the Royal Medico-Psychological Association assembled in general meeting, and sincerely thanks them for their good wishes and congratulations on His Majesty's restoration to health.—PRIVATE SECRETARY."

OBITUARY.

Dr. Robert Lauder Mackenzie Wallis.

THE PRESIDENT spoke feelingly of the great loss medical science and the Association had sustained in the death from pneumonia of Dr. Mackenzie Wallis on April 1, 1929, and said that a message of condolence would be sent on behalf of members to Mrs. Mackenzie Wallis. Members rose in their places as a sign of their sympathy.

THE ANNUAL MEETING.

THE PRESIDENT announced that the Annual Meeting would be held in London, on July 9-12, 1929.

REPORT OF THE COUNCIL.

THE Council had sent a letter to Sir Hubert Bond congratulating him on the honour His Majesty had conferred upon him. (Loud applause.)

Dr. Alexander Walk had been appointed the Association's representative at the Congress of French-speaking Alienists which was being held at Barcelona.

The Council had appointed Mr. T. J. Shields Assistant Librarian to the Association *vice* Mr. S. Honeyman, retired. The remuneration remained unaltered.

ELECTION OF NEW MEMBERS.

Dr. Cedric Bower and Dr. W. Starkey were nominated scrutineers by the President, and the following were unanimously elected Members of the Association :

FITZGERALD, EDWARD JOSEPH, M.B., B.Ch.N.U.I., Assistant Medical Officer, Lancashire County Mental Hospital, Winwick, Warrington, Lancs.

Proposed by Drs. J. Ernest Nicole, J. Gifford and F. H. M. Calder.

HANNESSON, HANNES, B.Sc.Lond., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, The Coppice Hospital, Nottingham.

Proposed by Drs. David Hunter, G. L. Brunton and G. W. J. Mackay.

LAWS, JOHN JOSEPH, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Horton Mental Hospital, Epsom.

Proposed by Drs. J. R. Lord, W. D. Nicol and A. Walk.

MCCARTAN, WILLIAM, M.D.Belf., D.P.H., D.P.M., Assistant Medical Officer, West Park Mental Hospital, Epsom.

Proposed by Drs. Norcliffe Roberts, P. K. McCowan and J. S. Harris.

MACKAY, JOHN, M.B., Ch.B.Glasg., Assistant Medical Officer, Cumberland and Westmorland Mental Hospital, Carlisle.

Proposed by Drs. J. H. Madill, Charles Tisdall and J. R. Gilmour.

MULLIN, BARTHOLOMEW JOSEPH, M.C., L.R.C.P.&S.Irel., D.P.H., D.P.M., Deputy Medical Superintendent, Wonford House Hospital, Exeter.

Proposed by Drs. H. Wilfred Eddison, W. Starkey and H. B. Wilkinson.

O'CONNELL, DANIEL JOSEPH, M.B., B.Ch.N.U.I., Assistant Medical Officer, St. Andrew's Hospital, Northampton.

Proposed by Drs. D. F. Rambaut, Norman R. Phillips and R. Worth.

PEARCE, JOHN DALZIEL WYNDHAM, M.A., M.B., Ch.B.Edin., Assistant Medical Officer, Kent County Mental Hospital, Chartham Down, near Canterbury.

Proposed by Drs. M. A. Collins, J. Arthur Topham and F. C. M. Taylor.

ROBERTSON, JAMES ANDREW, M.B., Ch.B.Edin., Assistant Medical Officer, County Mental Hospital, Stafford.

Proposed by Drs. B. H. Shaw, K. K. Drury and J. R. Gilmour.

WATT, ALEXANDER WILSON, M.B., Ch.B.Glasg., Deputy Medical Superintendent, Cumberland and Westmorland Mental Hospital, Garlands, Carlisle.

Proposed by Drs. J. H. Madill, J. H. MacDonald and A. Allan Bell.

The meeting then adjourned until 3.30 p.m.

THE MAUDSLEY LECTURE.

Among those who had accepted the Association's invitation to be present on this occasion were: Dr. F. Aveling, Dr. H. B. Brackenbury, Dr. M. Bevan Brown, Dr. H. Crichton Miller, Dr. Forsyth, Prof. A. V. Hill, Dr. Neill Hobhouse, Miss Hollingsworth, Miss Edith Lord, Dr. Burnett Rae, Dr. J. R. Rees, Miss D. F. Robinson, Miss C. A. Simmins, Mrs. Spearman, Prof. Verney.

There were also present a number of psychological students of the College and members of the British Psychological Society.

The PRESIDENT resumed the Chair at 3.30 p.m., accompanied on the dais by Prof. C. Spearman, Ph.D., LL.D., F.R.S., Professor of Psychology in the University of London, and Dr. J. R. Lord, who, as in previous years, was in charge of the arrangements.

The PRESIDENT called upon Dr. Lord to read the list of those who had sent letters of regret at their inability to be present: Mr. H. M. Abrahams, Dr. E. A. Bennet, Dr. Izod Bennett, Sir James Berry, Dr. J. L. Birley, Sir Charlton Briscoe, Dr. Leonard F. Browne, Dr. H. V. Dicks, Miss Edgell, Dame Katharine Furse, Dr. Gordon, Dr. Hadfield, Mr. R. Hulme, Dr. A. N. Hutchison, The Countess of Limerick, Prof. McIntosh, Dr. D. O. Malcolm, Lord Moynihan, Sir James Purves-Stewart, Miss E. M. Sellar, Mr. Owen Smith, Mrs. StLoe Strachey, Dr. Tidy, Sir William Willcox, Dr. Worster-Drought.

The PRESIDENT, in introducing Prof. Spearman, said: We are here this afternoon to listen to the Tenth Maudsley Lecture, and we are privileged to have as our lecturer Prof. Spearman, who is undoubtedly the first psychologist of his day. (Applause.) In the case of some men one might produce a list of works which they have accomplished; in the case of some others, such would be almost an insult, as their work is so very well known. Prof. Spearman belongs to the latter class. (Applause.) As I happen to be a Fellow of University College, I am also

CORRIGENDUM.

July, 1929, page 549, 13th line from the bottom.

Delete "stigmata," insert "schemata."

particularly pleased personally that Prof. Spearman has invited us here to-day to listen to his lecture. We shall be listening to a man who has been lecturing in this College for twenty years or so. The older members of our Association will remember the time when psychology was essentially a subject which was studied by methods of introspection. I remember very well that time when I was studying psychology. It was a very dry subject. One read also the physiology of the sense-organs, and put the two together, but it was not easy to see in what way they were associated. Then there came along the predecessor of Prof. Spearman, Prof. James Sully, who by a study of his own children introduced a new method in the study of psychology, the objective method, and this is the method which we employ to-day. Further, it is employed in a manner which is more precise and mathematical than was the case in the time of Prof. Sully. As Dr. Galton, and later on Prof. Karl Pearson, introduced purely mathematical methods into the study of anthropology, so Prof. Spearman has introduced them into the study of the mind. One may even say that Prof. Spearman has weighed the mind, and that is one of the greatest achievements which has taken place during the greater part of a century.

There are one or two references of a personal nature I would like to make. One is the introduction by Prof. Spearman into University College of intelligence tests in the case of freshers. When my children first came to University College they wrote telling me about the intelligence tests, and they wrote in such a way that I felt certain that these had an importance much greater than the mere results, large or small, which might be obtained after they had been collated. They possessed a personal value with regard to the students themselves, who realized that psychology met them on the doorstep when they went to college. It was perhaps a small thing in itself, but it is a most important achievement to introduce it into a college of this kind.

The other is a very small matter. Our Lecturer in Psychology at the University of Leeds is a former student and assistant of Prof. Spearman, and if the latter could only hear the terms of affection and gratitude in which that gentleman speaks of him, he would not only deeply appreciate it, but it would be evident to him that he is one of the few great teachers who can so influence their juniors.

I have great pleasure in introducing Prof. Spearman to you.

PROF. SPEARMAN then delivered the Tenth Maudsley Lecture, the subject being : "The Psychiatric Use of the Methods and Results of Experimental Psychology" (*vide p. 357*).

At its conclusion Dr. W. F. MENZIES proposed a vote of thanks to the Lecturer. He said it had been with most peculiar pleasure that those present had listened to Prof. Spearman's work that day. It was evident, however, that from Prof. Spearman's own point of view, it was only meant to be an introduction. His, the speaker's personal view was that if only members could sit there daily for three months and listen to a similar lecture, how splendid it would be. (Applause.) Because, he supposed, members of the Association had a very rough-and-ready and superficial method of dealing with these things—methods which were far from the exact processes of experimental psychology; and he was sure a cold douche to recall one from those rough methods was at times a very good thing. He supposed they were more or less materialists in this matter of brain; and tendency would be to say, That is all very well, but every idea we have partakes of cognition, affection and conation; you cannot have an idea without involving all those three, and every one of those sections involves at least a hundred sub-ideas—what Head called "stigmata." These stigmata were thought to be erected into a huge whole, which was called an idea. It was particularly in things like this that Prof. Spearman and others working with him had their benefits for psychiatrists, for they brought one back to the details of practical every-day matters. There was an idea that affection depended mainly on the emotions. It was known that emotions had their numerous factors, the principal being the endocrine glands, because without effort on the part of endocrine glands there was no use in having sensorial stimuli from the outside world. With many other educational, racial, instinctive, habitual and personal and other considerations one gradually built up what was called an emotion. That was what materialists thought was the main part which affection played, and that, they said, increased such a thing as attention.

Those vague generalities were to be corrected by such exact methods as Prof. Spearman had brought forward to-day, and he was sure that all the present

company had listened to him with very great pleasure, and would wish to tender to him a very hearty vote of thanks indeed for it, as well as for the work he had done. It was their hope that he would go on with the work; the Association would do its best to help him in every way possible in the application of his methods to psychological medicine. Patients were not easy to deal with, and it made one look forward to the time when every general hospital would have its psychiatric wards and its psychiatric out-patients. Then Prof. Spearman would step in and examine the patients there and so help psychiatrists in their work, and so it was hoped that they would be cured more quickly. (Applause.)

Dr. H. CRICHTON MILLER said he had been asked to second this motion, as representing the visitors this afternoon, and he did so with great pleasure. It might be that the visitors were in a majority; it was an advantage of having such a famous lecturer as Prof. Spearman to give the afternoon's treat.

The vote was carried by acclamation, and the proceedings terminated.

Council Meeting.

There were several matters dealt with at the Council Meeting which the President was unable to mention at the general meeting, there being inadequate time to discuss them.

The Local Government Act, 1929.

The Parliamentary Committee reported that, at two meetings (one a special meeting), the Committee had considered the effects this Act might have on the future administration of the mental and mental deficiency services and the treatment of mental (especially early) cases.

The Committee's views were expressed in three resolutions, and these were recommended to the Council for adoption and circulation.

The Council after prolonged discussion adopted the resolutions, slightly amended, and ordered their circulation to the County Councils and County Borough Councils in England and Wales, and the County Councils and certain Burghs in Scotland as follows:

THE LOCAL GOVERNMENT ACT, 1929.

MEMORANDUM BY THE COUNCIL OF THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION ADDRESSED TO THE COUNTY COUNCILS AND COUNTY BOROUGHS IN ENGLAND AND WALES, AND TO THE COUNTY COUNCILS AND CERTAIN BURGHs IN SCOTLAND.

The Council of this Association desire earnestly to call the attention of Local Authorities to the following resolutions adopted at a meeting held in London on May 22, 1929:

1. The Council urges that the mental hospital and mental deficiency services be administered and controlled by one *ad hoc* committee of the Local Authority in each administrative area as outlined in the Local Government Act.

2. The Council desires to record its complete agreement with the findings of the Report of the Mental Deficiency Committee, known as the "Wood Report," as expressed in the final paragraph of page 13, which states that "the only really satisfactory criterion of mental deficiency is the social one, and if a person is suffering from a degree of incomplete mental development which renders him incapable of independent social adaptation and which necessitates external care, supervision and control, then such person is a mental defective." The Council endorses the view that such individuals, distinct from those found to be uneducable but not socially defective during the school period, should become the responsibility of the appropriate authority.

3. The Council urges that in submitting schemes under the Local Government Act, 1929, Local Authorities should provide suitable accommodation and facilities for earlier treatment, both in-patient and out-patient, for the purpose of reducing the incidence of mental illness, and that such facilities should be wherever possible in association with medical schools.

The Council offers to place the special knowledge and experience of members at the disposal of Local Authorities in the hope that the principles underlying these resolutions may be carried into practice.

Should any Local Authority wish to avail itself of this offer of assistance, correspondence should be addressed to the General Secretary, Royal Medico-Psychological Association, Springfield Mental Hospital, Tooting, S.W. 17.

R. WORTH,
General Secretary.

Nurses' Consultative Committee.

The Educational Committee announced that the Nurses' Consultative Committee had met and that its report had been referred to the Questionnaire Sub-Committee for examination.

The President-Elect.

The PRESIDENT declared the name of the President-Elect for 1929-30 to be Dr. Thomas Saxby Good, of Littlemore Hospital, Oxford.

Causes of Primary and Secondary Amentia.

On the recommendation of the Research and Clinical Committee a letter was ordered to be sent to the Minister of Health urging that a departmental committee of inquiry into the causes of primary and secondary amentia should be appointed.

The Mott Memorial Volume.

Referring to the publication of the Mott Memorial Volume on May 16, the President proposed a vote of thanks and congratulation to its Editor, Dr. J. R. Lord, on the successful conclusion of his heavy labours. The book was an admirable production in every way and most appropriate to and worthy of the occasion.

Dr. Lord said that Lady Mott was more than satisfied.

Report of the Royal Commission on Lunacy and Mental Disorder.

On the motion of Prof. G. M. ROBERTSON it was decided to circularize all members requesting them to ask the new members of Parliament to use their influence to have the suggestions of the Commission, together with further developments, passed into law at as early a date as possible.

SOUTH-EASTERN DIVISION.

THE SPRING MEETING of the South-Eastern Division took place on Wednesday, April 10, by the courtesy of Dr. A. A. W. Petrie and the Committee of Visitors, at the Banstead Mental Hospital, Sutton.

There were present 39 members and several visitors.

The Divisional Committee of Management met at 11 a.m. At noon, members and guests were shown over the hospital in groups by the medical and other officers. There was much of interest to see, especially the way in which a large part of the hospital had been modernized by the reconstruction of the old three-storey blocks and the division of the large wards into smaller units.

THE LUNCH.

At 1 p.m. members and guests were hospitably entertained to lunch.

Dr. J. R. LORD, in proposing the toast of "Banstead Mental Hospital," coupled with the name of Dr. A. A. W. Petrie, said that the history of Banstead was peculiarly bound up with the personality of its medical superintendents and medical officers. Originally Banstead was meant to house the chronic mental patients of the county of Middlesex, and it was taken over by the London County Council in 1888. There were many present who could speak of the history of Banstead in greater detail than he could, but he felt that he himself had no small knowledge of that hospital, as he would try to show. His first acquaintance with Banstead was in the early '90's, when he visited at the invitation of Dr., now Sir Hubert Bond, who was originally appointed there as pathologist. The Medical Superintendent was Dr. T. Claye Shaw, a keen observer of human nature, who showed much originality of thought, and was for years lecturer on Mental Disorders at

Bart.'s. He established and maintained an era of scientific psychiatry at Banstead, and it was a pity his teaching was largely lost to the world in that he never published his lectures. He was the author of several important articles in Tuke's *Dictionary of Psychological Medicine*, and contributed occasionally to other medical publications. He, the speaker, remembered one on "Cell Memory"—a biological study in which Clave Shaw showed himself a thinker much in advance of his time.

On his retirement Banstead passed into the hands of the amiable Dr. Johnston Jones—a man of sterling character, whose health did not permit of his retaining his responsible post for long. He was succeeded by Dr. Percy Spark, and Banstead passed into an era of reconstruction. Dr. Spark coming from the administration of one of London's latest mental institutions, namely, the Ewell Colony for Epileptics, could not fail to see in old Banstead the absolute necessity for its entire reorganization to conform with modern requirements in regard to classification and treatment of mental cases. They had present with them that day Mr. W. C. Clifford Smith, the man to whose architectural and engineering skill the Banstead of to-day owed so much. It was for fine work of this nature that the Association had made him an honorary member, and they were delighted to see him present and looking so well. (Applause.) To his technical skill and Percy Spark's humanity the patients at Banstead would in the future owe a great deal. The new and remodelled buildings which members had visited that morning would be ever associated with the names of these benefactors.

Banstead had now passed into other hands, and one had a vision of a return of the scientific and teaching era. The present Medical Superintendent, Dr. Petrie, their host that day, had already made important scientific contributions to psychiatry, and was eager in the search for truth in the ætiology of mental disorders and of those distressing physical complaints which still beset the patients in mental institutions. He was a keen experimenter in regard to treatment, and his enthusiasm in all these directions was already making itself felt in the daily life at Banstead. For some time he had been a lecturer in psychiatry, so there were good grounds for the vision which he, the speaker, had just mentioned. Other men who had made their influence felt in psychological medicine besides those he had mentioned had been on the medical staff at Banstead. He called to mind Dr. T. E. K. Stansfield, a pioneer of the villa system of accommodation, Dr. H. Wolsley-Lewis, who had done so much to raise the status of mental nurses, Dr. Addison, who afterwards became Minister of Health, Dr. Pasmore, who led the way as regards public asylums by dropping the term "asylum" in favour of "mental hospital." Dr. Whittaker (the Chaplain), who was present, could no doubt add to the list, but these names were sufficient to prove his contention, and there only remained to him to thank their host for his hospitality, and to ask them to drink cordially to the success of Banstead, with which toast he coupled the name of Dr. Petrie. (Loud applause.)

Dr. PETRIE, in reply, thanked Dr. Lord for his kind remarks and members generally for the toast they had just drunk. He referred to a number of the more notable men who had worked at Banstead. He spoke of the good work his predecessor had done in conjunction with Mr. Clifford Smith and of the further improvements which were contemplated.

After some words of thanks and appreciation from Mr. W. C. Clifford Smith members dispersed, to gather again at 2.30 p.m. for the transaction of business.

Dr. J. R. LORD was voted to the chair.

MINUTES.

The minutes of the previous meeting, having appeared in the Journal, were taken as read and were approved and signed by the Chairman.

ANNOUNCEMENTS.

The CHAIRMAN said no doubt the meeting would wish that a letter of congratulation be sent to Sir Hubert Bond, *K.B.E.*, a member of the Division, on his promotion by His Majesty from Commander to Knight of the Order to which he was admitted for his fine work during the war. This recognition of Sir Hubert's lifelong devotion to the interests of the mentally afflicted, he felt, was thoroughly deserved. (Applause.)

[Agreed.]

The CHAIRMAN said it was his painful duty to announce the death at Hove on

April 1 of Dr. Robert Lauder Mackenzie Wallis, one of the most brilliant biochemists of the day. His passing was a genuine loss to scientific psychiatry, which would be most felt in the Association by the Pathological, Bacteriological and Biochemical Sub-Committee. For that sub-committee he had taken on the direction of an important line of research.

The proposal to send a letter of condolence to Mrs. Mackenzie Wallis was adopted unanimously, and members stood in silence for a brief space of time as an expression of the deep regret they felt at the loss of their colleague.

ELECTION OF NEW MEMBERS.

The following candidates after ballot were unanimously elected members of the Association:

J. A. T. DENYSSEN, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Banstead Mental Hospital.

Proposed by Drs. A. A. W. Petrie, G. A. Lilly and Noel Sergeant.

E. J. CAMPBELL HEWITT, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer and Pathologist, Napsbury Mental Hospital, St. Albans, Herts.

Proposed by Drs. R. M. Macfarlane, A. O'Neill and David Robertson.

J. F. M. STENHOUSE, M.B., Ch.B.Glas., D.P.M., Assistant Medical Officer, Banstead Mental Hospital.

Proposed by Drs. A. A. W. Petrie, G. A. Lilly and Noel Sergeant.

OTHER ELECTIONS.

The following elections for the year 1929-30 were unanimously made:

Divisional Committee of Management.—Drs. David Bower, Helen Boyle, H. Devine, H. G. L. Haynes and H. J. Norman.

Divisional Secretary.—Dr. Noel Sergeant.

Representative Members of the Council.—Drs. David Bower, Helen Boyle, H. Devine, H. G. L. Haynes and H. J. Norman.

Chairman of the Division.—Dr. David Bower.

The CHAIRMAN said that it was now their duty under the revised bye-laws to elect one of the representative members of the Council as Chairman of the Division, who would thereby become a Vice-President of the Association.

The Division was happy in having many members worthy of that honour, but outstanding among them undoubtedly was the name of Dr. David Bower, who had done so much good work for the Association generally, and was held in high respect and great affection by every member of the Division. Dr. Bower had been approached and had expressed his willingness to accept the position, and he (the speaker) felt that the interests of the Division could not be in better hands. (Applause.)

Dr. H. G. L. HAYNES proposed and Dr. H. DEVINE seconded the motion that Dr. David Bower be appointed Chairman of the Division for 1929-30.

[Agreed.]

DIVISIONAL CLINICAL MEETINGS.

The CHAIRMAN said the promise he had made at their last meeting that he would organize at least one area for the holding of clinical meetings he had faithfully kept, and one such meeting had already been held on April 4, at Horton Mental Hospital. He had found it necessary, to meet the difficulty of London meetings, to divide the Division somewhat differently, and he had with him a plan showing the new areas, which members could inspect at their leisure. The areas were not a great departure from those already planned, but in the new Scheme each had an apex in London. On this principle areas fell quite naturally into northern, north-eastern, western, southern and south-eastern, the apices being respectively Hanwell, Claybury, Springfield, Epsom, The Maudsley.

With the meeting's permission he would continue the organization of these areas, and report from time to time to the Chairman of the Division the progress he made and obtain his guidance and assistance when necessary.

[Agreed.]

Bart.'s. He established and maintained an era of scientific psychiatry at Banstead, and it was a pity his teaching was largely lost to the world in that he never published his lectures. He was the author of several important articles in Tuke's *Dictionary of Psychological Medicine*, and contributed occasionally to other medical publications. He, the speaker, remembered one on "Cell Memory"—a biological study in which Clave Shaw showed himself a thinker much in advance of his time.

On his retirement Banstead passed into the hands of the amiable Dr. Johnston Jones—a man of sterling character, whose health did not permit of his retaining his responsible post for long. He was succeeded by Dr. Percy Spark, and Banstead passed into an era of reconstruction. Dr. Spark coming from the administration of one of London's latest mental institutions, namely, the Ewell Colony for Epileptics, could not fail to see in old Banstead the absolute necessity for its entire reorganization to conform with modern requirements in regard to classification and treatment of mental cases. They had present with them that day Mr. W. C. Clifford Smith, the man to whose architectural and engineering skill the Banstead of to-day owed so much. It was for fine work of this nature that the Association had made him an honorary member, and they were delighted to see him present and looking so well. (Applause.) To his technical skill and Percy Spark's humanity the patients at Banstead would in the future owe a great deal. The new and remodelled buildings which members had visited that morning would be ever associated with the names of these benefactors.

Banstead had now passed into other hands, and one had a vision of a return of the scientific and teaching era. The present Medical Superintendent, Dr. Petrie, their host that day, had already made important scientific contributions to psychiatry, and was eager in the search for truth in the ætiology of mental disorders and of those distressing physical complaints which still beset the patients in mental institutions. He was a keen experimenter in regard to treatment, and his enthusiasm in all these directions was already making itself felt in the daily life at Banstead. For some time he had been a lecturer in psychiatry, so there were good grounds for the vision which he, the speaker, had just mentioned. Other men who had made their influence felt in psychological medicine besides those he had mentioned had been on the medical staff at Banstead. He called to mind Dr. T. E. K. Stansfield, a pioneer of the villa system of accommodation, Dr. H. Wolseley-Lewis, who had done so much to raise the status of mental nurses, Dr. Addison, who afterwards became Minister of Health, Dr. Pasmore, who led the way as regards public asylums by dropping the term "asylum" in favour of "mental hospital." Dr. Whittaker (the Chaplain), who was present, could no doubt add to the list, but these names were sufficient to prove his contention, and there only remained to him to thank their host for his hospitality, and to ask them to drink cordially to the success of Banstead, with which toast he coupled the name of Dr. Petrie. (Loud applause.)

Dr. PETRIE, in reply, thanked Dr. Lord for his kind remarks and members generally for the toast they had just drunk. He referred to a number of the more notable men who had worked at Banstead. He spoke of the good work his predecessor had done in conjunction with Mr. Clifford Smith and of the further improvements which were contemplated.

After some words of thanks and appreciation from Mr. W. C. Clifford Smith members dispersed, to gather again at 2.30 p.m. for the transaction of business.

Dr. J. R. LORD was voted to the chair.

MINUTES.

The minutes of the previous meeting, having appeared in the Journal, were taken as read and were approved and signed by the Chairman.

ANNOUNCEMENTS.

The CHAIRMAN said no doubt the meeting would wish that a letter of congratulation be sent to Sir Hubert Bond, *K.B.E.*, a member of the Division, on his promotion by His Majesty from Commander to Knight of the Order to which he was admitted for his fine work during the war. This recognition of Sir Hubert's lifelong devotion to the interests of the mentally afflicted, he felt, was thoroughly deserved. (Applause.) [Agreed.]

The CHAIRMAN said it was his painful duty to announce the death at Hove on

April 1 of Dr. Robert Lauder Mackenzie Wallis, one of the most brilliant biochemists of the day. His passing was a genuine loss to scientific psychiatry, which would be most felt in the Association by the Pathological, Bacteriological and Biochemical Sub-Committee. For that sub-committee he had taken on the direction of an important line of research.

The proposal to send a letter of condolence to Mrs. Mackenzie Wallis was adopted unanimously, and members stood in silence for a brief space of time as an expression of the deep regret they felt at the loss of their colleague.

ELECTION OF NEW MEMBERS.

The following candidates after ballot were unanimously elected members of the Association:

J. A. T. DENYSSEN, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Banstead Mental Hospital.

Proposed by Drs. A. A. W. Petrie, G. A. Lilly and Noel Sergeant.

E. J. CAMPBELL HEWITT, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer and Pathologist, Napsbury Mental Hospital, St. Albans, Herts.

Proposed by Drs. R. M. Macfarlane, A. O'Neill and David Robertson.

J. F. M. STENHOUSE, M.B., Ch.B.Glas., D.P.M., Assistant Medical Officer, Banstead Mental Hospital.

Proposed by Drs. A. A. W. Petrie, G. A. Lilly and Noel Sergeant.

OTHER ELECTIONS.

The following elections for the year 1929-30 were unanimously made:

Divisional Committee of Management.—Drs. David Bower, Helen Boyle, H. Devine, H. G. L. Haynes and H. J. Norman.

Divisional Secretary.—Dr. Noel Sergeant.

Representative Members of the Council.—Drs. David Bower, Helen Boyle, H. Devine, H. G. L. Haynes and H. J. Norman.

Chairman of the Division.—Dr. David Bower.

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The Division was happy in having many members worthy of that honour, but outstanding among them undoubtedly was the name of Dr. David Bower, who had done so much good work for the Association generally, and was held in high respect and great affection by every member of the Division. Dr. Bower had been approached and had expressed his willingness to accept the position, and he (the speaker) felt that the interests of the Division could not be in better hands. (Applause.)

Dr. H. G. L. HAYNES proposed and Dr. H. DEVINE seconded the motion that Dr. David Bower be appointed Chairman of the Division for 1929-30.

[Agreed.]

DIVISIONAL CLINICAL MEETINGS.

The CHAIRMAN said the promise he had made at their last meeting that he would organize at least one area for the holding of clinical meetings he had faithfully kept, and one such meeting had already been held on April 4, at Horton Mental Hospital. He had found it necessary, to meet the difficulty of London meetings, to divide the Division somewhat differently, and he had with him a plan showing the new areas, which members could inspect at their leisure. The areas were not a great departure from those already planned, but in the new Scheme each had an apex in London. On this principle areas fell quite naturally into northern, north-eastern, western, southern and south-eastern, the apices being respectively Hanwell, Claybury, Springfield, Epsom, The Maudsley.

With the meeting's permission he would continue the organization of these areas, and report from time to time to the Chairman of the Division the progress he made and obtain his guidance and assistance when necessary. [Agreed.]

AUTUMN MEETING.

The date and place of the Autumn Meeting was left to the Chairman of the Division and the Honorary Secretary to arrange.

DEMONSTRATION.

Dr. PETRIE and Dr. G. A. LILLY then gave a demonstration on "Physical Types in Relation to Mental Disorders."

Dr. Petrie in his opening remarks spoke of the work of Kretschmer, an eminent psychiatrist and anthropologist, who laid it down that humanity was divisible into three principal types, namely, asthenic, athletic and pyknic. There were other small groups which presented atypical features, which Kretschmer called dysplastic. The interest lay in the fact that of the two great personality types, namely, cyclothymic and schizoid, the latter was mainly associated with the asthenic and athletic physical type and the former with the pyknic. This was the teaching of Kretschmer, and at Banstead an endeavour had been made by anthropometric examination of groups of patients to see how far Kretschmer's teaching in regard to this relation was borne out.

There seemed no doubt a good deal of truth in these teachings, which on the whole had been confirmed, as the cases to be demonstrated would show.

How far these measurements could be made practicable in every-day practice, and whether the ascertainment of these physical types would help materially towards a diagnosis between manic-depressive insanity and schizophrenia in doubtful cases, were points he hoped members would discuss. He, the speaker, had his doubts.

Many cases, both male and female, illustrative of these physical types and the associated mental state were demonstrated.

Several dysplastic types of great interest were also shown. There was no difficulty in most cases in distinguishing the stocky pyknic, but the other types required more consideration. There were, in addition, some mixed types. What struck most members was the inappropriateness in many cases of the term "athletic." The following tables from Kretschmer's work were distributed, and are now published for the information of those who desire to pursue the subject further.

PRINCIPAL AVERAGE MEASUREMENTS.

Asthenic Type.

	<i>Men.</i>	<i>Women.</i>
Height (cm.)	168·4	153·8
Weight (kilos.)	50·5	32·8
Width of shoulders	35·5	44·4
Chest	84·1	77·7
Stomach	74·1	67·7
Hips (circum.)	84·7	82·2
Forearm "	23·5	20·4
Hand "	19·7	18·0
Calf "	30·0	27·7
Leg (length)	89·4	79·2

Athletic Type.

	<i>Men.</i>	<i>Women.</i>
Height (cm.)	170·0	163·1
Weight (kilos.)	62·9	61·7
Width of shoulders	39·1	37·4
Chest	91·7	86·0
Stomach	79·6	95·1
Hips (circum.)	26·2	24·2
Forearm "	91·5	95·8
Hand "	21·7	20·0
Calf "	33·1	31·7
Length of leg	90·9	85·0

Pyknic Type.

	<i>Men.</i>	<i>Women.</i>
Height (cm.)	167·8	156·5
Weight (kilos.)	68·0	56·3
Width of shoulders	36·9	34·3
Chest	94·5	86·0
Stomach	88·8	78·7
Hips (circum.)	92·0	94·2
Forearm „	25·5	22·4
Hand „	20·7	18·6
Calf „	33·2	31·2
Length of leg	87·4	80·5

HEAD MEASUREMENTS.**Asthenic Schizophrenic.**

	<i>Men.</i>	<i>Women.</i>
Round the skull (cm.)	55·3	53·6
Sagittal diameter	18·0	17·0
Maximum frontal diameter	15·6	15·0
Vertical diameter	19·9	19·2
Height of face	7·8 : 4·5	7·1 : 4·1
Breadth of face	13·9 : 10·5	13·0 : 9·7
Length of nose	5·8	5·2

Athletic Schizophrenic.

	<i>Men.</i>	<i>Women.</i>
Round the skull (cm.)	56·0	54·8
Sagittal diameter	18·7	17·6
Maximum frontal diameter	15·3	15·4
Vertical diameter	20·6	19·6
Height of face	8·3 : 5·2	7·6 : 4·6
Breadth of face	14·2 : 11·0	13·7 : 10·5
Length of nose	5·8	5·7

Pyknic Cyclothyme.

	<i>Men.</i>	<i>Women.</i>
Round the skull (cm.)	57·3	54·5
Sagittal diameter	18·9	17·1
Maximum frontal diameter	15·8	15·0
Vertical diameter	20·3	19·1
Height of face	7·8 : 4·8	7·3 : 4·3
Breadth of face	15·3 : 11·0	13·3 : 10·4
Length of nose	5·5	5·2

PHYSICAL TYPE AND TEMPERAMENT.

<i>Type.</i>	<i>Cycloid.</i>	<i>Schizoid.</i>
Asthenic	4	81
Athletic	3	31
Pyknic	58	2
Dysplastic . . . . .	..	34

At the conclusion the CHAIRMAN thanked Dr. Petrie and Dr. Lilly for a very interesting and instructive demonstration. He went on to say:

He agreed with Dr. Petrie that these measurements were of doubtful importance in clinical psychiatry. As biological facts in relation to mental make-up or temperament, one could not question Kretschmer's conclusions regarding the close relationship between the pyknic type and manic-depressive psychosis and the asthenic type and schizophrenia. The athletic temperamental relationships were not so convincing.

He, the speaker, was one of the disillusioned in regard to the importance of anthropometry in psychiatry, *i.e.*, in the practical sense. In theory it seemed also

doubtful. At the beginning of his psychiatric career he had done many measurements under the guidance of Dr. Edwin Goodall, at Carmarthen, chiefly as regards the palate. He continued this work at Hanwell, and took a cast of the mouth in literally hundreds of patients. He found no relationship between the palate and mental state of any real value in diagnosis. Perhaps he had expected too much, and his time would have been more wisely spent in comparing these measurements with temperaments.

However, the matter was settled for him not long afterwards by the publication of Goring's *English Convict*, which put an end to the theory of the hereditary and constitutional criminal associated with a distinct physical type, and the Lombroso School practically died out.

It did seem ridiculous, this so-called criminal type, when one came to look back on it. Thieves had small and murderers large hands. Other characteristics of the criminal were: heavy lower jaw, abundant dark hair, scanty beard, stooping shoulders and a flat chest. It was to the credit of anthropometrists, that they did try to substitute accurate measurements for such vagaries.

Mankind had been classified in many ways by many people, but Lombroso was the first to attempt scientifically to correlate physical and mental characteristics. Constitutional and temperamental classifications had existed since the beginning of medical science. But classifications of real clinical value were late products, such as introverts and extroverts, vagotonics and sympathetico-tonics, cyclothymics and schizophrenics, etc. Whether this return to the anthropometric classification was likely to be fruitful in clinical psychiatry required careful consideration. Should they recommend it as a line of research for medical officers? He, the speaker, was not prepared to do this. There were other matters more urgently in need of intensive study. Anthropometric observations were only of value under identical conditions, and perhaps 50,000 observations on one point were none too few if the results were to be of any value.

There were so many cross-currents in the formation of character which confused the issue as regards constitutional and temperamental trends, such as accidents at birth, early toxæmias, upbringing and education, social status, etc.

The speaker went on to describe Clouston's variation of Galton's and Charles Booth's classification, which was (1) average man, (2) marked talent all round, (3) the lesser genius, (4) the genius, (5) the crank and markedly eccentric and the anarchist, (6) the markedly under-averaged—the tramp, vagrant, the submerged tenth, the natural pauper, (7) those liable to curable mental disorders, (8) the adolescent, the dementia præcox, (9) the epileptic, (10) the feeble-minded, (11) the imbecile and idiot. What practical value had such a sociological classification for them?

The best literature on the subject in recent times was Auden's paper "On Endogenous and Exogenous Factors in Character Formation" (*Journal of Mental Science*, January, 1926), and Hutchison's "Physiological Personality" (*Lancet*, March 31, 1928), and these he advised members to read.

Kretschmer's *Physique and Character* would become a classic, it could be obtained from Kegan Paul, Trench, Trübner & Co., Ltd., London (15s.). A good digest of Kretschmer's teaching would be found in the *Miniature Series* of the same publishers, *i.e.*, *Types of Mind and Body*, by Dr. E. Miller (2s. 6d.).

A final word of thanks to Dr. Petrie for a very instructive and enjoyable day concluded the meeting.

SOUTH-WESTERN DIVISION.

THE SPRING MEETING of the Division was held, by kind invitation of Drs. Bertha and Annie Mules, at Clifden, Teignmouth, on Friday, April 26, 1929. Fifteen members and nine visitors were present.

Dr. J. G. Soutar was voted to the Chair, and the minutes of the last meeting were confirmed and signed.

Dr. W. Starkey was re-elected Honorary Divisional Secretary, and Drs. J. G. Soutar and J. McGarvey were elected representative members of Council for 1929-30.

Dr. J. G. Soutar was elected Divisional Chairman for 1929-30.

Drs. Bertha Mules and J. L. Jackson were elected members of the Committee of Management, in place of Drs. Dudley and Thomas, who retire in rotation.

The following was elected an ordinary member of the Association :

GEORGE WISHART WILL, M.B., Ch.B.(N.Z.), M.P.C., Major R.A.M.C., "D" Block, Royal Victoria Hospital, Netley Abbey, Hants.

Proposed by Major H. Gall, R.A.M.C., and Drs. J. L. Jackson and C. E. A. Shepherd.

The Autumn Meeting of the Division was fixed for Thursday, October 24, 1929, the place to be arranged by the Hon. Divisional Secretary.

Dr. RICHARD EAGER, O.B.E., then introduced a discussion on "The Out-patient Treatment of Mental Cases," basing his remarks on the experience of the Exeter Clinic. He stressed the importance of staffing such clinics with experienced psychiatrists, and urged that they should form a department of a general hospital, with in-patient accommodation provided if possible for observation cases.

Dr. MARY BARKAS followed, and in a most interesting speech discussed the functions of such clinics, dealing in particular with their value as sorting stations, and pointing out the importance of having an almoner's department associated.

Drs. MCKINLEY REID, H. W. EDDISON, W. F. NELIS and W. STARKEY also took part in the discussion, and the Divisional Chairman (Dr. J. G. SOUTAR) summed up in a most interesting and able speech.

During the morning, and after the meeting, the members and visitors were conducted round the House and its beautiful gardens, with their superb views of sea and coast. They were entertained to lunch and tea, and spent a most enjoyable day under ideal conditions.

A hearty vote of thanks was accorded to Drs. B. and A. Mules for their generous hospitality.

NORTHERN AND MIDLAND DIVISION.

THE SPRING MEETING of the Northern and Midland Division was held by the kind invitation of Dr. G. Hamilton Grills, at the County Mental Hospital, Chester, on Thursday, April 25, 1929.

There were present twenty-four members and seven guests.

During the forenoon the members were shown over the hospital by Dr. Grills, who subsequently entertained them to lunch. Dr. W. F. MENZIES proposed a vote of thanks to Dr. Grills for his kindness and hospitality, and this was carried by acclamation.

On the proposal of Dr. H. DOVE CORMAC, seconded by Dr. MENZIES, Dr. Grills was elected Chairman of the meeting.

The minutes of the Autumn Meeting were read, confirmed and signed by the Chairman.

The report of the Divisional Committee was read. The names of the following members were then added to this Committee: Dr. H. J. Drake-Brockman, Dr. W. F. Menzies and Dr. B. H. Shaw.

Dr. J. Ivison Russell was appointed Secretary to the Division, and Drs. Archdale, H. Dove Cormac and J. R. Gilmour were elected Representative Members of the Council for 1929-30.

Dr. J. R. Gilmour was elected Chairman of the Division for 1929-30.

The three following candidates for ordinary membership were duly balloted for and unanimously elected:

DAVID HENDERSON, M.D., Ch.B.Glasg., Assistant Medical Officer and Pathologist, Cheddleton Mental Hospital, Staffs.

Proposed by Drs. W. F. Menzies, W. D. Wilkins and E. A. Chennell.

DAVID RUSSELL, M.B., Ch.B.Glasg., Assistant Medical Officer, City Mental Hospital, Mapperley Hill, Nottingham.

Proposed by Drs. A. M. Dryden, G. L. Brunton and G. W. J. Mackay.

ROLF STRÖM-OLSEN, B.Sc., L.R.C.P.Lond., M.R.C.S.Eng., Assistant Medical Officer, Mental Hospital, Rowditch, Derby.

Proposed by Drs. J. Bain, G. L. Brunton and G. N. Bartlett.

Dr. A. W. H. SMITH then read a paper, "Dermographia in the Insane," which was followed by a short discussion (*vide* p. 458).

Dr. I. A. GILLESPIE briefly described two cases : (a) A young woman with early disseminated sclerosis. The patient was shown and the various symptoms demonstrated. (b) A case of general paralysis who showed marked improvement after hyperpyrexia.

Dr. F. H. HEALEY showed two pathological specimens : (a) A brain with marked cortical atrophy. (b) A brain from a case of encephalitis.

Dr. J. B. PANTON showed a specimen of cerebral tumour from a patient who had recently died shortly after his admission.

All the cases and specimens were followed by short discussions.

It was left to the Secretary to fix the time and place of the Autumn Meeting.

A vote of thanks to the Chairman ended the meeting.

The Autumn Meeting of the Division will be held at Warwick County Mental Hospital, Hatton, on the invitation of Dr. Forrester.

IRISH DIVISION.

THE Quarterly and Clinical Meeting of the Irish Division was held at Purdysburn Villa Colony, by the kind invitation of the Committee of Management and Dr. S. J. Graham, Medical Superintendent, on April 11, 1929.

Twenty members were present. Dr. S. J. Graham was in the Chair.

A number of consulting physicians from Belfast were guests at the luncheon and meeting.

Apologies for unavoidable absence were received from Dr. T. A. Greene, of Carlow, Dr. L. Gavin, of Mullingar, and Dr. Owen Felix McCarthy, of Cork.

The minutes of the last meeting were read, approved and signed by the Chairman.

Letters were read from the Departments of Local Government and Public Health of the Irish Free State, regretting that they were unable to appoint a representative of the Royal Medico-Psychological Association to the General Nursing Council. The matter was fully discussed and much regret was felt at this decision.

It was agreed that a letter be sent to the Department of Local Government and Public Health, requesting them, in the event of a vacancy occurring on the General Nursing Council during the next five years (for which period the G.N.C. has been re-elected) to nominate to the Council a representative of those who train mental nurses in the Irish Free State.

Dr. Robert Thompson, of St. Patrick's Hospital, Dublin, having been duly nominated by six members, was unanimously elected to the position of Divisional Secretary of the Irish Division for the ensuing year.

Dr. S. J. Graham and Dr. R. R. Leeper, having been nominated by six members, were unanimously elected Representative Members of Council for 1929-30.

Dr. R. R. Leeper, having been proposed by a large number of the members, was unanimously elected Chairman of the Division for 1929-30.

Following Dr. Leeper's election as Chairman of the Division, Dr. Graham, from the Chair, and several of the members present paid striking tribute to his work as Honorary Secretary. All emphasized his untiring devotion to the interests of the Division since his appointment in 1911, and several stated that, but for his efforts and personality, the Division would exist in name only. Many of the members pointed out that, despite the critical period through which their country had passed, Dr. Leeper had not been absent from a single meeting since his appointment.

They felt also that his period in the Chair would be a worthy example to those who would follow him, and the Chairman and members directed that this expression of appreciation be formally entered in the minutes.

Dr. Leeper returned sincere thanks to the Chairman and members for the many kind words they had said about him. He only wished his abilities had enabled him to serve them better. He thought that the Irish Division had never been more progressive than at present, and that the establishment of the Clinical Meetings had awakened a wider interest among the younger members and a progressive spirit which could be productive of nothing but good to the advancement of psychiatry in Ireland.

In endeavouring to fix dates of meetings for the ensuing year, it was recognized that, owing to the establishment of the Clinical Meetings, approximate dates only were possible.

A letter was received from Dr. Owen Felix McCarthy, of Cork, intimating that he would be pleased to have the next Divisional Meeting held at his mental hospital, in Cork, at a date early in August, to be subsequently fixed.

It was decided that the next Quarterly and Clinical Meeting be held in either November or December, agreeably with the wishes of the inviting medical superintendent.

The Spring Meeting of the Division was fixed for April, 1930.

DIVISIONAL CLINICAL MEETING.

Purdysburn Villa Colony, Belfast.

A Clinical Meeting was held at the above hospital, following immediately on the Quarterly Meeting of the Irish Division on April, 11, 1929.

Dr. NORMAN GRAHAM showed a number of patients who had been cured of general paralysis by malarial treatment, and who had resumed and had successfully carried on their various avocations for several years—some of them since 1924. Two dramatic cases were two patients who, admitted on the same day, were discharged "recovered" on the same day.

A humorous reference (which was thoroughly appreciated by the patients themselves) was made to their exalted delusions and to the enormous cheques and sums of money which they respectively wished to present to Dr. Graham during their illness. One patient stated that he felt as if something suddenly snapped in his brain, and that he regained his reason instantly.

Another patient, who had suffered from tabo-paresis, was able to walk without any apparent difficulty and had carried on his business in a most satisfactory manner since his discharge.

Dr. GRAHAM showed a case of Charcot's disease of the knee-joint in a tabetic woman, with marked pathological mobility.

Dr. DOROTHY M. GARDNER demonstrated a case of *folie à deux* in sisters who, though separated from each other, still manifested almost identical delusions. These patients were examined by the members and gave a most interesting account of themselves. The clinical notes were:

Two sisters, spinsters, the Misses A. and B., aged 42 and 40 years respectively, were admitted to Purdysburn in June, 1927, suffering from paranoia. They were found to be cases of induced insanity, psychic infection having taken place during a protracted illness of the younger sister. There was no family history of insanity. The previous history shows that until 1920 they lived a sheltered existence. Then came a time of stress and financial worry. Miss B— became very ill and thought that all her food was poisoned. During the prolonged period of nursing Miss A— came to believe in her sister's delusions. They found it necessary to barricade their house to keep men out. One day two Orangemen made mysterious signs, meaning that they were in reality two gentlemen whom they had known very slightly many years before. They have now lost their liberty, because these men claim them, and are continually making signs to show that they wish to marry them. They can wear only certain colours of dresses, as these colours are associated with the two men. The disordered state of mind persists though they have lived apart for the past two years.

Dr. NORMAN GRAHAM and Dr. GARDNER next proceeded to demonstrate a new method of diagnosing syphilitic infection. This is known as Butler's modification of the Kahn test, and is much simpler in technique than the Wassermann reaction. Positive and negative reactions were demonstrated on slides, and the members had the opportunity of seeing both these exhibited. Dr. Graham stated that he had only had this test in use for a short time and had not yet had an opportunity of appraising its full value. The usefulness of this test lay in its simplicity. All the admissions to Purdysburn Villa Colony were now tested for syphilitic infection, and it was surprising what a number of unsuspected infections were thereby revealed.

A cordial vote of thanks was proposed by Dr. Martin, of Letterkenny, and seconded by Dr. Nolan, to the Committee of Management of Purdysburn Villa Colony, and to Dr. S. J. Graham for their hospitality in entertaining the Division, and for the opportunity of seeing the valuable work being done by Dr. Graham and the staff of the Colony in the clinical and pathological work of the institution.

This terminated the proceedings.

BRITISH MEDICAL ASSOCIATION.

OXFORD AND READING BRANCH—WINDSOR DIVISION.

At the Annual General Meeting of this Division, held at the King Edward VII Hospital, Windsor, on Friday, May 31, 1929, the following resolutions were approved for submission to the Representative Body of the B.M.A. :

(1) " That all departments of hospitals dealing with early nervous, borderland, or mental patients, whether sent in as observation cases or otherwise, should be under the care of experts in this branch of medicine."

(2) " That County Councils and County Borough Councils should be asked, in re-allocating beds which come under their agis under the De-rating Act, to consider the claims of the early nervous and borderland patients, for whom, in most places there is now no provision whatever."

(3) " The Association is of the opinion that in any scheme which may be devised, the early nervous or borderland cases should be separated from the mental cases sent in through the Public Assistance Committee for observation, and that both classes should be separated from chronic mental cases."

(4) " The Association is of opinion that it should be possible to have a Visiting Specialist in charge of these wards, this system having proved satisfactory, so far as observation wards are concerned, in various institutions throughout the country."

THE TAVISTOCK SQUARE CLINIC.

The annual general meeting of the Tavistock Square Clinic took place at the Hotel Russell on May 6. Sir Frederick Willis presided.

SIR FREDERICK WILLIS said that the annual report was the record of good work. This Clinic was started eight years ago, because of the urgent need for treating cases of mental illness. It was a remarkable fact that the incidence of certified insanity in this country and also the recovery-rate had not improved for a large number of years—the more remarkable because in other spheres of medical treatment great improvements had been made. One reason might be that other illnesses were now treated earlier than formerly, whereas early mental illness had gone untreated.

Dr. CRICHTON MILLER stated that during the last twelve months there had been 5,447 attendances (4,582 adults and 865 children). There was no appreciable difference in the number of new cases, but the average length of treatment had increased. Adults who received treatment, as opposed to mere consultation or advice, had been seen, on the average, fifteen times. The number of cases referred to the Clinic by hospitals had doubled in three years, and that of cases referred from police courts (mostly children) had nearly trebled. The honorary and acting staff, including the clinical assistants, numbered thirty-three doctors. The Clinic was suffering from limitation of space and a scheme for extension had been prepared.

JOINT BOARD OF RESEARCH FOR MENTAL DISEASES.

CITY AND UNIVERSITY OF BIRMINGHAM.

**Annual Report of the Laboratory for the Year ending
March 14, 1928.**

[Abridged.]

STAFF.

THE Director, F. A. Pickworth, B.Sc., M.B., B.S.Lond., A.I.C., is assisted by D. L. Woodhouse, M.Sc., Research Scholar, and by H. A. Strecker, M.D., Hon. Research Appointment, H. Blunden, Bacteriological Assistant, A. T. Rennie, Histological Assistant, and G. Murray, General Assistant.

General.—The investigation of the fat-lipoid-cholesterol ratios in adrenals and gonads has now been completed and is ready for publication. Further experiments on basal metabolism have been carried out, although this work was interrupted

for several months by building alterations; it is now, however, being again regularly investigated. There has also been some delay in the investigation of the permeability of brain membranes. The study of the serological agglutination reactions has been continued. A special technique has been developed for the investigation of the bacteriology of the nasal sinuses. Many specimens of sphenoidal sinusitis from *post-mortem* examinations have been collected and preserved for special study of septic conditions adjacent to the pituitary gland, with a view to the correlation of endocrine disturbances consequent upon such conditions. The histological investigation of these and other sinuses is being carried out to determine whether there is a direct bacterial spread from the sinuses to the brain in addition to the toxic absorption effects which are known to occur.

Laboratory work includes the examination of 3861 specimens. Nineteen patients have been investigated for basal metabolism and 45 *post-mortem* examinations have been made.

Bacteriological.—A considerable amount of time has been expended in the elaboration of a satisfactory technique for the collection, transmission and culture of organisms from the post-nasal sinuses. In collaboration with the clinical work of Dr. Graves and surgical investigations by Mr. Stirk Adams over 500 specimens have been examined. A number of these have shown pure uncontaminated cultures of important streptococci and, what is perhaps of considerable significance, of diphtheroids and various "fæcal" organisms, such as *B. proteus* and *B. pyocyaneus* (but not *B. coli*). Much work has been done to elucidate the abnormal agglutination-response of patients by animal tests under a great variety of conditions. As in previous years, a considerable number of non-agglutinating organisms of the paratyphoid ("Salmonella") group have been found, with occasional undoubted pathogenic organisms (*B. typhosus* twice, dysentery Y twice).

Histological.—About half the number of sphenoidal sinuses examined *post-mortem* show evidences of active or previous inflammatory change. Over 20 such specimens have been collected and mounted, and many of these further investigated by histological examination of a section of the pituitary fossa and sinus for bacterial invasion. One case (G. S—) clearly showed the passage of organisms from the sinus membrane into bone, dura mater and pituitary. The method for the detection of Gram-negative organisms has been applied to the study of these sinus conditions and of the hypothalamic region of the brain. It is believed that this is a likely site of bacterial and toxic invasion of the brain *via* the pituitary stalk. There has also been an investigation of the stomach mucosa in *post-mortem* examinations, and in one case which showed multiple hæmorrhages resembling a leopard's skin, diplococci were found within the thrombosed vessels and deep in the tissue, these being considered responsible for the superficial hæmorrhages. Other specimens of stomach mucosæ have been obtained showing the various stages between this condition and erosions or multiple small ulcers.

Chemical.—Over 40 pairs of adrenal and gonad glands have been completely examined quantitatively for the fat-lipoid-cholesterol ratios, and this work is now being prepared for publication. There have been 59 investigations of the permeability quotient by Walter's bromide test, with especial reference to changes which might occur following non-protein therapy and arsenical treatment of general paralysis and other cases of mental disorder. These results have been correlated with colloidal gold determination, quantitative Wassermann tests and cell-counts. The basal metabolism experiments have been continued whilst the patient is sleeping, as it has been found that this is the only satisfactory method of investigation with patients whose cooperation is doubtful. This work is progressing, but no correlations or deductions can yet be made with regard to its bearing on mental disorder.

NOTICE BY THE HONORARY LIBRARIAN.

The following journals are circulated from the Library:

American Journal of Psychiatry.

The Psychological Review.

Journal of Neurology and Psychopathology.

L'Encéphale.

International Journal of Psycho-Analysis.
Journal of Abnormal Psychology.
Mental Hygiene.
Journal of Nervous and Mental Diseases.
Revue Neurologique.
Archives of Neurology and Psychiatry.
Journal of Comparative Psychology.

As a psychiatric reference library that of the Royal Medico-Psychological Association should be the first in the United Kingdom and very soon could be, if members would contribute only one work each. A copy of the Library catalogue can be obtained from Messrs. J. & A. Churchill, price 2s., post free, from which members can gather the titles of books missing from what should be a historical collection of psychiatric works from the seventeenth century onwards. The Honorary Librarian will be glad to assist members in making a suitable selection of works for presentation. Failing this, the Committee would like to have the first offer of rare psychiatric books which members for some reason or other find it necessary to sell.

NOTICES BY THE REGISTRAR.

EXAMINATION FOR THE NURSING CERTIFICATE.

List of Successful Candidates.

Those marked * passed "with distinction."

NOVEMBER, 1928.

Mental Nursing.

Beds, Herts and Hunts (Three Counties).—Sarah Ann Edwards, Mary Robson, Percy Ivan Ward, Eric Arthur Measures, Ernest Page, Desmond Victor Bolt, Arthur Brown.

Berkshire.—John Andrews, Edwin Franks, Michael Francis Gavin, Thomas Hubert Johnson.

Cheshire, Chester.—John Harnott Benson, Peter Hughes, Dorothy Cross, Lilian Edna Lloyd, Margaret Williams, Gwyneth Thelwell.

Cheshire, Parkside.—Ethel Cahill, Esther Seymour, Mary Beaver, Ruth Miles, Mollie Owens, Agnes Moore, Margaret Mary Healy, Winifred Annie Bradshaw, Rose Anne Brady, John Cornes, Ernest Mellor.

Cornwall.—John Gregory, Jack Leslie Johns, Garnett Tucker, Florence Jeffery, *Amy Goldstraw.

Derbyshire.—Arthur Edward Dobson, Josephine O'Donnell, Dorothy Hurst.

Devon.—Doris Patey, *Agnes Pauline Cann, Mabel Adaline Carhart, George Ponsford.

Dorset.—Dorothy Hanham, Nellie Cox, Evelyn Frances M. Shepard, Gladys May Pattison, *Reginald Michael T. Coombs, Edward George Warr.

Durham.—Doris Jane Easton, Lily Laverick, *Jessie Mowbray, Sarah Ellen Norris, Louisa Mason, Elsie Rayner, Winifred Mary Watson, May Welford, Priscilla Witton, Frederick C. Starnes, Noel Pratt, Fred Harland, William Meek Forster, Arthur J. Crisp.

Essex, Brentwood.—Geoffrey Beck Field, John Hardcastle, John Alexander Henderson, Joseph Raison, Violet Kitchener Goodwin, Kathleen Houston, Ida Vinn, Kathleen Mary Heath, May Ella Dorrington, Eileen Teresa Creede, Maude Huhndorf.

Essex, Severalls.—Gladys Mary Hooks, May London.

Hampshire, Park Prewett.—Mary Teresa Glancy, Margaret Hayden, Adeline West, Elizabeth Veronica Josephine Allen, David John Bowen, Enoch Myrddin Davies, Charles William Glasier, Robert Pierce Jones, Willie Pogson, John Summers.

Kent, Chartham.—Jack William Oxley, William Drew, Thomas Kenny, Mabel Sybil Sayer.

Lancashire, Winwick.—Thomas Cornwell, Charles Hambleton, Morris Jones Williams, Frederick Cole, Richard Williams, Thomas Richard Atkinson, William Hart, George H. Murray, Melville David Hay, Edward Radford.

London, Banstead.—Lily Evans, Violet Agnes Evans, Maggie Mahedy, Mary Kate Quinn, Lizzie Anne Reynolds, John Richard Nicholson, Frederick Wheatley, Harry Porter, John Browne, Charles Herbert Finding, William John Furnell, William Edward Giltmore.

London, Bexley.—Arthur Higgins, George Henry James Bayley, William Frederick Appleby, Percival George Poffley, George William Percival Coombs, Ernest Samuel Smith, James Charles Martin, Anthony Tom Williams, George Charles Odle, Violet Helen Terry, Nellie Hobbs, Rose Evans, Helen Sheehan.

London, Cane Hill.—Grace Doris Lees, Rita Hilda Vidler, Marjorie Ethel Olive Sinclair, Clara May Raines, Christina McKenzie, Queenie Turner, Nellie O'Neill, Kathleen Dora McGill, Anne Ita Brennen, George Edward Battams, Harry Wood, John Pirrie Middleton, Frederick Ransom Brown Jenkins, Reginald Arthur Potter, Ernest Cotton, Constance Alice Leach.

London, Claybury.—Ida Louisa Blunt, Olive Evelyn Camp, Marie Cecilia Dooley, Blodwen Evans, Mary Anne Fitzpatrick, Helen Ivy Faulkner, Frances Ethel Parnell, Lena Roberts, Doris Ellen Smith.

London, Colney Hatch.—Walter Reginald Linnett, Charles Neve, David Charles Kessock Philip, Robert Ernest Corrigan, Nancy Blackwell, Hilda Mary Eliza Croucher, James Alan Forrest, Henry Sammons, Joseph George Goodge, Eric Granville Lamb, Dorothy May Ponting, Sarah Brown.

London, Hanwell.—Albert Edwards, Ernest Durrant, George H. Woodward, Annie Foster, Millicent N. Emms, Elsie Wood, Annette G. McCarthy, Margaret E. Ward, Hilda M. Sheard.

London, Horton.—Mary Cussen, Marion Cunningham, Mary Kate Kelly, Emily Marshall.

London, Long Grove.—Patricia Esme Alfreda Cooke, *Muriel Retorta May Gibson, Margaret Mary Hannon, Ethel Wood Rose Hope, Dorothy Eleanor Johnson, Winifred Victoria Keen, Mary Elizabeth Meek, Ivy Mary Russell, Amy Ethel Warrington Tilley, Florence Nellie Voice, Florence Annie Wickenden, John Henry Aylward, Alfred Ernest Carr, William Newbery, Reginald Harry Over, William Todd Pullinger, Albert Simmons, Samuel Campaign Todd.

London, Maudsley.—Agnes Lawes, Irene Armitage, Leslie Farquhar.

London, West Park.—George Robert Betts, Frederick John Cave, David Manning, Walter Stanley Ratcliffe, Alick John Stacey, Arthur James Webb, Thomas Charles Wooding, Walter Leonard Woodward, William Chandler, Frederick James Self, Christina Macdonald, Sarah Blee, Catherine Blee, *Marie Louise Eggleton, Annie Peate.

Middlesex, Napsbury.—Frederick John Compton, Eric Sidney Jarman Roberts, Charles Henry Waldoock, Margaret Hircock.

Middlesex, Springfield.—Walter Henry George, John Franklin, Edward Thomas Bumpus, Dorothy Lisa Noble, Doris Jackson, Rose Emily Lockton.

Monmouth.—Agnes Rose Crawley.

Northamptonshire.—Wallace Albert Goodman.

Nottinghamshire.—Hubert Fletcher, Gladys Annable.

Oxfordshire.—*Hetty Simpson, Gilbert William Hignell, Reginald William Green, *William McDougall, Julia Dunne, Elizabeth Frances Young, Madeline Thompson, Nora Flannagan, Christina Byrne.

Somerset, Cotford.—Alfred Binding, George William Stone, William Henry Jones, Frank Chave Hole, *Thomas Richard Hughes, Tom Herman.

Somerset, Wells.—Frances Beatrice Hood.

Staffordshire, Cheddleton.—Margaret Touhy, Mary Frances McLaughlin, *Iris Noyes Coe, Mary Josephine Spain, Edna Bowes.

Suffolk, St. Audry's.—Dorothy R. Reeve, Frederick Archer.

Surrey, Brookwood.—Charles Saunders, Grace Snaith, Irene Holder, Florence Gash.

Surrey, Netherne.—Archibald Alexander Covell.

Sussex, East.—Emily Kinross, Winifred Nicholson, Ellen Elizabeth Smith, Ethel Jenkins, George Herbert Wrattton.

Sussex, West.—Doreen Williams.

Warwick.—Kathleen M. G. Sherry, George Edwin Battersea, *Edward George W. W. Hollins, Cecil William Morgan.

Wiltshire.—Alice May Whale, Edith Gladys Ludlow, George Maslin, George William Sykes, Charles Minty, Reginald James Webster.

Worcestershire, Barnsley Hall.—Richard Burton, Edward Sidney Hacklett, George William Savage, Henry Serrell, Madalene Blanche Mary Jarvis.

Yorkshire, Menston.—Norah Leane, Isabel Duesbery, Beatrice Hepple, Ethel May Dale, Walter Thompson, Paul Joseph Carroll, John William Sutton, Eric Arthur Hudson, Thomas Sanderson, Leslie Walter Short, Herbert Vernon Buttery.

Yorkshire, Scalebor Park.—Herbert Baul, Charlie Firth, Thomas Kenneth McLennan, Frances Ellen Baddeley, Gertrude Barnard, *Mary Binks, Florence Bromby, Martha Harvey, *Amy Morrish, Kathleen Rider.

Yorkshire, Storthes Hall.—Walter Clarke, Arthur Smith.

Yorkshire, Wadlsley.—Nellie Barker, Gertrude Fox, Emily Waterfall, Walter Marriott, George Seeley.

Birmingham, Rubery Hill and Hollymoor.—Wilfred Edwards, John Alfred Jones, William James Lea, Percy Parry, Frederick Davies, Sydney Wood Oliver, Frank Harrison Hitchen, Ernest Bell, Heber Pierce, Charles Seymour Turner, *Margaret Gladys Round, Martha Beasley, Elsie Marcella Rollason, Jean Kennedy, *Bridget Veronica Molloy, Lily Jones, Althea Alice Read, Winifred May Fryer.

Birmingham, Winson Green.—Edith Ellen Ebbage.

Brighton.—Archibald Alexander Herbert, Cyril Herbert Morton, James Yates, Edith Annie Underhill.

Bristol.—George Frederick Pedley, Cecil Thomas Crowe, Elsie Weaver, Mary Griffey, Delia McNamara.

Derby.—Vincent Peter Cork, Norah Bridget Magill.

Exeter.—William Henry Crook, Sidney Edward Strong.

Gateshead.—John Tait, Charles Porteous.

Hull.—James McManus, John Moylett, Ernest Wilson Goy, Leonard Charles Horton, Beatrice Milner.

Ipswich.—Sidney John Amphlett.

Newport.—John Lloyd Davies.

Nottingham.—Richard Robinson, Winifred Annie Bacon, Marjorie Foulston, Fanny Elizabeth Siddle, Ethel Alice Baker, *Mary Kemble, Sarah Mary Conroy.

Portsmouth.—George Manning Trueman, Thomas Victor Abrook, Phillip Norton, James Ashlin, Charles Young.

Sunderland.—James Ledger, William Alexander Laing, Henry Robson, John Joseph Banks, Minnie Nesbit, Ivy Curry.

West Ham.—Arthur Robert Page, Elsie May Gwendoline Parker, Kathleen Robins.

York.—Margaret Bell Aitken, Doris Ann Pounder, Ivy Walker.

M.A.B., Tooting Bec.—Robert Henry Skinner, Ernest Holden Hall, Henry Charles Gausden, Edward Carnell, William Beattie, Stanley Harold Baynes, Benjamin Alfred Bevan, Frederick Henry Stevens, Evelyn Morrison Blackburn, Mary Evelyn Ellard, Mabel Drew, Edith Emily Cooper, Jessie McDonald, Mary Teresa Kelly, Mary Cecilia Butler, Florence Rose Stevens, Lizzie Amelia Lowles, Florence Elizabeth Bonner, Mary Ellen Hindmarch, Ivy Tamar Somers, Helen Florence Franklyn.

Barnwood House.—Bessie May Millard, Teresa May Hinton.

Bethlem Royal.—Winifred Emma Lloyd Jones, Reginald John Herbert, Albert Frank Ponting, Clarence Edmund Storey, Edward Thomas Gentry.

Camberwell House.—Ethel Margaret Douche, Johanna Driscoll, Ivy Millicent Gray, Adeline Violet Lane, Rosina Ivy Metters, Kathleen Daisy May Saunders, Vera Gladys Wright.

Coton Hill.—Albert Henry Booth, John Gallagher, William Jones, Frederick Knox, Eric Cecil Martin.

The Old Manor.—Teresa McMahon, Mary Reidy, Charlotte Gwyther, Annie Cleary.

St. Andrew's Hospital.—*Olive Kathleen Chandler, Bridget Murray, Bridget Frances Mulvey.

Warneford.—Doris Louise Howes.

Aberdeen Royal.—Isabella D. Jessiman, Mary C. Neish, Winifred Law, Sarah Milne Crabb, Helen Reid Sinclair, Jean A. M. Henderson, Alice Brown Smith, Susan Alice Lamb, Alexander T. Murison, George Moffat, Margaret Coutts.

Argyll and Bute.—Alexander MacPhail.

Crichton Royal.—James Parker, *Isabel Walker McClymont, *Sarah Patterson

Baillie, Mary Catherine Stewart Hutton, Margaret Louise Muir, Beatrice Noble, Helen Youngson, Rose Ellen Rock, *Janet Muir Conning, Robina Anderson Murray, *Sadie McFadyen.

Edinburgh, Bangour.—Margaret Bannerman, May MacKenzie, Edith Christina Ross.

E. Lothian.—Florence Margaret Wilson, Ella Cunningham Wallace.

Edinburgh Royal.—Irene Godwin Bagier, Charles Fletcher, George Kellock.

Edinburgh Royal, Craig House.—Annie R. Wills.

Fife and Kinross.—Albert Edward Spode, James Geddes.

Glasgow, Gartloch.—Elizabeth Carmichael.

Glasgow, Woodilee.—Margaret Macinnes, Marion McLeod.

Govan.—Hughina Macdonald, Donald Macrae.

Greenock.—*Mary Smith Greig.

Inverness.—Mary Catherine Campbell, Margaret Irene MacCrum, Margaret Carle.

Montrose.—Mary Low Duncan, Susan Murray, Margaret McCurrie, *Margaret Annie Porter, John Leitch, John Gould.

Paisley, Riccartbar.—Alexander Mathieson, Malcolm McLeod.

Stirling.—Helen Jackson, Mary McElwaine, Mary Flora McDonald, Mary Kerr, Margaret Ginnell, Mary Frances Docherty, Robina Steven Allan, Mary Ellen Proctor, James Harrison, Michael Ginnell, John McCorquodale.

Belfast.—Kathleen Patton, Robert William Larke, James Larmour, Daniel Mulligan, Thomas Johnston, Elizabeth McRoberts, Mary E. Gilmore, Annie Johnston, Maud Gillis.

Downpatrick.—Mary Boyce, Margaret Cahir, Elizabeth Doherty, Susan Eakins, Isobella Hines, Ellen McClean, Catherine McGreevy, Mary McGreevy, Annie Rice, Catherine Smyth, Mary Smyth, Charles Lowry.

Grangeorman.—Patrick Fox, Michael Fagan, Anthony F. Moore, Anne Dolan, Rosanna M. J. Gore, Margaret Downey, Mary Tubridge, Mary J. Cullen.

Portrane.—Anastasia Heffernan.

Maryborough.—Charlotte Fitzgerald, Elizabeth Byrne, Annie Murphy.

Mullingar.—Patricia Smyth, Patrick McCabe.

Omagh.—Mary McCauley.

Federated Malay States.—Tan Guat Beng.

SOUTH AFRICA.

Bloemfontein.—Lily Harris, Anna Elizabeth van der Westhuizen, Adriana Johanna Celliers, Magdalena Johanna van der Westhuizen, Johanna Herculina Botha.

Fort Beaufort.—Elsie Jozina Myburgh, Jacobus Johannes Kemp, William James Timms.

Grahamstown.—Martha Maria Calitz, Pieter Ignatius Deetlefs, Susanna Maria Grundling, Hendrik Johannes Moolman, Renier Christian Odendaal, Alice Mary Jane Paterson, Hester Johanna Viljoen.

Pietermaritzburg.—Christina Johanna Botha, Christopher Austin Richard Moody, Jessie McElwee.

Pretoria.—Georgina Constance Preston, Daniel Warwick.

Valkenburg.—Robert Frederick Searle, Matthys Schreuder, Bessie Frances Marais, Rosalie Dumas van der Merwe, Hendrina Cornelia le Roux.

Nursing of Mental Defectives.

Royal Albert.—Elizabeth Metcalfe, Grace Vickers, Elizabeth Parkinson, Rose Hadden Porteous, Lizzie Hornby, Dorothy Metcalf, Robert Cartmel Swarbrick.

Lancashire, Calderstones.—Beatrice Woof.

M.A.B., Darenth.—Doris Lavinia Bradley, Winifred Mabel Rumstead, Doris Ethel Rose, Edith Russell, Violet Agnes Wilkins, Lilian Rosalie Brookes, Gladys Maud Cooke, Winifred Emily Hales, George William Bradford, Henry Alexander James Isted.

London, Farmfield.—Tom Parsable Dawson, George Andrew Terras, Thomas James Parrant.

M.A.B., Fountain.—Florence Emily C. Humphries.

M.A.B., Leavesden.—Mary Elizabeth Goodridge, Dorothy Mary Hart.

Paisley, Riccartbar.—Margaret Happell.

MAY, 1929.

Mental Nursing.

- Beds, Herts and Hunts (Three Counties).*—Vernon Sidney Hall, Edwin Wilshere.
- Berkshire.*—Gladys May Smith, Emily Mary Willis.
- Buckingham.*—Ena Turnham.
- Cambridge.*—*Albert Frank Day, George Frederick Mant, Margaret Mary Foster, Evelyn Clara Webb.
- Carmarthen.*—Lizzie Davies, Phœbe Edwards, Mair Jenkins, William Edward Wilkins.
- Cheshire, Parkside.*—Ruby Shaw, Brigid Quinn, Naomi Jones.
- Cheshire, Chester.*—Arthur Jones, Henry Burridge, Wilfred Ball, Maud Newton, Ethel Mary Parry, May Mustoe, Margaret Ann Adams, Minnie Ruddell, Mary Margaret Dillon, Jane Leigh, Gertrude Eleanor Harrison, Winifred Dorothy Ellis, *Joyce Elizabeth Hughes, Ellen Jane Cairns, Betty Lloyd Jones.
- Cornwall.*—Cordelia M. Stephens, Joseph Henry Symons, George Matthews.
- Cumberland and Westmorland.*—Florence Valentine Allison, Annie Boyce, John Glendinning.
- Derbyshire.*—Bryan Hammond, Ernest Fred German, Annie Hood.
- Devon.*—Iris Vera Elizabeth Pidwell, Lily Tatum, Ellen Vaughan Westlake, Margaret Walker Stirling, Hilda Olive Webb, Catherine Reese, Margaret Mary Nixon, Alice Dallen, Sidney Westaway Harvey, Jeremiah Lagdon.
- Dorset.*—Elsie Dorothy Hutchings, Mary Emma Stickley, Mabel Griffen, *Sylvia Grace Cham, Ivy Lilian Rose Martin, Ida Muriel Williams, Harold Abbott, David James Kemp.
- Durham.*—Elizabeth Barker, Sarah Fawcett, Florence Hull, Henrietta Icton, Emily Kell, James Edward Lockhead, Thomas Allanson Hemsley.
- Essex, Brentwood.*—*Charles Herbert Atkinson, Stanley John Carpenter, Arthur Percival Foreman, James Edward Stuart Thomson, Violet Isabel Harland, Rosey Violet Annie Bond, Freida Clarissa James, Dora Helen Clarke, Edna May Hare, Olive Matthews, Eva Elizabeth Watson, Elizabeth Dunn, Dorothy Rose Miles, Frances Emily Bishop.
- Essex, Severalls.*—William James Cook, Harold Herbert Eagle, William Blower Evans, Albert Greenhough, Harold Gaylor, Charles Herbert Howes, Charles Arthur Hook, William Harold Leggett, Robert Lewis Moore, Frederick John Shipway, Annie Ellen Elizabeth Watling, Rebecca Breathwick, Helena Glover, Janet Davidson, Iris Thelma Cullinane, Lilian Florence Sprod, Mary Lilian Clay, Mary Summers, Doris Jones, Phyllis Platt.
- Glamorgan.*—Richard L. O. Allen, Gwilym John Thomas, Percival William Hold, David John Howells, Benjamin Sims, Trevor Edwards, William John Hopkins, Stanley Rees Jones, John Morris James, David Owen, Gladys Evans, Blodwen Elizabeth Davies, Sarah Ann Randall, Annie Velinda Howells, Alice May Williams.
- Gloucestershire.*—Ruby Clara Morse, Grace Maud Parry, Dorothy Margaret Spencer, Lucy Evelyn Stephens, Dorothy Victoria Townsend, Herbert William Jones.
- Hampshire, Knowle.*—Kathleen Brown, Elisabeth Forsyth, Elizabeth Grant, Frances Gertrude Smith, Freda Elizabeth Hope Tutton, Hilda Amy Wicken Wood.
- Hampshire, Park Prewett.*—Mary Elizabeth Brannan, Julia Staunton, Ewart Roberts, Thomas Walter Turner, Robert Angus Gates.
- Herefordshire.*—Edward Bergin, John Herbert Price, Marie Birch, Annie Elizabeth Beatrice Powell.
- Hertfordshire, Hill End.*—Hessie Drysdale, Annie Mary Haynes, Dorothy Nester Jacques, Bertha May Miles, Samuel McCabe.
- Isle of Man.*—Bertha Conville, Elizabeth Jean McEwan.
- Isle of Wight.*—Yvonne Cummings, Margery Isaac.
- Kent, Chartham.*—John Trew, Bernard Walter Alfred Bishop, Redfers Herbert Rex, Violet Victoria Turrell, Janet Sharp Patrick, Mary Patrick, Mabel Hannah Mills.
- Lancashire, Lancaster.*—Margaret Gardner, Maggie Mercer, Alice Isabel Harrison, Kathleen Alice Briggs, Nora Marion Clarice Burrows, Arthur Frederick Thompson, Harry Kirby Parkinson.
- Lancashire, Prestwich.*—John James Hunter, John Perkins, William Southall, John Charles Davies, Jessie Pinckstone, Marion Allford.

Lancashire, Rainhill.—John Parker, John Kearns, Thomas Fargher Fell, Edith Jones, Frances Grace Mercer, Hilda Anne Rimmer, Mary Haines Griffiths, *Milicent Florence Duffy, Emma Robinson.

Lancashire, Whittingham.—Martha Drake, *Elizabeth Ann Jones, Margaret Hay, Amy Simpson, Mary Elizabeth Proctor, Elizabeth Jane Purslow, *Kathleen McLoughlin, Lily Conroy, Edith May Hewitt, Violet Spencer, Dorothy Connor, Margaret Matthews, Blanche Nelson, Mary Bowles, Florence Ellen Bradshaw, Victor Thomas Willacy, Robert Edwin Chorley, Percy Cragg, Harry Proctor, Clifford Hartley, *Herman Hinchliffe, Aubrey L. Curwen.

Lancashire, Winwick.—Harriet Warburton, *Bessie Billington, Laura Pearce, Mary Phyllis Nicoll, William Henry Field, James Mitchell, John Samuel Taylor, Harry Rothwell, John Barton, George James Kennedy, Frank Oldham, Frederick Speed.

Leicestershire and Rutland.—*Delia O'Malley, Ivy Brothwood, Cassie Griffin, Annie Griffin, Thomas Lowe.

Lincolnshire, Bracebridge.—Jessie Ringham, Jessica Hoggett, Kathleen Emily Wilton, George Creasey, Sam Holroyd, George Reginald Freeman, John Robert Moore.

Lincolnshire (Kesteven).—Frank Taylor, Sydney Tewson.

London, Banstead.—William Alfred Bryant, William Alfred Champion, John Walter Robert Dawson, Trefor Thomas Lloyd, James Alfred Syrett, Lillian Louisa Clarke, Constance Winnifred Eva Hulford, Irene May Loane, Sarah Lily Richardson, Iris Winifred Kate Smith.

London, Bexley.—*Josephine Alice Griggs, Dorothy Irene Davie, Margaret McHugh.

London, Cane Hill.—Minnie Baker, Margaret Morrill, Kathleen Robb, Gladys Louisa Sanford, Christina Line Susette St. John, Bridget McMorrow, Edward Arthur Perry, George William Gibbs.

London, Claybury.—Sidney E. Bailey, Mary Blanche Herriott, Eleanor McHugh, Elsie Gladys Rason, *Evelyn Maud Whinfrey Roper, *Marjorie Louise Smith, Hilda Eileen Sharman, Jeannette Wilkinson, Horace James White.

London, Colney Hatch.—Sarah Elizabeth E. Doble, Edith Lewsey, Ivy Florence Eva Wilkinson, Elizabeth Jane Thomas, Margaret Vincent, William Arthur Stammers, George James Richardson, Ernest Crawford Jefferies, Howard William A. McClelland, Stanley William Norman, James Webb.

London, Ewell Colony.—Frances Jessie Maud Bowles, Agnes Oliphant Hendry, *Reginald Horsman.

London, Hanwell.—William G. Lapidge, Herbert V. Harman, Edward S. Dunham, Norman H. Hawley, Gwendoline B. Osborne, Eileen Bartman, *Ethel A. Clements, Alice R. Whitehead, Catherine Lloyd, Doris M. Burrows, Florence M. Gould, Dorothy A. Endacott, Frederick J. Spiers.

London, Horton.—Edith Brown, Ethel Grace Fisher, Jean Lawson McKeand Grierson, Marjorie Fairweather Mills, Catherine Phyllis Miles, Margaret Richardson, Ivy Christina Shepherd, Ivy Irene Whitby.

London, Long Grove.—George Bennett, John Scott Houston, Edward Albert Skinner, Percy Frederick Thorns, Alice Elizabeth Ellen, Lavinia Hall, Margaret Horwill.

London, Maudsley.—Beatrice Vaughan, Elizabeth Hollingshead, Thomas Beeton.

London, West Park.—Ida Miriam Cook, Alice Duggan, Elizabeth Flannery, Brigid Ann Hurson, Winifred Mary Jigins, Susie Maurice, Mary Bridget Travers, Clara Watkins, Phyllis Woods, William Frederick Cook, Arthur Ronald Farmer, William George Shingler, James Alfred Roland Seager.

Middlesex, Napsbury.—Malcolm George Felgate Hill, Harry Clark, Ronald George Durling Smith, Leonard Stanley Bates, Arthur Herbert Henley.

Middlesex, Springfield.—Margaret Cameron, Ellen Margaret Wharf, Elise May Tostevin, Margaret Ann Young, Margaret Fotheringham, George Stewart Brooks.

Mid-Wales.—James Spencer Harris.

Monmouthshire.—Frederick Frank Godsall, John Thomas Evans, Eileen Florence Wilcox, Elizabeth Annie Davies, Elsie May Dobbins, Blodwen Avery, Gertrude Mary Coles, Rachel Alice Harry.

Norfolk.—Lena Knights, Maud Holman, Annie Street, Thomas Henry Dwyer.

Northamptonshire.—Annetta Minogne, Alice Rooke, Jack James Barford, Arthur Edgar Billington, Charles Forbes Walter George Gray.

Northumberland.—Stanley Alderson, Edward Maughan Charlton, *Wilfred Lombard, George William Mack, John Leslie Miller, George Henry Nichol, Robert Edward Nixon, George Hunt Teasdale, Margaret Golightly, Ellen Clarke, Nancy Birney, Georgina Telford.

North Wales.—Gwen Enid Jones, Sarah Royles, Maisie Reynolds, Lucy Isabel Whellans, Margaret Alice Williams.

Nottinghamshire.—Doris Catherine Hook, Esther May Wilson, Muriel Weeks, Elsie Smith, Thomas Copley Daft, Gerald Arthur Newton, Charles Arthur Andrews.

Oxfordshire.—*Bernard Gordon Verrier, Laura May Rawlings, Edith May Morgan, Marie Olive Daniel.

Salop.—George Richard Evans, Walter Reginald Williams, Anne English.

Somerset, Cotford.—Elsie May Rowland, Winifred Edith Stevens, Margaretta Jones.

Somerset, Wells.—Samuel Reeves Heath, Victor Dunton, Florence Mary L. Varcoe, *Gertrude Barter, Gwendoline Roderick.

Staffordshire, Burntwood.—*John Burton, Joseph Henry Neville, John William Taylor, Edward Vincent.

Staffordshire, Cheddleton.—Robert Martin Wilson, Kate Lewis, *James Winter Black, William Stott, Edward Brooke Hartley, Charlotte Bashford, Rose Doherty, Marcella Boulding.

Staffordshire, Stafford.—George James Boulton, *John Henry Bradley, George Gerrard, John Frederick Wallace Griffiths, William James Williams.

Suffolk, St. Audry's.—Dorothy E. Perrin, Dorothy Alpe, Eva R. Soanes, Dorothy Burch, George W. Richardson, Christopher A. Wren, Sidney Bullocke.

Surrey, Brookwood.—George Skipper, Clarice Sybil Cartwright.

Surrey, Netherne.—Ivy Wooley, *Kathleen MacNaughton, *Ellen Elizabeth Burgess, *John Daniel Connell, George Starkey.

Sussex, East.—Gwenyth Davies, Eileen Howell, Edna Brunker, Caroline Davies, Reginald Smith, Rhoda Austin.

Sussex, West.—*Irene Edeline Tebbutt, Olive Margaret Miles, Dorothy Wood, Alice Penfold, Evelyn Barnes, William George Henry Bailey.

Warwick.—Blanche Gertrude Jowett, Geraldine Forrester, *Phyllis Ring, Joseph Hy. Whiting, Clement Forrester, Alfred T. C. Buckingham, William Thomas Owers, Belmont Cecil Lines.

Wiltshire.—Harold Victor Gane, Evelyn Louisa Lee.

Worcestershire, Barnsley Hall.—John Henry Brough, Albert Edward Brown, George Richardson.

Worcestershire, Powick.—John George Osborne, James Bartlett, Frederick Hughes, William Ernest Bott, Dennis Godfrey Willmott, Gladys Mona Hodges, Annie Elizabeth Barnsley, *Lilian May Poultney.

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Yorkshire, Clifton.—Cora Milner, Annie Broderick, Mary Ann Farrelly, Hannah Clare, Marion Powell, Nelly Vyse, Harriet Daley, John George Grievson, Norman Hartley, William Ivor Churchill, Leslie Slinn Brooke.

Yorkshire, Kirkburton (Ministry of Pensions).—Henry Duff, Thomas Hunter, Beardsall Thorpe, William Williamson, Charles Alfred Matthews, William Shaw.

Yorkshire, Menston.—Louisa Mackie, Amelia Cree, Lily Thatcher, Harriet Spicer, Ena Rice, John Robson, Henry Bedford, Alfred Shaw, Allan Fearnley, Harry Coultous, Elsie Hogben, Lillian Shepherd, Florence Hogben, Maud Robinson, Thomas Leeming, Robert Exley, Charles Henry Wilkinson, George Robert Wright, Joe Dawson, Harold Clarke Burton.

Yorkshire, Storthes Hall.—Albert Bower, Francis Lancelot Graham, Harry Ford Harrop, Reginald Thomas Hopkinson, Kenneth Terry, James Henry Marsden, Arthur Henry Read, Allan Scott, George Dudley Simmonds, Charles Thornhill Woollands, Annie Bathe, Annie Gannon, Alice May Fillingham, Elsie Harper, Laura Violet Tinker.

Yorkshire, Wadley.—Edna Coe, Winifred Elizabeth Dunk, Ellen Fell, Margaret Jackson, Hazel Eugenie Kelsey, Mary Tarbrook, Victoria Elizabeth Wastnedge, Leonard Bowles, Bernard George Espin Cunningham, William Place, George Maurice Robinson, Horace Stocks, John Ward, Leslie Walton, Austin Wingfield.

Birmingham, Rubery Hill.—May Ella Scott, Dora Nixon, Edith Best, Ethel Maud Marston, Elizabeth Hopps, Ceinwen Hopkins, Rachel Gartland, Albert Edward Cross, George Edward Gillum.

Birmingham, Winson Green.—Albert Gough, Henry George Hulson, Cyril Pilsbury, Violet Annie Broad, Margaret Collins, Kathleen McManus, Clara Sambrook.

Brighton.—Gladys Evelyn Long, Frank Hallas, George Richard Nowell, Edwin Lester Cruttenden, Alfred Button, Albert Hinde.

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Canterbury.—Edith Boon.

Croydon.—Hector Septimus Bruce, Benjamin Strutton, Frank Sidney Gray, William Arthur Bates, Edith Hutchins, Ethel Ada Scott.

Derby.—Herbert Samuel Spener, Thomas John Gash.

Exeter.—Dorothy Maud German, Lucy Walshe.

Gateshead.—Frederick William Alderson, *Frederick Birks, Frederick Charles Ralph.

Hull.—William Robert Miller Middleton, George Ernest Boyes.

Ipswich.—Noreen Beatrice Purcell, Ruby Stella Keeble, Rosa Mary Richards, Victoria Maud Read.

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Middlesbrough.—Ethel Mildred Hoyle, Pauline Matson, Olive O'Brien, Cicily Taylor, Edna Mary Wheatley, Grace Williams.

Newcastle-on-Tyne.—Ellis Blackburn, Thomas Dean, Joseph Henry McKay, Thomas Ogden, Francis W. Pickering, Florence Harrison Charlton, *Ethel Chatt.

Newport.—Harold Edward James.

Norwich.—Herbert Henry Freek, Emily Winifred Whitlock.

Nottingham.—Benjamin Stone, Nona May Gamble, Doris Clarissa Gamble, Hilda May Spanner, Mabel Nora Booth.

Plymouth.—Minnie Elizabeth Beer, Edith Leslie Blatchford, Eric Penwill.

Portsmouth.—Sidney James Boniface, James Arthur Palmer, Basil Charles Passmore, Henry Ernest Allison, Ivy Minnie Edwards, Annie Elizabeth Price.

Sunderland.—Louisa Cockerill, Frederick Worthington, Simon John Shute, John Thompson Howe, Horace Neville.

West Ham.—Harold Watson, Kathleen Beatrice Egan, Winifred Greeve, Evelyn Ivy Lemcke, Elsie Mackenzie, Ivy Marguerite Mundy, Ellen Jane Pye.

York.—Jean Ashley, Sarah Emma Goodridge, Elsie Dorothy Mary Raine.

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Bootham Park.—Amy Prudhoe, Doris Howlett.

Brislington House.—Phyllis V. Wheeler, Edward Charles Urch, Sarah Jane Hardy.

Camberwell House.—Mary Butler, Margaret Corroon, Rose Edna May, Edith McTiffin, Florence Ellen Timbrell, Annie Walsh.

Cheadle Royal.—Herbert Bailey, Leonard Ware, Wilfred T. Williams.

Coppice.—Amos Lewin, Annie Hanson, Rosina May Stanway, Ellen Laura Hughes.

Colton Hill.—Catherine Cartwright, Helen Oliver, Nellie Rawlings, Elizabeth Salt, Hannah Salt, Kathleen Sarah Tissiman.

Netley.—George Ellwood.

The Old Manor.—Delia Power, Nora Cullinan, Laura Spencer, George Reidy.

Peckham House.—Christine Mann, Violetta May Pooley.

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Warneford.—*Cecil William Haynes.
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Banff.—Mary Ann Gordon, James Davidson Hackett Ellington.
Crichton Royal.—Mabel Dick, Helen Montgomery McDowell, Elizabeth Macdonald, Alice Maude Hullin, Margaret Taylor Rae, Charlotte Makin Gladdle.
Dundee, W. Green.—Rebecca Moir Hogg, Agnes McBride, Edward Clark McIntosh, George Mason Rennie.
Dundee Royal.—Alexander Guthrie.
Edinburgh, Bangour.—Margaret Mitchell, Margretta Josephine Ritchie, Rankellor Roy, Mary Ann Shields, Elizabeth Flockhart Tant, James Alexander Davie Forbes, John Hendry.
Royal Edinburgh.—William Henckel, Kenneth Macaulay, William Rennie.
Royal Edinburgh, Craig House.—Beatrice Anderson, Isabell Laing, Dorothy Thomson.
Fife and Kinross.—Sarah Rodden, Mary Clark, Beatrice Robertson, Margaret Hadden, Catherine Mullen, Sarah Paton.
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Glasgow, Woodilee.—Margaret Mary Watt, Margaret Scott, Margaret L. McDougall, Mary McCall Glen, Margaret Wright Miller, Mary Livingstone Murdoch, William McFadyen, Jessie Watson.
Govan.—Thomas Gibb, Robert B. Goudie, Alexander Grant.
Inverness.—Mary Ann Rose, Catherine Mary Henderson, Marion MacLean, Jane Madeline Fraser Chisholm, Isabella McColl MacDonald, Madeline Ross, Donald Ross.
Kirklands.—Joseph Graham.
Lanark.—John Hunter Mathieson, Margaret Roberts, Elizabeth Ewing Young, Elizabeth Burgon Dryson Lough.
Montrose Royal.—Ruth Ellen Applegate, Isabella Bennett, Helen Cochrane, Robert Gillespie, Annie Muir, Jessie MacLachlan, Josephine Scott, Thomas Scott.
Paisley, Riccartbar.—Jean Dawson Davey.
James Murray's Royal.—Elsbeth Helen Chalmers, Elizabeth Grant Differ, Annie Duncan, John Downey Johnston, Alistair Kennedy, Thomas Stewart Menzies, James Coultts Murray, Clementina Mary MacDonald, Margaret McIntyre.
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Stirling.—Christina Wilson, Alexander Douglas.
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Ballinasloe.—Delia Killalea, Patrick Colohan, Patrick Kelly, jun., Thomas Mulrennan.
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Monaghan.—Catherine McPhillips, John Cahill.
Mullingar.—Francis Creamer, Mary Carney, Mary Geoghegan.
Maryborough.—Helen O'Rourke.
Omagh.—Margaret McDonagh.
Sligo.—Mary Jane Carter, Bridget Gillen, Teresa Meechan, Annie Mulvancy. Mary E. Rooney, Margaret Jane Stewart, Margaret Watters.
St. Patrick's.—Muriel Johnston, Ethel Anderson, Lilian Tapley, Joseph Finnegan.

SOUTH AFRICA.

- Bloemfontein*.—Johanna Elizabeth Jacobs, Johanna Elizabeth Maria Nel, Cecilia Maria Ferreira, Johanna Elizabeth Oelofse, Alida Esterhuizen, Phillippus

Vorster Terblanche, Blenerhasitt Edward Eager, Rudolph Phillipus Jordaan, Edward Victor Perry Cutter.

Queenstown.—Annie Winifred Wight, Engela Hattingh, Elsie Johanna Dreyer.

Fort Napier.—Aletta Johanna Catherina Prinsloo.

Valkenberg.—Frederick Johannes Schnetler, *Percy William James Benham.

Grahamstown.—Louis Fourie, Michael David Hendrikz, Adriana Margaret Jewaskiewitz, Susanna Sophia Millard, Martin Peter Albert Murgatroyd, Lea Jacoba Magdalena Schutte.

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Port Alfred.—Hester Johanna Botha.

Pretoria.—Christoffel Johannes Basson, Hendrina Willemina Clasina Botha, Levi Evert, James Frank Kelly, Johannes Phillipus Jacob Kruger, Catherina Elizabeth Lemmer.

Nursing of Mental Defectives.

Calderstones.—Nancy Alford, Agnes Amelia Allwood, Elizabeth Jane Billington, Georgina Bruce, Ellen Jane Bruce, Beatrice Callaghan, Kathleen Cavanagh, Eva Grace Chadwick, Evelyn Duckworth, Margaret Elliot, Sarah Ann Hudson, Rose Elliot, Florence Hilda Hall, Mary Kerrigan, Bridget Kearns, Marion Pate, Lillian Naoma Sheldon, Jean Quinlan, Gladys Smith, Doris Eva Thompson, Florence Woodward, William Ernest Lancaster, John Wilson, Frederick Henry Vear, Clarence Liptrot, James Wilson, Doris Broadley, Winifred Donnelly, Lily France, Elsie Hodkinson, Florence Sankey, George Fuller.

M.A.B., Caterham.—Irene Elfrida Plummer, Florence Ida Berndes, Lottie May Ruddock, Ethel Marion Jones, Margaret Eleanor Titcombe, Ivy Emily Kendall, Winifred Maud Titcombe, Dorothy Nina Wilson, Alice Elizabeth Coles, John Edward Clarke, Leslie Taylor.

M.A.B., Darenth.—Rose Burns, Doris Ada Peabody, Jean Appleyard, Selina Emmeline Burns, Elizabeth Chatwin, Lillian Hillman, Violet Winifred Morley, Eva Kathleen Sutton, Ernest Edward Perryman, Herbert Thomas Sweeting, Sylvia Barber, Clarice Linda Turner, Eugenia Victoria Ashford, Norah Barden, Helena Goodger, Doris Marjorie Little, Florence Winifred Meckiff, Albert John Millen, Albert Edward Carter, William Charles Verrall.

M.A.B., Fountain.—Lillie Elizabeth Amy Bardo, Violet Ethel Reeves, Lydia Maud Wilson, Violet Letha Hugo, Gladys Elizabeth Williams.

M.A.B., Leavesden.—Edith Cartwright, Elizabeth Milford, Winifred Moore, Ena Kathleen May Norman, Barbara Sheppard, Arthur Brace, Robert Edward Cook.

Royal Earlswood.—Walter John Everest.

Royal Eastern Counties.—Harry Ernest Knights, Frederick Long, Percy Garrad, Edward Joseph Damant, Alfred Victor Gooch, Edward Stanley Page, Frederick Percy Best, Frederick Stephen Rainbird.

London, Farmfield.—William Henry Thomas Chisnall, Hubert Charles Knight, William James Latham.

London, The Manor.—Clara Susie Last, Lily Rose Kimble, Elsie Medora Tilley, Gladys Florence Middleton, Thomas William Tipping, Ernest Penfold, Cecil Richardson, *James William Pender, Ernest Frank Martin, Agnes Ellen Dickaty, Elizabeth May Nicholson, Gladys Muriel Vining, Horace Victor George Porter, Frederick George Walding, William John Richards, Reuben Baker.

Monyhull.—Doris Baker, *Margaret Evelyn Hogarth, Gertrude May Jones, Ellen Kelly, Doris Evans, Charles William Jones, John Stevens, William Thomas Heath.

Rampton State.—Eliza Jane Jones, Phyllis Claudia Challons, Elizabeth Edna Woolley, Gladys Gwendoline Muggleton, Olive Muriel Hills, Winifred Ann Rawlings, Margaret Mary Matthews, Katherine Humphreys, Lillian May Green Denton, Ivy May Brownlow, Charles John King, Isaac Robinson, Fred Newell Codd, Joseph Hughes.

Royal Scottish.—Edith Agnew, Helen McLockie.

Stonevettes.—James Jones Perkins, Elizabeth McKee, Margaret Helen McGregor, James Brown Gibson.

SOUTH AFRICA.

Alexandra Inst.—Eleanor Margaret McCallum, Martha Engela Elizabeth Visser.

Witrand.—Christian Burger Swanepoel, Pieter Francois du Plessis, Isak Schalk Willem Heyneke, Maria Wilhelmina Hohowsky, Alwine Helena Friebus.

Bronze Medal and Prize for 1930.

Dissertations for the Association's Bronze Medal and Prize must be delivered to the Registrar by April 30, 1930.

Divisional Prizes for 1930.

Papers certified as eligible for this competition must be forwarded to the Registrar not later than April 30, 1930.

Gaskell Medal and Prize.

The following Regulation has been rescinded on the authority of the Annual General Meeting (Wakefield), 1928 :

"(3) A thesis based on original research, if of sufficient merit, may be accepted by the examiners in place of either the written or the clinical examination or both."

The examination for the Gaskell Medal and Prize and the examination for the Certificate in Psychological Medicine, will be held at the Maudsley Hospital Denmark Hill, London, in May, 1930.

Applications for entry to either examination to be made to the Registrar, St. Andrew's Hospital, Northampton.

There is no fee for entrance to the Gaskell Prize Examination.

The entrance fee for the examination for the Certificate in Psychological Medicine is three guineas.

The Nursing Badge.

This Badge, founded at the Annual Meeting (Wakefield), July 11, 1928, can now be obtained from the Registrar. The application must be made on a special form and accompanied by 6s., which includes the cost of engraving on the back of the badge of the name and registration number of the holder.

The badge is issued for general use, but especially for occasions when the nursing medal is inconvenient or inappropriate. It is fitted with a brooch-pin for women and a crescent-shaped button-hole stud for men.

For full particulars of the Association's Medals and Prizes and the Certificate in Psychological Medicine see "Year Book" prefacing the January number of the Journal.

NOTICES BY THE GENERAL SECRETARY.**Deaths.**

ROBERT WELSH BRANTHWAITE.
DAVID BOWER.

Appointment.

BEDFORD PIERCE, M.D., F.R.C.P., to be a Temporary Commissioner of the Board of Control.

NEIL MACLEOD, M.B., Ch.B.Edin., to be Medical Superintendent of The Retreat, York.

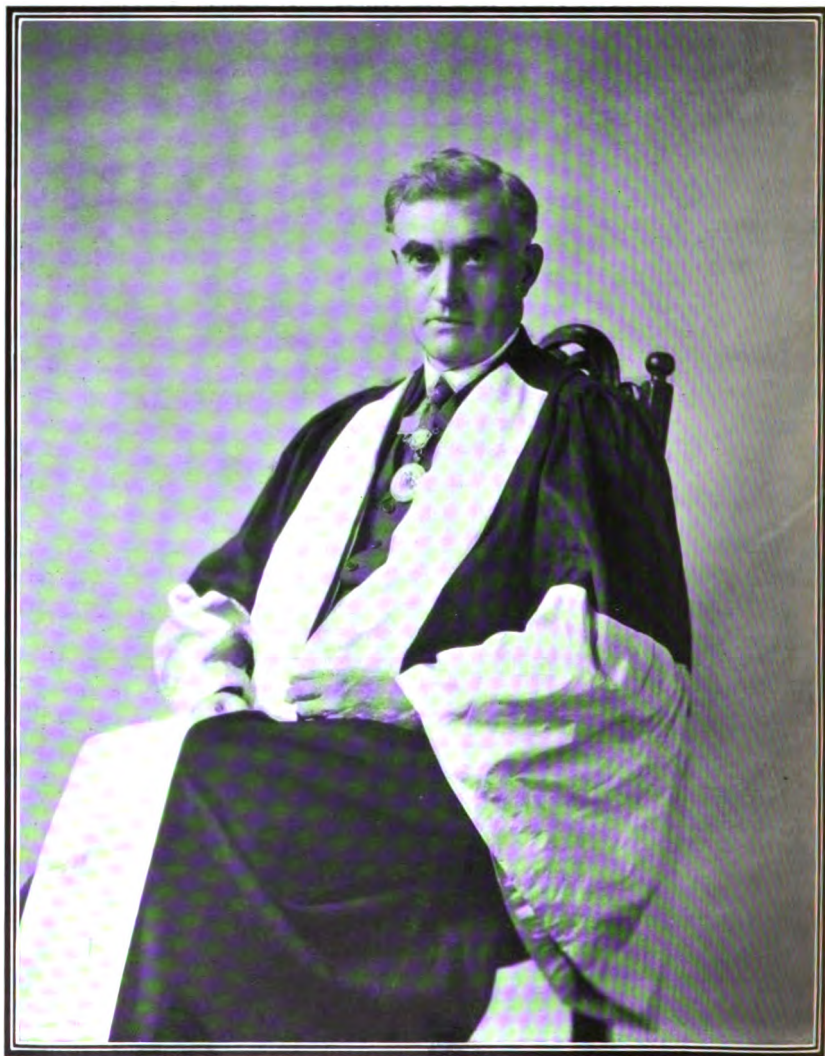
NOTICES OF MEETINGS.

Annual General Meeting.—July 9 : Council and Committees. July 10 : Business Meeting and Presidential Address. July 11 and 12 : Papers and Discussions. The meetings will be held at the B.M.A. House, 19B, Tavistock Square, London, on all these days except July 10, on which day the Association will meet, by kind invitation of the Mayor of Westminster, at the Westminster City Hall. Garden Party at Springfield Mental Hospital on July 11.

Quarterly Meetings.—November 6, 1929, London. February 4, 1930. May 8, 1930, London.

South-Western Division.—October 24, 1929, at the Somerset County Mental Hospital, Wells.

Irish Division.—April, 1930, at Ballinasloe.



NATHAN RAW, Esq., C.M.G., M.D., J.P.

President,
1929-30.

THE JOURNAL OF MENTAL SCIENCE

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Part I.—Original Articles.

FEAR AND WORRY.

THE PRESIDENTIAL ADDRESS AT THE EIGHTY-EIGHTH ANNUAL MEETING OF THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION HELD AT THE WESTMINSTER CITY HALL, LONDON, W.C. 2.

By NATHAN RAW, C.M.G., M.D., J.P.,
Lord Chancellor's Visitor.

THE subject of my address is one of immense importance to the community, and of particular concern to a very large number of individuals.

A high authority teaches that Fear is the driving force of life, that without Fear there would be quiescence and no bodily reactions. It has been said that but for the emotion of Fear, humanity would long since have perished, because it is simply a warning of threatened danger, for had we no Fear, our instinct of self-preservation would be almost if not entirely useless. But there is another aspect of Fear which has an enormous influence and bearing on our lives, and that is needless apprehension, a morbid anticipation of "things which might happen to us."

We cannot suppress the instinct of Fear, but we should as far as possible avoid needless apprehension.

According to Bergson, all that takes place in the surrounding world and in my own body, including my brain and nervous system, consists only of movements of different kinds and degrees :

"From the external world movement is spread throughout our body. It reaches the spinal column and the brain by way of the sense organs and the nerves, and proceeds into peripheral movements. Our body is an instrument which receives movement from the outside, and restores it to the external world. There is not from this point of view any difference between the brain and other

parts of the body. The brain is merely stronger than the other organs in preserving the actions that it has thus received, and does not always reproduce them in movement immediately, but often makes them cooperate in ulterior movements. The body, including the brain, is an instrument of movement, and nothing else. To no degree, in no sense, from no point of view, does it serve to prepare and still less to explain a representation. The nervous system has only physical properties, and has no other power than that of receiving, preserving and continuing movement. If the brain is ill, it is only movements and nothing else that are arrested."

No scientific worker is likely to quarrel with this view, but it is important to realize that its adoption leaves us untrammelled by any metaphysical implications; it is as consistent with materialism as with idealism, with monism as with dualism (Golla).

The late Dr. Mercier entitled his text-book of insanity *Disorders of Conduct*, for of mind he said he knew nothing. It may indeed be held with some plausibility that there are no such things as disorders of mind. As physicians we are confronted with cases exhibiting disorders of conduct—that is, of the mechanism of expression, and our psychology must stand in exactly the same relation to mechanism as does our physical science.

Mosso has given us a classical description, from his own case, of the feelings of a man a prey to Fear, and this applies with equal force to a great many men who indulge in the ordinary avocation of making a speech.

"Never shall I forget that evening! From behind the curtains of a glass door I peered into the large amphitheatre crowded with people. It was my first appearance as a lecturer, and most humbly did I repent having undertaken to try my powers in the same hall in which my most celebrated teachers had so often spoken. All I had to do was to communicate the results of some of my investigations into the physiology of sleep, and yet, as the hour drew nearer, stronger waxed within me the fear that I should become confused, lose myself, and finally stand gaping, speechless before my audience. My heart beat violently, its very strings seemed to tighten, and my breath came and went, as when one looks down into a yawning abyss. At last it struck eight. As I cast a last glance at my notes I became aware, to my horror, that the chain of ideas was broken and the links lost beyond recall. Experiments performed a hundred times, long periods which I had thought myself able to repeat word for word—all seemed forgotten, swept away as though they had never been.

"My anguish reached a climax. So great was my perturbation

that the recollection of it is dim and shadowy. I remember seeing the usher touch the handle of the door, and, as he opened it, I seemed to feel a puff of wind in my face; there was singing in my ears, and then I found myself near a table in the midst of an oppressive silence, as though, after a plunge in a stormy sea, I had raised my head above water and seized hold of a rock in the centre of the vast amphitheatre.

"How strange was the sound of my first words! My voice seemed to lose itself in a great wilderness, words, scarce fallen from my lips, to tremble and die away. After a few sentences jerked out almost mechanically, I perceived that I had already finished the introduction to my speech, and discovered with dismay that memory had played me false just at that point where I had thought myself most sure; but there was now no turning back, and so, in great confusion, I proceeded. The hall seemed enveloped in mist. Slowly the cloud began to lift, and here and there in the crowd I could distinguish benevolent, friendly faces, and on these I fixed my gaze, as a man struggling with the waves clings to a floating spar. I could discern, too, the attentive countenances of eager listeners, holding a hand to their ear as though unwilling to lose a single word, and nodding occasionally in token of affirmation. And lastly, I saw myself in this semicircle, alone, humbled, discouraged, dejected—like a sinner at confession. The first greatest emotional disturbance was over; but my throat was parched, my cheeks burned, my breath came in gasps, my voice was strained and trembling. The harmony of the period was often interrupted in the middle by a rapid inspiration, or painfully drawn out, as the chest was compressed to lend force to the last words of a sentence. But to my joy, in spite of all, the ideas began to unfold of their own accord, following each other in regular order along the magic thread to which I blindly clung without a backward glance, and which was to lead me out of the labyrinth. Even the trembling of the hands, which had made me shake the instruments and drawings I had from time to time to exhibit, ceased at last. A heaviness crept over my whole body, the muscles seemed to stiffen, and my knees shook.

"Towards the end I felt the blood begin to circulate again. A few minutes passed of which I remember nothing save a great anxiety. My trembling voice had assumed the conclusive tone adopted at the close of a speech. I was perspiring, exhausted, my strength was failing; I glanced at the tiers of seats, and it seemed to me that they were slowly opening in front of me, like the jaws of a monster ready to devour me as soon as the last word should re-echo within its throat."

He who will one day write a book on the physiology of the orator will render a great service to society—to us who have to pay so dearly for “that extravagant idolatry of ourselves” which incites us to speak in public. But such a work must be a complete treatise, a mirror in which each might see himself, and learn to what ridicule he exposes himself, what punishment awaits him, when he mounts the rostrum uncalled for and untried. Each must see himself with pallid cheeks, perturbed, distorted countenance, suffering from that unhealthy excitement, which, like a storm of emotion, breaks out in trembling. Before entering the lists let each feel the oppression on the chest, the cough, the compression of the bladder, the loss of appetite, the unquenchable thirst, the dizziness which will blind him; and lastly, let each endure in advance all the innumerable gradations of pitying sympathy awakened in the audience by his own timidity.

We can better understand the influence of the emotions on the organism if we consider the long novitiate, the unwearying efforts and the countless trials of even the greatest orators before they attained self-control—the simple end of preserving before the public the same intonation, gestures and persuasive force that which are natural to them when in the company of their friends or the retirement of the family circle.

I have seen men of brilliant intelligence standing rigid, their arms hanging at their sides like recruits, their features distorted and their eyes fixed on the ground, stammering and grinding out their speech, so as to move one to pity. Others, known to their intimates as jovial anecdotists, make one turn away one's eyes in compassion, when, on important occasions, they stop short in the middle of a sentence, gasp, repeat the same word four or five times, struggling for utterance, and at last stand still open-mouthed, clutching the table or their watch-chain, as though in search of an anchor of salvation. Others, again, go to a banquet and succeed in damping all gaiety. At the very beginning it is evident that food is swallowed with difficulty, their speech lies heavy on their heart, they are nervous and tortured by the fear that their memory may leave them in the lurch. One pities them when at last they rise pale and trembling, then speak confusedly, jerkily, swaying to and fro with wide-open eyes, as though stupefied with agitation.

A former master of mine, a professor of rhetoric, could, at the beginning of a nervous affection, only speak sitting, owing to the excessive trembling of his legs; and at last he was obliged to renounce the triumphs which his masterly and enviable gift of eloquence procured him, as he was unable, after having concluded his speech, either to rise, to descend from the cathedra, or to walk.

But why does the simple fact that we are standing before the public produce such disquietude within us? Why is it followed by such a far-reaching disturbance of the organic functions? We say it is the nerves, the brain, anxiety, the physical nature of man which we cannot control. But there is confusion also in our ideas. What is this much praised force of will, this power of the soul which makes us so bold when alone and yet so cowardly before the eyes of a few people?

I confess the problem is difficult, and I believe the easiest way to a partial solution is to analyse without prejudice what we all know about cerebral activity and to see what physiologists have discovered in studying the emotions and the physical phenomena of thought.

I have often heard good speakers say, and I can certainly agree from personal experience, that the most difficult place in the world to make a speech in, is the House of Commons; the chief reason being that the speaker has nothing to lean against, unless he happens to be a Minister.

We have to acknowledge, then, that it is normal to fear. The instinct of self-preservation is a primal instinct, and Fear is one of the emotional manifestations of it. Its purpose is self-preservation, and it expresses itself ordinarily in efforts towards flight or concealment.

No psychological account of any of the emotions can omit reference to the famous James-Lange theory, which in effect amounts to no more than that an emotion is actually the sensation of the visceral changes that accompany it. William James, however, spoke of the visceral changes causing the emotions, and said, "We do not cry because we are sorry, but we are sorry because we cry." James states, "The order in which the events occur is as follows: An exciting fact is perceived. This percept is followed by certain bodily changes. The feeling of these bodily changes as they occur is the emotion."

We need no proof that visceral disturbances accompany fear. Pallor of the skin, trembling of the limbs, dilatation of the pupils and protrusion of the eyes—these, according to physiologists, are due to the excitation of the adrenal glands, acting on the sympathetic nervous system. Reflex action plays a very important part in the exhibition of Fear. If an insect or a grain of dust gets into our eye, the eye closes irresistibly by an automatic mechanism quite independent of our will. If one puts a finger into the mouth of a new born child it begins to suck. So it is with the chicken which pecks when just escaped from the shell.

The more physiology advances, the more the domain of free will is restricted and the greater the predominance of involuntary movements (Mosso).

To sum up the arguments for and against the James-Lange theory, we may say at once that it is rejected by many great psychologists. Lange's is the straight physiological conception. It is the consciousness of disagreeable organic sensations, usually sudden in onset. Can the symptoms of fear be reproduced in imagination without the bodily accompaniments, *i.e.*, purely as feelings or affects, or even as memories? In dreams we call up kinetic memories of walking and running. In a similar way we call up memories of fear and terror. So we cannot accept the theory. Its machinery no doubt exists, but is secondary to the appreciation of the danger situation. This suspends the cortical control of the basal and spinal machinery of emotion, and the condition of Fear is aggravated and emphasized. In heart and other diseases all these horrible organic sensations can occur without any sense of Fear or anxiety.

The real solution is that Fear is indicative of a defence mechanism, and is excited by the perception and realization of danger, which sets in motion this physical mechanism to defend life.

The brilliant scientific work of Sherrington has conclusively shown that in animals the basal ganglia are the seat of the primary instincts and emotions. Golz has confirmed this, and is of opinion that visceral reactions are too uniform in character to throw up into consciousness the many varieties and shades of emotion. The pathological laughter and crying which is involuntary is not representative of an occurring emotion in the mind. To the patient this symptom is often distressing and incongruous. Hughlings Jackson taught that the emotion of Fear arises in the cerebral cortex, the seat of consciousness.

Cowardice is uncontrolled Fear. It is normal to be afraid, but it is abnormal and anti-social in the extreme to be a coward. The coward runs away because he is afraid and cannot control his Fear. The really brave man stays, not because he is fearless, but because he overcomes his Fear, and faces the danger.

There is a limit, however, to human endurance, and the diabolical methods used in the late war played havoc with the nervous systems of thousands of brave men, from which they will never recover. It was only natural grit and determination, combined with training and perfect discipline, that enabled our brave men to face the terrors of trench warfare, combined with poison gas and bombing from the air.

Women have wonderful courage in an emergency, and the splendid way in which the women engaged in nursing and voluntary work faced the horrors of war will always be remembered.

Fear associated with disease is well known. In angina pectoris the patient suffers from agonizing pain, complete inhibition of movement, and a fear of imminent death. In certain forms of insanity uncontrolled Fear is very common, and requires sympathetic treatment. The acute mental disorder, delirium tremens, is the best example of such a state of terror, although it is not nearly so frequent as it was twenty years ago.

One of the greatest physiologists of Fear was Edgar Allan Poe, who died at the age of 37, amidst the horrors and convulsions of delirium tremens. No one has ever described Fear more minutely, no one has so ruthlessly analysed, or made us feel with more intensity, the pain of overwhelming emotions, the throbbing which seems to burst the heart and crush the soul, the suffocating oppression, the awful agony of him who awaits death.

A great many people live in a constant state of dread of disease, such as cancer, tuberculosis, blindness or insanity. As a rule they conceal their morbid feelings, even from their relatives. In the great majority of such cases there is no foundation for their morbid fears, but they make themselves and others very unhappy. Fortunately, owing to the progress of medical science, we do not suffer to the same extent as our ancestors, who lived in constant dread of such scourges as the plague, cholera, leprosy, smallpox, typhus fever and hydrophobia. It is difficult for us to conceive the fearsome, justifiable dread that our ancestors had 200 years ago of hydrophobia, always fatal, and the most terrible of deaths. Dogs were killed by hundreds. Goldsmith, who was a doctor, tried hard the humane task of alleviating the horrible fear, chiefly by pointing out that the bite of a dog often did not kill, and his famous verse is still familiar :

" And while they swore the dog was mad,
They swore the man would die.
But soon a wonder came to light,
That showed the rogues they lied,
The man recovered from the bite,
The *dog* it was that died."

The Fear for the future causes an immense amount of worry and anxiety to many—the Fear of being incapacitated for work, by accident or disease, of being unable to make provision for wife and family, of loss of money or reputation.

The ordinary person makes provision by insurance, careful

investment and hard work, but a great many are careless and trust to luck, with, in many cases, distressing results. The fear of poverty, disgrace or illness leads some to contemplate suicide. A great many people think of it, but fortunately few carry it out. What is the state of mind of a person who deliberately takes his life? The law convicts him if he is unsuccessful, but if he succeeds, he is generally assumed to have been of unsound mind. Into this controversy I will not enter, but in Boswell's *Life of Johnson* we have what is perhaps the clearest account of a suicide's mental state.

"We talked of the melancholy end of a gentleman who had destroyed himself,

"JOHNSON: 'It was owing to imaginary difficulties in his affairs, which, had he talked of with any friend, would soon have vanished.'

"BOSWELL: 'Do you think, sir, that all who commit suicide are mad?'

"JOHNSON: 'Sir, they are often not universally disordered in their intellects, but one passion presses so upon them, that they yield to it, and commit suicide, as a passionate man will stab another.' He added, 'I have often thought that after a man has taken the resolution to kill himself, it is not courage in him to do anything, however desperate, because he has nothing to fear.'

"GOLDSMITH: 'I don't see that.'

"JOHNSON: 'Nay, but my dear sir, why should not you see what everyone else sees?'

"GOLDSMITH: 'It is for fear of something that he has resolved to kill himself: and will not that timid disposition restrain him?'

"JOHNSON: 'It does not signify that the fear of something made him resolve: It is upon the state of his mind after the resolution is taken that I argue. Suppose a man, either from fear, or pride, or conscience, or whatever motive, has resolved to kill himself; when once the resolution is taken he has nothing to fear. He may then go and take the King of Prussia by the nose, at the head of his army. He cannot fear the rack, who is resolved to kill himself. When Eustace Budgel was walking down to the Thames, determined to drown himself, he might, if he pleased, without any apprehension of danger, have turned aside and first set fire to St. James's Palace.'" (Boswell's *Life of Johnson*.)

The question has often been asked, and answered in various ways, "Is religion based on Fear?" Miller says: "Fear has formed the stock-in-trade of many irrational forms of ecclesiastical propaganda. When religion, which should appeal to the highest instincts in man, debases itself to the point of appealing to the lowest and meanest instincts, it undermines the very foundations of character, and poisons the fountain of life at its source. Any religion which appeals primarily to Fear is doomed to decay with the dawn of more universal intelligence. The function of religion should be, not to scare people into certain beliefs and ceremonies, but to awaken the divine idealism within, bringing it forth into such universal expression as shall revitalize and beautify human life."

The Church stands for order and cohesion, as against disorder, disintegration, and chaos.

The Fear of Death has long been recognized as an instinct, and Rousseau says, "Life becomes dearer to us as its joys pass away. The old cling to it more than the young. He who pretends to face death without fear is a liar."

Lord Byron came to the conclusion that the fear of death is an instinctive manifestation of the soul. He says in *Cain* :

"I live,

But live to die, and living see nothing to make Death hateful—save an innate clinging—a loathsome and yet all invincible instinct of life, which I abhor; as I despise myself, yet cannot overcome,
and so I live ——"

That all men fear to die is the great law dominating the thinking world, and without which all living things would soon cease to exist. This Fear is a natural impulse, and is not merely an accident, but an important factor in the whole order of things. It has been my sad duty to watch a large number of people die, both at home and abroad during the war, and I have never yet seen any person pass over without exhibiting some form of trepidation or Fear. Instinctive love of life and fear of death, which is only a manifestation of the former, are of an importance in the study of human nature impossible to over-estimate.

Schopenhauer said: "From the point of view of intelligence, there is no ground for fearing death. Reason, which is the outcome of knowledge, does not present death to us as an evil. It is certainly not the rational, conscious part of ourselves which fears death: the "*fuga mortis*" which pervades all living beings is an emanation of the blind will. This blind will is no other than a pure instinct, which is independent of our rational will."

It is only with fanatics and simple or primitive persons that blind faith can subdue this instinctive fear of death.

It has often been stated that fear of death completely disappears when it is realized that there is no possible means of escape, and this is often seen on the scaffold, where the victim is resigned to the inevitable; his Fear disappears, and he dies courageously. It is a merciful providence, as it has enabled thousands to endure torture, burning and execution with calm and serene indifference.

The finest example in history of controlled Fear was in the French Revolution. The flower of French nobility, both men and women, were ordered to the guillotine by a mob of revolutionaries. They accepted their fate with the calmness and serenity acquired by good breeding and perfect control. Knowing that escape was

impossible, they resigned themselves to their fate, danced with each other, and when called by number to die, bowed in a courtly and dignified manner to their *confrères*, before they were dragged with all the humiliation possible in a tumbril to the scaffold and beheaded. Their spirit was unconquered, and the fear of death had passed away.

It is then indubitable that among the instincts of man there is one which causes him to love life and fear death. This instinct develops slowly and progressively with age. In childhood and early youth we are very anxious to "grow up," but when we are adult we have no desire to grow old. We are greatly disturbed by the appearance of wrinkles and grey hair. Instead of being glad to have finished a great part of our mortal career, we feel sad at being near the inevitable end. Many become dispirited and depressed in the final stages of life's journey, but there is nothing more inspiring than to see elderly people who take a cheerful and philosophical view of life.

The description of human emotions in Charles Darwin's classical work of fifty-seven years ago has never been excelled. A very important part of that work was based on scientific observation and vivid description by Sir James Crichton-Browne, of whom we are all so proud. I will quote the words of Darwin in his great book :

"It occurred to me that the insane ought to be studied, as they are liable to the strongest passions, and give uncontrolled vent to them. I had myself no opportunity of doing this, so I applied to Dr. Maudsley, and received from him an introduction to Dr. J. Crichton-Browne, who has charge of an immense asylum at Wakefield, and who, as I found, had already attended to this subject. This excellent observer has with unwearied kindness sent me copious notes and descriptions, with valuable suggestions on many points, and I can hardly over-estimate the value of his assistance."

Could any scientific worker receive a higher compliment ?

Darwin said : "Of all emotions, fear notoriously is the most apt to induce trembling, but so do occasionally great anger and joy. I once saw a boy who had just shot his first snipe on the wing, and his hands trembled to such a degree from delight that he could not for some time reload his gun."

Although Fear and Worry are generally coupled together, Fear is an instinct as old as the dawn of human intelligence, whilst Worry is a comparatively recent product, which as civilization advances and life becomes more complex threatens to become humanity's

greatest enemy. We must as a nation direct our efforts to the conquest of Fear, and these must begin with the child. The training of children in the home is often destructive of character and ability. No children should be brought up to fear their parents or indeed anything. The things to avoid should be explained to them upon the grounds of reason, and when a child asks his parent why he must do something, his mother should not say, "Never mind why; you do as I say or the bogey man will get you." The school education of children is a most difficult problem. Too many teachers seem to think that their secondary, if not their chief function, is the creation of inferiority complexes in their pupils, and worry over examinations is one of the prolific causes of academic failure.

We can never hope entirely to conquer Fear, but we must learn to control it. Heredity, training, discipline and education have an immense influence on the character of every individual. Heredity plays the most important part for good or evil, but we cannot control it. We can, however, by training and education keep our emotions in subjection, and if we could all refrain from unnecessary Worry, we would to a great extent conquer Fear, and make our lives brighter and happier, and in addition the lives of those friends and relations with whom we are associated.

One maxim of the Roman Emperor Caligula was, "Let them hate me, so long as they fear me." This method of government of peoples has lasted long enough, and will be replaced by more democratic ideas of reason and consideration.

National Fear is of immense importance. Whole communities may be seized with the fear of attack from more powerful neighbours. The horrors of war are at their worst in the case of a defenceless population at the mercy of an invading army. Modern warfare is nothing more or less than wholesale scientific slaughter, and cannot be permitted to continue. When national fear and distrust are controlled, international differences will be settled round the conference table, and I trust and believe that the last great cataclysm through which we have passed will have decided for all time the impossibility of another war between civilized nations.

I will conclude my address by quoting the watchword of a dear old lady, always of a happy and cheerful disposition—"Trust Triumph, Fear Failure."

AN ACCOUNT OF THE REPORT OF THE JOINT
 MENTAL DEFICIENCY COMMITTEE OF THE
 BOARD OF EDUCATION AND BOARD
 OF CONTROL, 1929.*

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At the outset it is necessary to point out that although this Report is the result of deliberations extending over a period of four years, it does not profess to deal in an exhaustive manner with every aspect of mental deficiency. The main purpose of the Committee was to consider the problem from the administrative point of view and, whilst many other matters have been dealt with, the subject of mental deficiency is so large that these have necessarily only received somewhat brief mention. At the same time the Report extends over a considerable field, and there is little doubt that it will be regarded as an important contribution to the subject and one deserving of the careful attention of all who are in any way concerned with this class of persons. It is obviously impossible for me to discuss, or even refer to, all the matters which have been dealt with in the four parts of this Report; I shall accordingly confine my remarks to the more salient features.

THE NATURE OF MENTAL DEFICIENCY.

At the beginning of their Report the Committee explain the meaning they attach to the term "Mental Deficiency." There is no doubt that there is still much misunderstanding regarding this, and no little of this confusion is traceable to the different criteria adopted by the two Acts of Parliament defining mental defectives, namely, the Education Act and the Mental Deficiency Act. The Committee consider that "mere lack of educational attainments cannot in itself be regarded as constituting mental deficiency"; that the only really satisfactory criterion is that of social incapacity, and that the mentally defective person is one

* Being the opening paper of the discussion held on this subject at the Annual Meeting, London, July 12, 1929.

who is suffering from a degree of incomplete mental development sufficient to prevent independent social adaptation to the extent of necessitating care, supervision and control.

THE INCIDENCE OF MENTAL DEFICIENCY.

Perhaps the most important matter of all dealt with in the Report is that of the number of mental defectives in the country. At an early stage of its existence the Committee realized that it was essential to obtain accurate information on this point, and they were fortunate in securing the services of Dr. E. O. Lewis to make a special personal investigation into six areas in different parts of England and Wales. Although the total population investigated in this way was only 622,880, the enquiry was conducted with great care and thoroughness, and since there is every reason to believe that the areas were truly representative ones and fair samples, his findings may be accepted as generally applicable to the whole country. I think there is no doubt that Dr. Lewis's investigation is the most painstaking and complete enquiry into the number of defectives that has ever been made in this, and probably in any, country. Unquestionably the number he found must necessarily be less than those actually in existence; but his figures are probably the nearest approach to the truth that it is possible to obtain.

Now a very similar investigation was made by the Royal Commission on the Feeble-minded twenty years ago, and it is of great interest to compare the findings of these two enquiries. The Royal Commission came to the conclusion that in 1906 there were 4.6 mental defectives per 1,000 population, equivalent to a total of approximately 150,000 defectives in England and Wales. In 1926 Dr. Lewis found that there were 8 defectives per 1,000 population, corresponding to a total of approximately 314,000 defectives in England and Wales; in other words, that the incidence of mental deficiency in the country was practically double that ascertained a generation previously.

The discrepancy between these two investigations is very great, and the first question to be considered is whether the much greater number found by Dr. Lewis denotes a real increase during the past generation or whether the figures are susceptible of any other explanation.

I think there is no doubt that to a certain, and possibly to a considerable extent, the higher incidence found by Dr. Lewis is apparent rather than real; that it is, in fact, due to a more complete ascertainment. There are two factors which have contributed to this. In the first place, Dr. Lewis was enabled to devote

much more time to his enquiry than were the investigators of the Royal Commission. In the second place, it has to be remembered that during the past twenty years there has been a great awakening of public interest regarding mental deficiency; there has also been a great increase in the number of societies and associations of various kinds dealing with these persons. These changes would undoubtedly give him a considerable advantage over the earlier investigators, and would help to make his ascertainment much more complete. But, after making full allowance for these causes, there are certain facts which to my mind make it impossible to explain the whole of the increase in this way.

If the increase were due in any very considerable measure to a more complete ascertainment, one would expect to find a relatively larger number of individuals suffering from the milder, or feeble-minded, grade of defect. Idiots and imbeciles are readily recognized and their existence is usually well known. The condition of the feeble-minded, on the other hand, is by no means so obvious, and these persons would be much more likely to escape detection in any enquiry which was seriously incomplete. Now the standards used in the two enquiries were practically the same, so it is of interest to compare the ratio of the different grades of defect revealed by the two enquiries. It is a very significant fact that they are practically identical.

Thus, according to the Royal Commission, in every 100 defectives ascertained there were 24 idiots and imbeciles and 76 feeble-minded. According to the findings of Dr. Lewis, in every 100 defectives there were 25 idiots and imbeciles and 75 feeble-minded. Further, although the investigations of the Royal Commission show considerable variations of incidence in different areas (and I think that in some areas of extremely low incidence the figures are certainly open to question), nevertheless the majority of the areas, in spite of the fact that they were investigated by different persons, show remarkably little variation round a mean average incidence of about 4 per thousand total population.

I do not suggest for a moment that the incidence of mental defect in the community is double what it was a generation ago, as these figures would seem to indicate; nevertheless, after careful consideration of all the facts, I find it impossible to resist the conclusion that during this time there has been not only a considerable increase in the total number of defectives in the community, but also a definite increase in their proportion to the general population.

This is the view taken by the Committee, who came to the conclusion that it is "hard to believe that there has not been some increase in the incidence of mental deficiency during this period."

What are the causes of this increase? It is probable that several factors have contributed. One may be the reduction in the infantile mortality rate which has taken place in recent years; for there is evidence that while this has resulted in the survival of many mentally normal children, it has also resulted in the survival of many defectives. On this point Dr. Lewis's findings show that in areas where the infantile mortality is low the incidence of mental defect, especially low-grade defect, tends to be considerably greater than in areas where a large number of children die in the first years of life. Another cause of the increase may be the longer life span of the population generally, for no doubt this affects the defectives as well as the non-defective population. Another, and I am disposed to think a still more important cause, is the selective decline in the birth-rate which has now been taking place for a number of years. Dr. Lewis's enquiry confirms a fact which has long been noted, namely, that mental defectives in the main are the offspring of mentally abnormal and subnormal stocks, and, whilst such stocks occur in all social grades, the majority of them are to be found in the lowest stratum of the community. There is evidence that the birth-rate amongst these stocks is decidedly higher than among the rest of the community; in other words, that for some years past we have been breeding from the dregs rather than from the cream, and this process must inevitably tend to an increase of mental subnormality and defect. Whilst it is probable that many more data are needed to enable a definite conclusion to be reached, this matter of the increase of mental deficiency is one of such great importance that even if the report did no more than emphasize the urgent need for a full investigation into this question, its publication would be amply justified.

It is an important fact, and one probably not devoid of ætiological significance, that whilst the investigation shows the mean average incidence of mental defectives to be 6·7 per 1,000 in urban areas, it is as high as 10·4 per 1,000 in rural areas. It seems not improbable that the migration of the better stocks from the country to the towns, with the intermarriage of the inferior stocks left behind, together with the lower infantile mortality rate and increased longevity in the rural districts, may be factors in bringing about the higher incidence of mental defect in these latter areas.

Whatever may be the amount of the real increase, and however it may have been caused, it is clear from the figures contained in this report that the problem of mental defect is a much larger and more serious one than was formerly thought. When it is remembered that the number of mental defectives in the country to-day is more than double that of the total number of the certified and

notified insane, as shown by the Annual Report of the Board of Control, it will be apparent that the subject of mental deficiency is no insignificant branch of psychological medicine but, on the contrary, a very important one.

THE PRESENT CONDITION OF DEFECTIVES.

Next to the information which the report gives as to the number of defectives in the country, perhaps the most important matters dealt with are the conditions under which these persons live, and the means which exist for their education, training, occupation, supervision and care. The sum of these data constitutes the problem as it exists at the present time.

Let us first consider the education of defectives. The Education Act of 1921 imposes upon local education authorities the duty of ascertaining and educating such children as are certifiable under the Act as mental defectives. According to Dr. Lewis's estimate, the total number of such children in the country is approximately 105,000. The Report states that the number of children actually ascertained is only 33,000 and suitable educational facilities only exist for about 16,000, or half this number. It is clear, therefore, that not only is ascertainment very inadequate, but that the number of special schools is quite insufficient even for the children ascertained. There are, of course, many children who are not suitable for special schools, and who require the form of training provided by an institution or occupation centre. The existing provision for these also is totally inadequate.

It is also the duty of the local education authorities to notify to the local mental deficiency authority (1) all mentally defective children who are incapable of deriving benefit from instruction in special schools; (2) all mentally defective children who cannot be taught in these schools without detriment to the interests of the others; and (3) all mentally defective children who on, or before, attaining the age of 16 years are about to leave a special school, and who require to be placed under supervision or guardianship or sent to an institution.

It is important to remember that it is very largely by means of such notification by the local education authority that the local mental deficiency authority is enabled to take action, since in the absence of notification of this kind the mental deficiency authority can only provide for defectives who come within certain special categories rendering them "subject to be dealt with." The figures given in the Report show quite clearly that the number of children notified in this way falls very far short of the number who should

be notified. Doubtless there are often reasons for this, in some cases good, in others bad; but the fact remains that the neglect of many local education authorities to discharge their duties of ascertainment and notification has resulted in a very large number of defectives throughout the country being deprived of the supervision and safeguards afforded by the Mental Deficiency Acts. The Report says "all the figures which are based upon the findings of our investigation show clearly that the number of defectives ascertained and provided for by local education and mental deficiency authorities is smaller than it should be."

Let us now turn to the questions of occupation, supervision, care and control. Dr. Lewis was at considerable pains to make an assessment of the defectives he found with regard to their employability, and he came to the conclusion that approximately 64% of the feeble-minded were capable of engaging in various forms of skilled or semi-skilled work which would contribute entirely, or very materially, towards their support; 27% of the feeble-minded were capable of engaging in unskilled but useful work, and 8% were unemployable. It is seen from these figures, therefore, that in the opinion of the investigator, a large proportion of defectives, indeed the majority of the feeble-minded grade, so far as their mental capacity is concerned, are able to perform useful and remunerative work. This has actually been demonstrated to be the case, and it is the experience of the comparatively small number of institutions and colonies in this and other countries which are run on modern lines and administered by an efficient and energetic staff that the defectives within them are not only leading industrious lives and making a material contribution to their upkeep, but that they are also safeguarded from the competition and danger of the outside world, and, with few exceptions, are contented and happy. Those who have any doubt on these points have only to visit such institutions as the Royal Eastern Counties at Colchester, the Royal Albert at Lancaster, that at Star Cross, the Manor at Epsom, and Besford Court, to be convinced.

It is equally certain, however, that if defectives, even those of mild grade, are not suitably trained and supervised, but are left to shift for themselves in the world outside, they have little chance of retaining or even obtaining suitable employment, or of competing with their normal fellows in the labour market. Unfortunately the existing facilities for the occupational training and supervision of defectives are so woefully inadequate that the majority of these persons are neither employed nor protected. Dr. Lewis found that the number acutely employed was very small. Of those living at home only 9% were "almost self-supporting," their

earnings being 15s. or more per week; 48% contributed a few shillings weekly towards their keep; whilst the remaining 43% contributed nothing.

The Report shows that (excluding feeble-minded children who should be dealt with by the local education authorities) there are at least 175,000 defectives of all ages who are in need of, and should be under, the care of the local mental deficiency authorities. The total number of persons receiving this care, either through institutions, guardianship or supervision, does not amount to 40,000, or less than one fourth.

The Report states that "The provision made by the authorities for the care of defectives—whether in the community or in institutions—is by no means sufficient even for the relatively small number who have been ascertained, and is totally inadequate when compared with the far larger number of defectives who, as our investigator has shown, require care and protection under the Mental Deficiency Acts."

It may be added that Dr. Lewis found that whilst 56% of all the adult defectives in the areas investigated were being supported partially or entirely by public funds, the great majority of these were not only making no appreciable contribution to their maintenance, but were entirely outside the provisions and safeguards of the Mental Deficiency Acts. In the words of the Report "The Poor Law Guardians were directly or indirectly responsible for about four-fifths of the whole number of defectives for whom any financial provision was being made, while the local authorities which were expressly constituted to deal with defectives had themselves provided financially for less than one-fifth of those who were in receipt of such assistance." The Committee draw particular attention to the number of defectives in Poor Law institutions and in mental hospitals, and to the serious disadvantage attaching thereto. With regard to Poor Law Institutions, they remark that with a few exceptions these establishments afford no adequate provision for the training or employment of defectives; that the majority of the defectives within them are under no certificate and enjoy none of the advantages and safeguards of the Mental Deficiency Acts; and that the dealing with defectives by Poor Law authorities "cuts right across the principle of unity and continuity of control"; a principle which the Committee deem essential to the proper solution of the problem. With regard to mental hospitals the Committee remark that "the retention of mentally defective persons in mental hospitals has greatly increased the difficulties of the lunacy authorities in providing adequate accommodation for cases of mental disease and disorder, for whom these institutions are primarily intended.

The main function of these institutions, apart from the care of the incurably insane, is to provide skilled medical treatment for the inmates with a view to their cure and discharge, and there can be no justification for using the already seriously insufficient accommodation for mentally defective persons who require entirely different treatment." It may be added that whilst it is estimated that there are about 6,000 defectives in the country who, owing to a superadded psychosis, require the special care of a mental hospital, the number of adult defectives actually in these hospitals amounts to approximately 21,000.

The Committee estimate that at the present time there are in England and Wales approximately 17,000 lower-grade children and 84,000 adult defectives, making a total of 101,000, who require some form of institutional treatment. Of this number they consider that 57,000 should be sent to fully equipped colonies conducted on modern lines affording adequate facilities for classification, training and employment; 37,000 of the older defectives could probably be dealt with in some simpler form of institution; 6,000 require treatment in mental hospitals, and about 1200 (this number is probably considerably understated) need to be dealt with in State colonies for defectives of dangerous or violent propensities. In addition to these it is estimated that about 14,000 lower-grade children and 62,000 adult defectives could be left in the general community provided suitable training facilities and adequate means for their care and supervision were forthcoming.

To this brief summary of the main features of the problem as it exists at the present time I would add that it is impossible to read the Committee's Report without being struck by the close resemblance of the present conditions to those which were found by the Royal Commission twenty years ago. Since that time the education of mentally defective children, which was formerly optional, has been made compulsory; there have also been passed the Mental Deficiency Acts of 1913 and 1927. Undoubtedly something has been done under these Acts; but it is essential to realize that we have as yet only touched the fringe of the problem and that there are vast arrears to be made up. As in 1906, so to-day there are still thousands of mentally defective children who are receiving no proper education or training; still thousands of adults who are totally unemployed and under no adequate supervision; still thousands of defectives encumbering the mental hospitals and interfering with the proper treatment of curable mental disorder; still over 50% of adult defectives dependent upon public funds and doing practically no remunerative work; still large numbers entirely outside the Mental Deficiency Acts and

treated as paupers and not as defectives ; and still the same tale of propagation, illegitimacy, vice and immorality. The magnitude of the problem is as great as ever it was, and further delay in dealing with it can only add to this magnitude.

RECOMMENDATIONS.

Lastly, we have to consider the recommendations of the Committee for dealing with the state of affairs which they have shown to exist. First with regard to education and training ; broadly speaking, from this aspect defective children may be divided into three groups, namely, (1) those who require some form of residential or institutional training, (2) those who can be trained in occupation centres, and (3) those who can profit by instruction in a special class or school. This last group is not only the most numerous, but is also the most important for the reason that it is chiefly composed of the higher-grade defectives, and experience has shown that, as a result of suitable education and trade-training, a large proportion of these can be rendered able to earn their living. Whilst, as I have pointed out, many education authorities in the country have neglected to make the provision which they might and should have made, nevertheless the Committee are of the opinion that for various reasons which they give " there is no possibility of any considerable expansion of the special school system in its present form and under present statutory conditions except in a few of the largest towns." It must also be borne in mind that many of these defective children are still attending the ordinary schools ; also that approximately one third of those certified as mentally defective and attending special schools are only defective in the educational sense and are not certifiable under the Mental Deficiency Acts.

In order to meet these difficulties the Committee recommend (1) that the local education authority should be responsible for providing suitable education, according to their needs, *for all children under 11 years of age who are able to attend day schools or centres* ; (2) that the lower grade of these, that is, broadly, idiots and imbeciles should be notified to the local mental deficiency authority, who should be financially responsible for them ; and (3) that the higher-grade defectives, together with the dull and backward children should be regarded as forming one group, to be known as the "retarded" group, who should continue to be educated by the methods and with the curriculum of the special school ; but that it should no longer be necessary to certify them as mentally defective to enable them to receive this special education. Children

who are of too low a grade to attend day schools or centres should, where necessary, be sent to residential institutions or colonies provided by the mental deficiency authority.

Since the abolition of certification will entail the lapse of the power now possessed by educational authorities to compel attendance at special schools, it is recommended that a general power be given to enforce attendance at whatever school is best suited to the educational capacity of the child. It is likely that when parents realize the benefits to be obtained by the child's attendance at a school which is within the general educational system and for which certification as a mental defective is not necessary, no difficulty in obtaining attendance will be experienced, but it is wise to have the power to force attendance in the last resort.

The Committee recommend that at the age of 11 there should be a general survey of all school-children for the purpose of determining the particular type of post-primary education which each child should then receive. Those who are found to have made no substantial progress in scholastic or manual work, and are also found to require care and control under the Mental Deficiency Act, should be transferred to the mental deficiency authority who would become entirely responsible for them. Those of higher grade would remain still under the jurisdiction of the education authority.

It is emphasized that the abolition of certification under the Education Act would not in any way lessen the obligation of the education authority to discover, classify and provide suitable education for all retarded children of whatever grade up to the age of 11 years. Also that the local education authority should have the duty of certifying children whom it was proposed to notify at any age during the period of compulsory school attendance, whether such children were attending school or not. Further, that the relevant provisions of the Education and Mental Deficiency Acts should be made to apply to children in Poor Law Institutions or otherwise dealt with under the Poor Law.

Let us now consider the recommendations with regard to training, care and control, which, in the main, are applicable to adults. The Committee consider it to be "a fundamental condition of any comprehensive scheme for the care and control of defectives that every practicable step should be taken to concentrate all existing powers in regard to adult defectives (as well as lower grade and notified mentally defective children) in the hands of a single authority, namely, the local mental deficiency authority." They therefore recommend that the powers possessed by Lunacy and Poor Law or Public Assistance Authorities should be transferred to the local mental deficiency authorities, and that Provisos II and III of

Section 30 of the Mental Deficiency Act should be repealed. I may say that this principle of unity and continuity of control was enunciated by the Royal Commission twenty years ago, and there is no doubt that it is essential to the efficient administration and proper care of defectives.

The Report shows that whilst some local authorities have done their best to make proper provision for defectives by institutional and other methods of care and supervision, there are many areas in which little or no attempt has been made to apply the existing Acts. The Committee consider that the obligations of local authorities under the Acts should be enforced and that these authorities should provide sufficient institutional and colony care for the needs of the defectives within their areas, either by themselves or, where necessary, in cooperation with neighbouring authorities. They consider that the colony should be fully equipped on modern lines and should be adapted to receive defectives of all types, ages and grades; also that ancillary to it there should be hostel branches and simpler institutions for particular classes of defectives. They also consider that wider use should be made of the power of licensing suitable patients from institutions with a view to fitting them for life in the community under proper safeguards. They consider that defectives with incorrigible criminal tendencies and those suffering from certain associated physical defects should be provided for in suitable institutions by the Board of Control.

It is clear from the Report that the number of defectives in the country is so large that many years must elapse before suitable institutional accommodation can be provided. It is shown, moreover, that there are very many defectives for whom such is not necessary and who may remain in the community provided proper arrangements can be made for their effective care and supervision. In the past such supervision has been very inadequate and its unsatisfactory nature has undoubtedly proved extremely costly, besides being responsible for much evil. The Committee recommend that local mental deficiency authorities should make supervision a real and effective method of care and control; also that they should discharge their duties of providing for the proper training and occupation of defectives. With a view to remedying the present defects in community care they make two recommendations: (1) That local mental deficiency authorities should be empowered to grant financial assistance to defectives placed under supervision; and (2) that power should be given to the justices to make an order on petition placing defectives under the guardianship of the local mental deficiency authority, whose duty it should be to arrange for such guardianship through appropriate officers. The effect of these

two recommendations would undoubtedly be to give a much greater measure of control over defectives who are not in institutions.

The Committee draw attention to the close relationship which exists between mental defect and other forms of mental disease, and to the difficulty often experienced in making a differential diagnosis between high-grade defectives and persons suffering from certain of the major and minor psychoses and from early dementia. They consider that whilst the administrative provision for defectives must necessarily be distinct, nevertheless the fact of this close relationship and difficulty of differentiation renders it advisable that the mental deficiency service should be regarded as an integral part of the general mental health service, and makes it essential that there should be the closest co-operation between the Lunacy Visiting Committees and the Committees for the Care of Mental Defectives. In order to secure this co-operation and to promote efficient administration of the mental health services generally, they regard it as essential that each area should have the services of a full-time Officer of Mental Health, who should possess expert knowledge and experience of all branches of psychological medicine.

Lastly, the Report deals with mental deficiency as a genetic and social problem. It is obvious that the Committee are impressed with the gravity of the present state of affairs, and while they refer to the preventive value of such methods as sterilization, segregation and socialization, they are, nevertheless, of the opinion that much further research is needed before any conclusions regarding the value of methods for the prevention of mental defect can be reached. They therefore urge the need for special investigation and research, particularly in regard to the causation and prevention of mental defect, the further elucidation of the difference of incidence in urban and rural areas, and the relationship between mental defect and other social problems.

Such, I think, are the outstanding features of this Report. My survey has, of necessity, been little more than a brief sketch, and I am only too conscious of the inadequacy of my presentation of it. But what I have said will, I trust, convey a general idea of the nature of the document, and at all events I hope it may serve as a basis for your discussion.

A MODERN APPROACH TO THE PROBLEM OF THE ADMISSION OF MENTAL PATIENTS TO IN-PATIENT TREATMENT.*

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INTRODUCTION.

ALTHOUGH my object is to initiate a discussion on this subject free from the trammels of the past, I must, I fear, for a brief time deal with it historically.

In an article published in the *Journal of Mental Science*, October, 1927, I traced the development, in England and Wales, of reception orders for mental patients from their origin in 1774 to the present day, and showed that they all had a common ancestor in the "order-certificate" of that time, which had to bear the signature of a practitioner of medicine. The law did not prevent the practitioner from also being the person initiating the proceedings, and even taking charge of the patient he certified. Apparently in those days "the liberty of the subject" was not so much stressed as at present, and the medical practitioner was trusted in much the same way as he is now trusted in regard to the sequestration of cases of infectious disease. Anybody, in fact, could initiate proceedings, even the domestic servant of the family, and any practitioner could sign the order. Neither were there any restrictions as to who took charge of the patient. The admission had, however, to be notified to the Commissioners of those days.

In the year 1828 the variations in this reception order commenced. A relative or some other person could sanction the proceedings, and this has remained the practice to the present day with regard to private admissions.

Keeping to the case of private patients for a brief space: in 1828 the order-certificate required the signature of two practitioners. In 1832 the order and the certificate were separated: the person who gave the information, that is to say, a relative or other person, signed the former, and the two practitioners hitherto signing the latter were required to sign separate certificates. For the first time the patient was called a "person of unsound mind"; prior

* Being the opening paper of the discussion held on this subject at the Annual Meeting of the Royal Medico-Psychological Association, London, July 12, 1929.

to that he was always alluded to as " a proper person to be detained." In 1845 the alternative terms " lunatic " and " idiot " were added.

This continued until 1889, when the fundamental change took place which converted the person who gave the information and signed the order into the " petitioner " and a justice of the peace replaced him as the person signing the order. This revolution changed what was hitherto a purely medical and family affair into a judicial function. An interesting anomaly, however, existed until 1845, for one of the two Acts of 1828 (that relating to county and borough asylums) allowed a private patient to be admitted to those institutions on the order of one of the Committee of Visitors, supported by one medical certificate.

Now, a few words as to the vicissitudes of the pauper order. These are many and various. Prior to 1828 the pauper insane were sent into confinement by the Overseers of the Poor or by a magistrate's warrant under the Vagrancy Act of 1744. In 1828, if there were no county or borough asylum in the particular district, the patient could be admitted into a private asylum on an order signed by two justices, or by an overseer and a clergyman of the district. One medical certificate was required. In 1832, one justice, or the officiating clergyman and the overseer of the parish, were to sign the order. In 1845 the justice's or the officiating clergyman's signature required the support of that of the relieving officer or overseer. In 1853 the justice was restored to his dignity, and his signature became equal to that of the officiating clergyman and the relieving officer or overseer.

With regard to pauper admissions to county and borough asylums, from 1808 to 1845 a justice's warrant and one medical certificate were required. In 1845, however, the order required for the admission of a pauper to a private asylum was adopted, except that the intervention of a justice was only required when the patient was in a fit state to be brought before him ; if unfit, then the officiating clergyman, with the overseer or relieving officer, signed the order. The order for the arrest and confinement of lunatics found wandering dates from 1828, and the order for those cruelly treated or neglected from 1845. The latter required the signature of two justices.

From these facts it will be seen that the intervention of a justice in regard to the admission of insane paupers was either optional or absolute from 1744 to 1889, from which year it has remained absolute. In the case of private patients, the intervention of a justice was introduced for the first time in 1889.

Now I think I proved conclusively in my article that the reason why Lord Shaftesbury insisted on judicial intervention in the case

of pauper patients was that he could not entirely trust the local authorities of those days—that is to say, the overseers—to see that such patients were sent to asylums. In fact, history discloses that whenever possible the overseers kept them at home and registered them, or housed them in prisons or workhouses. That was for economic reasons. Lord Shaftesbury wanted them to be under the protection of the Lunacy Acts and have the benefit of proper treatment in asylums. On the other hand he resisted judicial intervention in the case of private patients because he thought it entirely unnecessary. He argued that the relatives and friends in these cases were only too anxious to place such patients under proper care and treatment, and maintained that judicial intervention would, by its publicity, deter the relatives in this matter, and the patient would be treated in secret, say at home, to avoid the publicity. This he said would rob the patient of the protection afforded by the Lunacy Act. A great point to remember is that this judicial intervention in private cases had not the support of the medical profession or of the Commissioners in Lunacy, nor was it based upon the findings of any Parliamentary inquiry. It was a purely political and legal usurpation.

We know, now, that this judicial intervention has led to exactly what Lord Shaftesbury feared, in regard not only to private patients, but to pauper patients as well. It has led to failure or delay in both these classes of cases coming under proper care, and having the advantage of skilled medical treatment at the earliest possible moment. Certification would never have become a bogey had it remained a purely medical and family affair, like, for instance, the present notification of infectious disease. Judicial intervention has, in my opinion, played a large part in the creation of "the stigma of lunacy."

Now what I want to drive home as being essential to the modern approach to this problem of in-patient treatment—and it is the chief reason for this brief historical summary—is this: The attitude of local authorities to the pauper insane has long since changed for the better. These bodies are no longer regarded with suspicion, but have been entrusted by the State with great administrative powers and duties. Lord Shaftesbury's apprehensions would now be groundless.

The evolution of the governance and administration of the country in modern times has been almost entirely on the lines of devolution and trust. Act after Act of Parliament has been passed which has established our magnificent system of local government, the like of which is not to be found in any other country in the world. So I maintain that judicial intervention is out of date,

having outgrown its necessity or its usefulness. I submit that the time has come to abolish it, and to make the admission of mental cases to in-patient treatment, if not wholly a medical affair, at least partly medical and partly a matter of local government. This is the only way to cope with public ignorance and prejudice, and the stigma of lunacy.

What better opportunity than now?

The duties and responsibilities of the authorities administering local government areas have been again augmented under the Local Government Act of 1929—more trust, more concentration, more consolidation of power and authority in county and county borough councils. To these bodies are transferred the administration of the Poor Law Acts, and thus the long-contemplated total abolition of the Poor Law system is in sight.

The centralization of mental hygiene in one authority in a local government area has become practicable.

Though the main provisions of the consolidating Poor Law Act of 1927 remain, in the meantime, untouched, the local authorities by this transfer of duties are for the first time in a position to review as a whole the provisions made for the treatment of the sick poor in their areas, with a view to better organization and economy of administration. They will have power to extend these provisions where necessary; they are to act in consultation with the voluntary hospitals and other voluntary agencies of a like nature.

If the local authorities are fit to be trusted with these enormous duties, powers and responsibilities with regard to the physically sick, surely they are to be trusted with extended powers to deal with the mentally afflicted without reference to the judicature, to determine by whom and how the mentally sick are to be treated and, if necessary, detained, and to be the sole authority in the matter in their areas, subject, of course, to some supervision by a department of State.

Have not the local authorities carried out, under the Public Health Acts, similar duties and undertaken similar responsibilities in regard to those suffering from infectious diseases?*

Is it outside the limits of possibility to devise a general scheme adaptable to the particular needs of each administrative area under which the county and county borough councils would deal with the mentally sick on lines similar to those dealing with the physically sick, especially those suffering from infectious diseases?

Would not this be more in keeping with the spirit of the times?

* It is generally assumed that under these powers the local authorities could only establish and maintain infectious diseases hospitals. There is apparently no such limitation, for the Public Health Act of 1875 authorized the provision of hospitals for "sick inhabitants."

and the trends of modern government than the procedure under the present Lunacy Acts?

Is it not farcical to maintain the archaic formulæ of 1889 having regard to what I have just said, and more farcical to return, as some would suggest, to the still more archaic formulæ of 1853, 1854, 1832, and even of 1828? Why not scrap all this pageantry of the law and remember the times we live in? That this heritage of the past—of prejudice, of suspicion, of judicial intervention and the rest—is still allowed to inhibit the modern outlook is shown by the Report of the Royal Commission of Lunacy and Mental Disorder (England and Wales), which, while admitting the truth of that outlook, actually panders to public prejudice by recommending an increase in judicial intervention.

THE METHODS OF APPROACH.

The methods of approach to in-patient treatment are :

1. By an active policy of prevention.
2. By encouraging and facilitating voluntary treatment.
3. By the administrative recognition of the "non-volitional" case.
4. By the local authority registering all institutions in which mental patients are voluntarily or involuntarily detained for treatment.
5. By conferring on the local authorities powers to admit, classify, detain and discharge all cases of mental disorder, whether requiring public assistance or not, on lines as far as possible parallel with those applicable to infectious and other physical diseases, and without the intervention of a judicial authority, but subject to the guidance and supervision of the Board of Control.
6. The safeguarding of an alleged mental patient from unjustifiable admission to in-patient treatment and subsequent involuntary detention.
7. By classifying mental institutions in accordance with the type of case needing treatment.

1. By an Active Policy of Prevention.

The first modern method of approach is undoubtedly by the psychiatrization of public assistance work.

The bringing together of the poor and indigent under the direct supervision of the public assistance committee of the local authority made possible by the Local Government Act of 1929, offers an opportunity for establishing fruitful measures in regard to both prophylaxis and early treatment of mental or nervous breakdown.

The largely passive *rôle* played by the Poor Law authorities, by merely treating cases brought to them by necessity, should now be changed to an active intervention. A degree of routine ascertainment, like that enjoined under the Mental Deficiency Act of 1913, should be adopted by the utilization of trained social workers, who, during their regular visits to the homes of the poor, will encounter cases whose mental state requires immediate attention to avoid a definite breakdown. These public assistance social workers should coordinate those of voluntary agencies doing like work. Such workers would, in due course, replace the relieving officers, and bring to bear a skill and training in social work not hitherto concentrated on the prophylaxis in mental disorders and the promotion of positive mental health. The head administrative official of a public assistance committee should be a psychiatrist or a psychiatrically trained and experienced social worker. The point of this is that though people who seek assistance during times of unemployment, strikes, etc., may not be the subjects of any mental or nervous disturbance, there is no doubt that the people who habitually seek public assistance are of a subnormal mental type. Left to their own resources they are incapable of facing the difficulties of life and fail in the struggle for existence. Social workers, on their own initiative, might be able to deal with some of the milder cases of mental and nervous exhaustion by appropriate advice, or refer them to their own doctor for recommendation to the mental out-patient department of a county or voluntary general hospital. The social workers would keep case-records, which would be a valuable source of information for the local authorities. Many would need after-care, and even much rehabilitation before again becoming responsible citizens. Cases which pass from observation units, etc., who may be half well in mind or body, would find in the social worker a friend to advise and help them. Those short periods of residence in the observation wards of public institutions—that inflow and outflow of the same cases—would be less, and fewer would find their way to the public mental hospital or the police court.

2. By Encouraging and Facilitating Voluntary Treatment.

Voluntary cases really fall into two categories, which should not be confused. In the first may be placed those cases whose mental illness permits of their coming and going as they choose, whether as in-patients or out-patients, and in the second may be placed those whose mental illness is of such a nature as to lead them to voluntarily submit to detention by an agreement which can only be terminated on recovery or after complying with certain conditions.

In the first category are mild cases of psycho-neuroses, hypochondriasis and minor neuroses ; mental illness, such as fatigue or apathy, emotional imbalance, irritability, anxiety and mild depression, morbid shyness, inferiority feelings, memory hallucinations, feelings of unreality, etc. Often these symptoms are of a chronic nature and result in years of suffering and unhappiness. The "reason" is not impaired and "insight" is good. They are not an active source of danger, either to themselves or others.

In the second category are cases of established mental disorder with clear insight, who are unable to trust themselves, and require an environment free from domestic and other sources of mental stress.

The reason for this division is that cases falling into the first category should be entirely free to receive treatment without the administrative cognizance of any public authority. The conditions of such treatment should be those which apply to ordinary physical non-infectious diseases. Those falling into the second category should only be allowed to request treatment in some institution or hospital or home which has been approved by the local authority. This leads to the third method of approach.

3. By the Administrative Recognition of the "Non-Volitional" Case.

A mental case unable to express an "understanding" approval or disapproval of being admitted to in-patient treatment or is indifferent should be deemed to be a case voluntarily detained so long as he remains in this mental state. This, though admittedly illogical, is the easiest and most appropriate way out of the difficulties which the categorization of these cases has presented. A relative or some responsible person should sign any documents required for the voluntary admission of such a patient to a registered mental institution, as in the case of a "minor." (*Vide Note, p. 615 post.*)

4. By the Local Authority Registering All Institutions in which Mental Patients are Voluntarily or Involuntarily Detained for Treatment.

The local authority should be the registration body for all mental institutions in its administrative area and those maintained by it in other areas, the conditions for registration to comply, *inter alia*, with formulæ laid down by the Board of Control. The local authority should have power to visit all premises it registers. For reasons I shall set out later, the person in medical charge of registered premises should be approved by the local authority.

If it is desired to detain the patient at home for treatment, then

the patient's residence, if suitable, should be temporarily registered by the local authority. If it is not suitable, removal to a mental institution should be compulsory. In this way comes about the first great principle I wish to establish: that no mental patient in an administrative area is to be detained,* either voluntarily or involuntarily for treatment, except in premises registered by the local authority.

This registration and visitation and the approval of persons in charge of mental institutions are the primary guarantees of *bonâ fide* admission, detention and treatment of mental patients.

5. By Conferring on all Local Authorities Powers to Admit, Classify, Detain and Discharge, all Cases of Mental Disorder, whether requiring Public Assistance or not, on Lines as far as possible Parallel with those Applicable to Infectious and other Physical Diseases and without the Intervention of a Judicial Authority, but Subject to the Guidance and Supervision of the Board of Control.

The basis of this approach is public interest and supervision of the mentally sick, as in the case of the physically sick. The community leaves to the doctor the ascertainment of the nature of the mental disorder, but takes the responsibility, through its elected representatives (or nominees), for any curtailment of liberty the doctor thinks necessary to restore the patient to health. During this time the community never loses touch with the patient, however long detention may be necessary. In other words, humanity, in the form of relatives, friends and immediate fellow-citizens, takes the mentally afflicted into its bosom.

There is, of course, a legitimate legal side to mental disorders,

* Objection has been raised to the use of "detain" in this connection and "retain" put forward as more appropriate. They both express modes of keeping, but while "detain" is by common usage applied to persons, "retain" appears to be used in this sense only indirectly, such as retaining the services of somebody. Strictly speaking "retain" means "to hold back for one's self" and applies to animals and things rather than to persons. One retains a situation, an idea, a custom, a book, an old attachment, the contents of one's pocket or stomach, a seat in a carriage, a practice, a dog, a horse, etc., but one does not retain a man, but only his services. It must also be remembered that "detain" may be used in many senses other than custodial. For instance, one may be detained by illness or business or the state of the weather.

I use "detain" because it is exactly what happens in regard to a stay in hospital. Illness or force of circumstances detains a person so placed whatever may be the nature of the hospital, but if the hospital is one for mental disorders there is in addition an active detention and the patient is prevented from going to some place to which he is desirous of proceeding, or is kept away from some person to whom he belongs. A voluntary patient (type 2) agrees to this detention. Only a voluntary patient of type 1 is "permitted" to remain in hospital. Thus throughout this paper I speak of voluntary and involuntary detention, the voluntary being by agreement.

such as the administration of the patient's affairs, his responsibility for crime, validity of his undertakings, etc. We have of late been wont to teach that insanity is a legal matter, mental disorder a medical matter, and this has been approximately true, but under this modern approach the question whether a person's liberty should be curtailed because of mental disorder becomes definitely a medico-sociological one, in which medicine and the community are involved, and not the law and the community unless there has been some offence against the law or some other legal issue has been raised.

Let us be quite clear on this matter : The law of England does not state that to be insane (or a lunatic) one must be " an idiot or a person of unsound mind " plus " a proper person to be taken charge of and detained under treatment " ; nor is it true that the law is silent as to the mental state which constitutes " unsoundness of mind." It has defined "unsoundness of mind" as "imbecility and loss of mental power, whether arising from natural decay, or from paralysis, softening of the brain, or other natural cause, and may be unaccompanied by frenzy or delusion of any kind (Rex v. Shaw, 1868), a pretty comprehensive declaration leaving little or nothing for mental disorder which the law does not consider to be insanity.

So if the treatment of mental disorders is to be freed from this legal incubus we must reconstruct the position.

Now I submit it should be laid down that the unsoundness of mind which calls for *care and treatment* only is a medico-sociological conception and that it rests with the community in which the individual lives to decide whether he shall be detained for this purpose ; and that the unsoundness of mind which raises questions of responsibility in regard to common law torts, crime, civil liability, testamentary capacity, etc., is a medico-legal conception and that in these circumstances the issue rests with the judicature. Obviously in the latter case care and treatment may or may not be necessary.

I am therefore one of those who agree with Lord Shaftesbury on this point, and I think a sensible layman, conversant with the world and with mankind, after studying the facts of the patient's mental state as set forth by the physician and those disclosed by competent persons regarding his history and behaviour, is as well able to judge whether the patient is a proper person to be taken charge of and detained under treatment as any citizen acting in a purely professional capacity, whether he be magistrate, lawyer or medical man.

So far, then, I have envisaged a very simple method. The local authority, on notification by a practitioner of medicine that a person is in need of in-patient treatment, with voluntary or involuntary restriction of liberty, either collects the patient and admits him into one of its own mental hospitals or clinics ; or it is informed of his actual admission into some other institution registered for the purpose, the patient being received into care in both instances by an approved person acting at this stage as the representative of the local authority. It envisages that a medical practitioner is put in charge of the proceedings from the first, and that no lay officer of a

public authority or a responsible relative or friend is to have power to act until the medical opinion has been obtained.

Whether the notification would need the signature of one or two practitioners will depend upon the nature of the case. I should say one in the voluntary and the "non-volitional" cases, and two in involuntary cases. In a grave emergency, the second in an involuntary case might be that of the medical officer of the clinic or hospital receiving the case, *i.e.*, if another medical signature cannot be obtained. Such a case will be rare if the "non-volitional" type comes to be officially recognized. The practitioners' notification would reach the local authority after admission, and the patient would need to be seen by a member of the hospital committee or panel of "approved persons" (see later) within seven clear days of admission.

Now, one is bound to admit that there is a good deal of nonsense talked about the admission of patient to a mental hospital being comparable with the admission of an infectious case to a fever hospital. In the latter case the patient can reflect that within a few weeks his future will be determined; he will either be once more free, or dead. But admission to a mental hospital has further possibilities. It may be the prelude to many years' or a lifelong detention, with entire loss of civil liberties. This momentous difference cannot be ignored, so the action taken by the local authorities in these two cases cannot be entirely parallel. One must then admit that the community has a right to insist that the precautions against a wrong diagnosis and unjustifiable admission in the case of the mental patient should be effective. Undoubtedly any safeguards must be operative before the damage has been done and the chances of the stigma of lunacy incurred, *i.e.*, before, and not after admission.

Prof. Robertson's suggestion that England should adopt the precaution against wrongful detention to be found in the Scottish Lunacy Act does not commend itself because it does not comply with this. It is designed to operate after admission, and would amount to so much eyewash unless the State would pay the piper and this it is not likely to do.

This brings me to my next method of approach :

6. The Safeguarding of an Alleged Mental Patient from Unjustifiable Admission to In-Patient Treatment and Subsequent Involuntary Detention.

As regards the safeguarding before admission to a mental institution, which is really the important point, the recent Royal Commission on Lunacy and Mental Disorder declared that the present provisions of the Lunacy Act had been effective *i.e.*, certification involving the intervention of a judicial authority.

But I have rejected this provision for in-patient treatment as archaic, harmful and unnecessary, whether this intervention of a justice is judicial or merely ministerial. The former brings mental

disorders in close relation to wrong-doing, as does the latter for that matter, but in any case the mere signing of documents by an authorized person is no safeguard whatever. So it becomes necessary to find a safeguard other than that at present used, however effective it is said to be.

Now, I have already stated what I consider to be the first safeguard, which is that no alleged mental patient can be legally admitted to in-patient treatment (excluding voluntary patient type 1) except to a registered mental institution and all that this implies.

What may be called the second safeguard is the necessity for first obtaining a medical opinion before any step to confine the patient is taken.

It should be noted that under my scheme the procedure in public assistance cases and private cases is practically the same.

Returning to the registration safeguard, one requirement is that the person in medical charge of the registered institution must be approved by the local authority, for I suggest that it should not be mandatory upon him to receive any patient. He should have power to refuse to admit unless satisfied that there are *bonâ fide* grounds for so doing. But if he does admit the patient, notification, *inter alia*, to an authority independent of the patient's relatives or friends or a person acting instead or for them, must, of course, follow. The facts of his refusal to admit must also be notified to the local authority for further investigation.

All these are surely deterrents to conspiring against the liberty of the subject which the legal profession quite rightly guards.

In cases admitted voluntarily no safeguards are needed.

In "non-volitional" cases the safeguards I have proposed are, in my opinion, ample. The person in medical charge of the registered institution would, of course, need to satisfy himself as to the absence of volition.

But in the case of an alleged mental patient who opposes any action curtailing his liberty: are further safeguards called for? Would public opinion agree to leaving action in such cases entirely to the discretion of the local authority or to officers acting under its control or to other persons approved by it?

Personally I think localities would vary in their demands. This is why I have suggested that some latitude in the methods of dealing with occurring mental disorder should be allowed, but within some generally applicable scheme. There is a precedent in the cases of schemes, *re* transferred services, under the Local Government Act of 1929.

In many countries power has been given to public mental hospitals or special clinics to detain patients on medical certificates

alone for varying periods up to, I think, six months. Such powers were, I believe, long ago sought by the London County Council.

I need not go into detail as to what can legally be done in this country in this respect ; or as to the recommendations of the Royal Commission or of our Association in regard to a "provisional" order, or remind you of the provisions of the Mental Treatment Bill of 1923. Deep in my mind is the feeling that all these procedures will prove futile and not a permanent solution of the question. Let me remind you I am dealing with safeguards before admission. Safeguarding against undue detention after admission is another matter.

I think in course of time, when the principles of mental hygiene are better known to individuals and practised, voluntary will equal if not outnumber involuntary admissions. But there will always be cases without insight into their mental state who will offer objections to necessary in-patient treatment.

It must, I submit, be granted that an "understanding" objection, by a person thought to be suffering from mental disorder, to submit himself to treatment involving loss of personal liberty and civil rights, is, in itself, a *prima facie* reason for the coming into operation of some further safeguard against a wrong diagnosis and subsequent involuntary admission to a mental institution. Some safeguarding procedure must, then, replace the present intervention of a judicial authority, and must be equally effective.

The mere production of two medical certificates would not, I am sure, satisfy public opinion in England. Let us get down to the root of this matter and see what is really required. Is it not someone to see that fair play is done, that the action it is proposed to take is primarily in the patient's interest, or may be necessary in the interests of the community, or to ascertain that the patient's suspicions of ulterior motives are unfounded—all matters, as I have said before, which can well be determined by a commonsense well-informed citizen of good repute, be he a professional man or not ?

And so I propose for this duty that the local authority should appoint a panel of "approved citizens" with such qualifications. It might include magistrates, lawyers and doctors, but they would not act in a professional capacity. This duty might be undertaken, in public assistance cases, by members of the visiting committee of a mental hospital or clinic, or selected members of the mental hygiene committee if the administrative area is small and compact. But some areas are extensive and may be sparsely populated. For large communities and sparsely populated areas a body larger than the mental hospital committee would be necessary and the "approved citizen" panel would better meet the case.

Such a panel, however, would always be needed for private institution cases.

It might be said that this procedure was a mere variant of the present one, *i.e.*, intervention of a justice, but this is definitely not so.

The "approved citizen" or member of the appropriate local authority committee, as the case may be, called in by the practitioners (or sent by the local authority)* would not make any formal order, firstly because none is necessary, and secondly because the hospital is not bound to receive the patient.

If his decision were that the patient, despite his protests, should be placed under care and treatment he would so endorse the medical certificate. He might, however, be successful in persuading the patient to enter hospital willingly.

If, on the other hand, he was not satisfied that removal to hospital or placing under care at home was necessary, despite the presence of symptoms of mental disorder, he would suspend any action being taken on the medical certificate and communicate his views to the local authority.

But supposing that the local authority in such a case, after due inquiry, say, by its chief psychiatrist, held an opposite view, what would be the next step? Undoubtedly the patient's removal by sanction of the chairman of the local authority to a clinic or a mental out-patient department for examination, after which the patient would either be free to go his own way, or be received as an in-patient into an appropriate mental institution.

It should be noted that it would be essential under the procedure I have suggested that the removal without the consent of the local authority of an alleged mental patient of the private class out of an administrative area for the purpose of his admission to a private mental hospital would have to be forbidden. Such consent would, of course, readily be given, unless the local authority had already decided that the case was not one needing in-patient care and treatment. The removal for this purpose of a rate-aided case is, at present, illegal.

But the interviewing of alleged mental patients unwilling to enter mental institutions would not be the sole duty of the panel of

* It will be seen that the "haling" of an alleged mentally afflicted person before anybody as a prelude to care and treatment is abolished for all time.

Such interviews must, of course, be subject to the proviso that no ill-effects on the patient, mentally or physically, are likely to follow. Whether the patient can be interviewed or not I attach great importance to the visit being made and the doctor and relatives (or the person acting for them) seen. It is particularly important in cases unfit to be interviewed. In such cases these local inquiries may supply all the information necessary to a decision as to the disposal of the patient.

"approved citizens." It is only the beginning of that community interest in mental patients one is anxious to encourage.

So much for safeguards prior to involuntary admission to mental institutions. Now, what about safeguards against unnecessary detention after admission, and under what conditions can a patient be detained against his will after admission?

Discussion on these matters cannot be avoided, for they are germane to my subject, but I have another method of approach to mention before I can deal with them.

(7) By Classifying Mental Institutions in Accordance with the Type of Case Needing Treatment.

To deal with this approach at all satisfactorily would take up the whole of my time. I can only urge the importance of making adequate provision for the diagnosis and treatment of early cases of nervous and mental breakdown requiring public assistance. Each local authority should be allowed to apply this provision as best it can to suit local conditions. Although the delay in modernizing the Lunacy Act has been largely responsible for the little progress made in this direction, much more could have been done under present circumstances. Arguing and bickering over the right measures to be taken generally has certainly inhibited action, and should cease. What is best and possible in one area may be both inadvisable and foolish in another.

Whatever form the provision for definite, though early cases, or for voluntary cases of type 2, may take, it is absolutely essential to (a) the active intervention of the public assistance committee with its social workers in the prophylaxis of mental breakdown, and to (b) the proper treatment of voluntary cases of type 1, that in every administration area there should be established a sufficiency of out-patient departments to general hospitals, municipal or otherwise, with beds for clinical observation and examination. Expert mental and physical examination is the rock upon which sound prophylaxis is founded and is of the greatest importance in the successful treatment of these nervous and mental handicaps which are productive of a vast amount of avoidable invalidism and inefficiency as well as of mental distress.

In these out-patient departments should also be provided the help that medical psychology can now give in industrial walks of life. All of us who are directly in touch with cases of mental and nervous breakdown in breadwinners and supporters of families know only too well that mental stress and worry, feelings of inadequacy and hopelessness, unemployment and loss of interest in life

inevitably, sooner or later, follow upon uncongenial, monotonous, exhausting or nerve-racking occupations.

I shall refrain from going into the merits of all the forms of provision for early cases and content myself with mentioning those worthy of consideration and selection by local authorities. They are as follows :

(1) Local-authority psychopathic hospitals reserved for voluntary (including suitable " non-volitional ") cases.

(2) Well-found clinics primarily for the examination, treatment and disposal of involuntary cases, emergency receptions and psychiatric work of a general character.

(3) Special nursing homes for suitable cases.

(4) The opening up of the public mental hospitals to voluntary patients (type 2), and where convenient the addition of out-patient departments.

It should be laid down that any accommodation for early cases not actually a part of a general hospital should in some way be linked up with one. Indeed, I would have the same applied to every mental institution throughout the country.

The abolition of the intervention of a judicial authority will facilitate admission to all institutions treating early mental cases.

PROCEDURE AFTER ADMISSION.

I need not take up much more of your time by further discussing the admission of the two kinds of voluntary case I have described. The one with self-control and insight would be admitted to the appropriate institution without any formalities, as in a general hospital. Usually these cases need out-patient treatment only, but they might require to be admitted for clinical observation and further examination, or for some form of special treatment they cannot obtain as an out-patient. Their admission would not need to be notified to any public body. Many of them would, of course, be dealt with in mental and neurological wards of a general hospital. The other class, with doubts about or loss of self-control, but with insight and a desire for in-patient treatment, should in my opinion only be admitted to an appropriate registered mental institution. The fact that detention, though voluntary, is being exercised, I submit, should be notified both to the local authority and the Board of Control, but no other sanction than the written consent of the patient should be necessary for such until the patient withdraws this. In case of the latter happening, if in the opinion of the medical officer in charge of the hospital the patient is not fit to be at large, readmission as an involuntary patient or removal

elsewhere would be necessary. Procedure in this eventuality would vary in different hospitals and administrative areas.

The "non-volitional," as I have mentioned, would be admitted on a voluntary basis and thus notifiable.

The procedure, however, in regard to the involuntary case presents problems on which there has been up to the present no sort of agreement. Indeed a position of stalemate has almost been reached. If the patient does not recover quickly, outside interest in him often soon evaporates, and he enters that hopeless kingdom of the chronic insane, about which the general public knows so little and so much that is untrue is talked. In any case he often becomes lost to the community at large and is only kept human by thoughtful attention to his physical and mental needs, *i.e.*, his employment (if possible), his recreation and amusement, his moral and spiritual welfare by those in charge of him. To keep him more in touch with the outside world, the voluntary hospital-visitors' system suggested by me some years ago and recommended by the Royal Commission is slowly spreading.* My idea is that if the responsibility for their detention were more widely distributed among their fellow citizens, patients would find a place more frequently in the thoughts of the community, and not be so much regarded as a people apart.

So I suggest that a member of the visiting committee in public assistance cases, and one of the panel of "approved citizens" in private mental hospital cases, by further endorsement of the medical certificate after a lapse of stated periods, declaring that the patient is still in need of in-patient treatment, shall be the way in which the local authority authorizes the continuance of detention.

As I have already said, I am desirous that no formal order shall ever be made, that the patient shall never be officially labelled except as one needing in-patient treatment for mental illness, and that his classification as a unit in the community shall remain otherwise socially unchanged. You may regard this proposal as the postponement *sine die* of that certification and order for detention now legally necessary for in-patient treatment.

So as regards the involuntary case, should the person in medical charge of the mental institution to which the patient is brought,† decide to admit him, the medical certificate endorsed in the

* *Vide* author's *Mental Hospitals and the Public*, Adlard & Son, Ltd., 21, Hart Street, W.C. 1, and the *Report of the Royal Commission on Lunacy and Mental Disorder*, Recommendation IX.

† I have often urged the advisability of mental hospitals or mental clinics undertaking the removal of cases, *i.e.*, sending an ambulance staffed with nurses in plain hospital uniform to bring the patient into hospital as likely to impress upon him from the first that he is being taken to a hospital for treatment and not to a place for incarceration.

affirmative by a member of the appropriate local-authority committee or "approved citizen" as the case may be (a duplicate of the medical practitioner's notification to the local authority), should authorize the patient's detention for a period of twenty-eight days, or until the next meeting of the visiting committee (or in private institutions the visit of a member of the panel of "approved citizens") whichever is the earlier.

Some time before the expiration of this twenty-eight days the signature of a member of the visiting committee or of an "approved citizen" should legalize detention for a further period of three months. The case should again come up for consideration any time during the fourth month of detention, when the diagnosis and prognosis should be fairly definite.

At any time during stay in hospital, if the medical officer approves, the involuntary patient can be transferred or readmitted as a voluntary patient, and many will no doubt during this period be disposed of in this way.

As to the patient's future after four months stay in hospital, several courses are open according to the diagnosis or prognosis. The principal ones are: (a) Out on trial, (b) discharge relieved or recovered, (c) transfer or readmission as a voluntary patient, (d) if the prognosis is favourable, a date fixed for a further report and his admission certificate endorsed accordingly, (e) if the case has become "non-volitional," transfer or readmission as a voluntary patient (chronic brain disease, advanced dementias, general paralytics, etc., with no possibility of a return of volition), (f) if likely to recover within three years, then a yearly report and appropriate endorsement of his admission certificate; (g) if already a definitely chronic involuntary patient (say a transfer), endorsement of his admission certificate *sine die* subject to periodic reports to the Board of Control, and to [the chief psychiatric officer of] the local authority that the patient still needs in-patient treatment. If, after the expiration of three years and four months, the patient has not been dealt with according to (a), (b), (c) or (e), he should now be disposed of under (g).

No change in the Board of Control's procedure is suggested on receipt of these reports. The Commissioners may require in certain cases further endorsement of the admission certificate, and the chief psychiatric officer or other official of the local authority might desire to draw the attention of the visiting committee or medical officer in charge to some germane matter.

It would be the duty of the local authority to make such arrangements as are necessary to secure the regular visitation of all registered mental institutions, and of every notified case in its administrative

area. I attach the greatest importance to this duty. It is the safety-valve of the administrative machinery of these institutions, and the best safeguard yet devised against undue detention. Authorized visitors can do much to spread enlightenment on the work done in these institutions and sound notions regarding mental patients and mental disorders.

As to the discharge of patients the only change I suggest at present is that it should be possible for the local authority to authorize the officer in medical charge of any mental institution to allow a patient out on trial or to discharge him from hospital if deemed to be recovered. This is without prejudice to any power to discharge patients now possessed by the visiting committee.

The responsibilities of the Board of Control would not be materially altered. I cannot now indicate, nor am I fully competent to indicate, exactly what adjustments would be necessary as the consequence of the adoption of my scheme, but, as I have already indicated, all admissions to registered mental institutions detained either voluntarily or involuntarily would be notified to the Board; in-patients free to come and go would not, and "non-volitional" cases would for this purpose be regarded as voluntarily detained. All admissions notifiable to the Board would also be notified to the local authority.

As regards the welfare of private mental hospitals, I think the effect would be good. The association of local-authority visitors on the lines I have suggested would increase public confidence in these institutions, and help to remove the wrong impression abroad that they are run mainly for profit.

It does not appear to me that the duties and responsibilities of the Lord Chancellor's Lunacy Department will call for much adjustment. The admission of Chancery patients, whether "so found" or "not so found," would probably need to be mandatory.*

Every considerable administrative area would need a chief psychiatrist to advise its mental hygiene or appropriate committee dealing with the mentally afflicted. He, no doubt, whatever his other duties, would act as a consultant when administrative difficulties arise as to patients, both before and after admission. It will be noted that the scheme would call for a good working knowledge of clinical psychiatry on the part of the general practitioner, but I have no time to discuss whether only those specially selected or appointed should be allowed to notify cases requiring in-patient mental hospital treatment. The chief psychiatrist would be at liberty, in consultation with the doctor in charge of the case, to

* It may not be generally known, but Sect. 315 of the Lunacy Act does not apply to Inquisition cases.

examine any mental case detained anywhere in the administrative area, either at the request of the doctor or the local authority.

CONCLUDING REMARKS.

I think I may claim that my proposals abolish "certification" as at present understood, and would put an end to the intervention in a judicial sense of magistrates in the admission and detention of patients for medical reasons.

In the case of persons found wandering or not under proper care and control, or cruelly treated, the duties of the courts, magistrates and police officers would be transferred to the local authority. The present procedure in regard to Navy, Army and criminal cases would not call for much adjustment.

It must be understood that on this occasion I have been able to submit for your critical consideration only a broad outline of my scheme. The filling-in of further details I must leave to a later date.*

I want you, in conclusion, to visualize what would happen under my scheme. The "down and outs," the weary and exhausted and worried, and all that detritus of modern civilization known as the submerged tenth, would receive the help and encouragement they need in their fight against adversity, by attention to their physical and mental health through the good offices of social workers organized by the public assistance committees—in other words, active prophylaxis and early treatment.

Voluntary treatment for mental and "nervous breakdown" would be within the reach of all classes of the community, as either out- or in-patients of institutions providing such treatment.

The case of acute mental breakdown would be taken charge of without legal formalities, and be known to and his interests carefully guarded *inter alia* by representatives for the most part of the community in which he resides, and this without any stigmatizing or direct labelling as a lunatic or person of unsound mind.

The local authority would provide a psychiatrist whose services would be available to the general practitioner and others for advice and assistance when faced with psychiatric difficulties. The incubus of certification and the intervention of a justice or the evoking of legal enactment would be removed once and for all, except in medico-legal issues.

The whole point about concentrating in the local authorities the determining of who shall for their own good or for that of the com-

* Since reading this paper, I have been asked how these changes can best be brought about. In reply, I have said that, pending a revision of the principal Lunacy Act, I am all in favour of local authorities proceeding by private Bill after conference with the Board of Control.

munity enter hospital is to stimulate interest in the treatment and fate of the mentally sick in their midst ; to arouse a sense of direct responsibility for their welfare, such as exists in the case of the physically sick. More people will be brought into closer contact with mental hygiene problems, and understand them better ; and this is the only way in which you can lift the veil of secrecy which hides the occurrence of a natural illness. So long as the Lunacy Act encourages this secrecy and also the separation of psychiatry from the stream of general medicine, so long will you have superstitions and prejudices persisting, with its deadly effect on progress in the care and treatment of the mentally afflicted.

I cannot hope that any of you will regard my proposals as wholly good ; some will, no doubt, condemn them entirely, but it may be that parts will find favour. Some of you may say, " Would it not be sufficient to substitute your local authority representatives for the magistrate who at present signs the order for detention ? " Well, it might be the beginning of better things.

In any case I must thank you for listening to me so patiently, and trust that what I have said is worthy of your serious attention. It is not the first time I have pleaded for more autonomy in administrative areas as regards mental hygiene affairs, especially in new projects and lines of advance having for their object the better treatment of mental disorders. At the Lunacy Reforms Conference in 1922 I suggested the appointment by the Ministry of Health of area advisory committees for mental hygiene, which would bring together in consultation all those responsible for the care and treatment of mental patients. Actual administrative bodies comparable with this ideal can be brought into existence under the Local Government Bill of 1929, but in 1922 I seemed a lone voice when, speaking of the work of the local authorities, I declared that " One authority only, properly allied to general medicine, should have the handling of mental sickness."

I also said, " Outside hospitals there is a vast field of mental unhealthiness and decay of which the public is becoming more conscious, and thoughtful people are demanding that adequate steps should be taken to deal with it." My plea for the psychiatrization of public assistance work is but an echo of this.

NOTE ON "NON-VOLITIONAL."

"Non-volitional" does not necessarily signify a general state of the patient's mind. It refers primarily to his volitional attitude to in-patient treatment. Such a patient may in some respects have more volition than either a voluntary or involuntary case, but in this matter he is indifferent, so much so as to fail to exercise any volition he may possess. A loss of volition in a wide sense may, however, be a prominent symptom of his mental disorder.

Appendix I

(A preliminary outline of an Admission Document to conform with Dr. Lord's proposals).

[Confidential.]

Administrative County [or County Borough] of.....

DEPARTMENT OF MENTAL HYGIENE.

NOTIFICATION *that a person is in need of in-patient treatment in a mental institution.*

Particulars of Case.

Civil.

Name of patient. Sex. Age. Married, single or widowed. Rank. Profession or occupation. Religion. Suicidal. Dangerous. Epileptic. Senile. Mental defective. Post-encephalitic. Permanent address. Present address. Whether first attack. When and where previously treated, with age and dates, etc. Names, etc., of relatives and person (if any) acting for them. Name and address of family doctor.

Classification { Voluntary....., Non-volitional....., Involuntary.....
 { [Willing] [Indifferent] [Unwilling]
 { Needing public assistance..... Private or public hospital.....

Removal: By local authority..... Privately.....

Signed,

[Name, rank, profession or occupation;
how related or connected with patient.]

Medical.

- (a) Salient facts observed by the medical attendant :
- (b) Salient facts communicated by relatives and others. (Give names and addresses, etc., of informants.) [History, especially of present attack.]
- (c) Date(s) and place(s) of examination(s). By whom ?

Notification.

I [or we], a person [or persons] registered under the Medical Act, 1858, and in actual practice of the medical profession beg to certify that I [or we] examined.... on the occasions scheduled above, and I [or we] am [or are] of the opinion that he [or she] is in need of care and treatment in a mental institution and is [or is not] in a fit condition to be so removed.

Signed,

Address,

Signed,

Address,

Endorsements.

Voluntary case: *I am willing to be admitted to a mental institution for care and treatment and to be detained until the expiration ofclear days notice of my wish to leave.*

Signed,

Date,

Non-volitional case: *I concur, on his [or her] behalf, in the admission of..... to a mental institution for care and treatment.*

Signed,

[Description.]

Date,

Involuntary case: *I,....., concur [or do not concur] in the admission of..... to a mental institution for care and treatment.*

Signed,

[Description.]

Date,

[Voluntary case: One copy completed as far as necessary to accompany patient to hospital (or filled in at the hospital) for notification to the local authority. Non-volitional case and involuntary case: Two copies required. One to be sent to the local authority; one to be reserved to accompany patient to hospital.]

Further Endorsements.

[Separate sheet for the use of the mental institution.]

Name, etc., of patient.....
Admitted.....as an involuntary [unwilling] patient.
Date of preliminary endorsement sanctioning admission.....

Endorsement after 28 clear days or first visit of Committee of Visitors or other authorized visitors. } *In-patient treatment still necessary.*

Signed,

[Description.]

Date,

Endorsement after 4 months from date of admission or nearest dates of visit of Committee of Visitors or other authorized visitors. } *In-patient treatment still necessary.*

Signed,

[Description.]

Date,

[Similar endorsements each year for 3 years.]

[Three spaces for any further endorsements necessary.]

[Discharge or death of patient.]

Additional Documents Required by the Mental Institution.

- (a) In public assistance cases. A copy of the public assistance officer's "case record" of patient.
- (b) In private cases. A further detailed history and description of case by the doctor on the lines of the above.
- (c) Certificate of freedom from infectious disease.

[Special forms for (a), (b) and (c) to be obtained from the local authority.]

SOME CASES OF MENTAL DISORDER: A PATHO-CLINICAL STUDY.

By **W. M. FORD-ROBERTSON, M.B., Ch.B.,**
Assistant Medical Officer, Pathologist and Bacteriologist to St.
Andrew's Hospital.

IN recent years research into mental disorders has tended to become more and more the study of the pathology of the living. The advance of biochemistry has contributed in great measure to this practice. Although bacteriological research has, in recent years, been more extensively undertaken in connection with focal infection, it has, in the opinion of most, yielded disappointing results. The study of focal infection by bacteriological methods alone will not, I am afraid, lead us very far. Endeavour should be made to correlate its local and remote effects in disordered hæmopoiesis, disordered metabolism and disordered endocrines in relation to the internal economy of the patient. In mental disease especially this implies a knowledge of the individual's potentialities that have been predestined by heredity, and later moulded by environment—factors which largely determine the psychopathic tendencies of every one of us. The bacteriological researches of Ford-Robertson and McRae (1) strongly suggest that in mental disorders we are confronted by bacteria of a special type, which as chronic infective agents can probably only adapt themselves to a certain group of the general community having a neurotoxic susceptibility. If, then, we are to make further progress in this direction, we must search for and apply new methods of bacteriological technique, study our results, and attempt to correlate cause and effect. In this relation I shall refer to special methods which are an elaboration of my father's work, the value of which time and experience may prove. In spite of the great importance of the biochemical researches of recent years, I think it will be agreed that some of us, especially those who are clinicians, feel disappointed that so far they have not given us as much indication for scientifically applied treatment as we had hoped. May I suggest that the explanation for this is two-fold. Firstly, in forming the basis of any research the present tendency is to take mental disorders in groups, for example, dementia præcox, which has a wide range of symptoms and between which

and other groups it is difficult to draw a line of demarcation. It seems to me that our knowledge of the somatic factors underlying mental disorder is as yet so limited that attempts to continue on these lines will lead us only hesitatingly along the path of progress. Are we not still at the stage where our efforts should be concentrated more on the individual as a problem in pathology which, when solved as far as our knowledge permits, can be correlated in the future with his or her psychogenic group? The second point is that in many instances our scientific work tends to run in too narrow channels; thus it must be frequently lacking in the invaluable support of parallel knowledge in other branches of laboratory and clinical experience. The most obvious example is the lack of adequate collaboration between the biochemist and bacteriologist. I know of no two sciences that can be welded together so opportunely. This combination can be taken a stage further: active and intelligent co-operation with the clinician and X-rays and therapeutic specialists should be sought to enable us to appreciate better the intricate problems we have to face. Some of you may, with reasonable grounds, accuse me of theorizing, and I should at this stage like to mention that before I attempted to put these considerations into practice in cases of mental disorder, I had had the opportunity of carrying out exactly similar lines of research on some hundreds of non-mental patients in hospital and private practice. The majority of them were cases obscure in ætiology and symptomatology. This scientific survey proved to me at least the value of comprehensive work on the individual, and how it enabled one to diagnose and treat many cases with some hope of success. During my two years at Wantage House (the new acute hospital attached to St. Andrew's), I have attempted to carry out what this experience has taught me, with the added advantage that the patients have been under my personal care. Further, there has been every facility for dental and general X-ray diagnosis, and, lastly, ample scope for treatment. The success of such a scheme is only possible by organization and the team spirit, and in this I have been singularly fortunate. The cases I am bringing to your notice are 4 out of some 120 which have been subjected to comprehensive overhaul. I will try to emphasize the salient features in each and correlate them with the mental disorder presented. In this way you can judge for yourselves if we have learnt anything that may in the future lead to a clearer conception of what may underlie at least some forms of mental disorder.

Before passing to them I would like to refer to a term that might with advantage be applied to mental disorder as implying much in concise language. The tissues can be divided into somatic and

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Before passing to them I would like to refer to a term that might with advantage be applied to mental disorder as implying much in concise language. The tissues can be divided into somatic and

neural, and it is the relationship between the two that some of us are studying, and especially their pathology. Trotter (2) in his paper emphasizes how Nature has taken infinite pains to insulate the brain and nerves from direct contact with somatic tissues. Regarded in this way the nervous system can be said to be cut off from, but nevertheless intimately connected with, and surrounded by, the rest of the body. In health they should be constantly reacting in physiological harmony with each other, and if this harmony is perfect one system should be unaware of the presence of the other. In somatic disease, however, such harmony is frequently broken, and our nervous system protests and warns us of impending trouble. Mental disorder may, in many instances, not only be the expression but the extension of such a process. Pathological stimuli may be capable of reaching the brain by abnormal paths *via* the spinal cord instead of reacting upon the reflex arc mechanism. Personal observations on many cases would strongly suggest that this is possible. Assuming that some of this hypothesis can be accepted, the term "*internal environment*" as expressing the relationship of the central nervous system to the somatic tissues seems worthy of wider adoption.

CASE I.—Manic-depressive insanity, æt. 52, married. Admitted to Wantage House, December, 1927, as a voluntary boarder. Certified some days later.

History.—Family: No psychopathic history.

Personal: Childhood apparently normal; during the war subject to slight gastric trouble owing to food. In 1919 first attack of mania; under care and relieved. Second attack 1923; certified and admitted to hospital. Mania lasted for five months. Treatment, prolonged immersion baths. Became depressed and apathetic. Discharged relieved two months later. Physical health regarded as excellent.

Present illness: In November, 1927, he became excited, talkative and destructive, up most of the night. On admission he was restless, loquacious, noisy, and threatening if controlled in any way. No insight.

Physical state.—Well nourished, 2 st. over ideal weight. Skin moist, plethoric, reflexes exaggerated.

Tongue slightly coated; mouth edentulous, except for upper and lower incisors; alveolar absorption marked, gums inflamed. X-ray: Two apical foci; lines of bone rarefaction present.

Tonsils: Slightly enlarged, crypts containing thick secretion. Fauces: Rather swollen and injected.

Nasal passages: Clean, no obstruction, turbinates normal. Antra and sinuses: Clear by transillumination and X-rays.

Abdomen: Adipose. Stomach: Appetite abnormally large, thirsty; no complaint of pain or discomfort. Bowels: Had been constipated, now regular. Colon: No tonic hardening apparent. Other organs normal.

Chest: Heart and circulation good. Blood-pressure: 141/95; pulse-pressure 46.

Laboratory findings.—Blood: red blood-cells 4,818,000, hæmoglobin 16.2 grm. %, colour index 0.8, white blood-cells 9,200, 71% polymorphic.

Biochemical: Blood CO₂ (Van Slyke) 50 c.c. %; blood-sugar 0.123 mgrm. % 2½ hours p.c.; non protein nitrogen 35.2 mgrm. %; uric acid 2.85 mgrm. %; serum calcium 10.4 mgrm.%. Van den Bergh: Negative.

Glucose tolerance test on 50 grm. carried out simultaneously with test meal (for the latter Ryle's tube and standard oatmeal gruel were used. Resting juice and $\frac{1}{2}$ -hourly samples taken for a period of two hours); free HCl was absent throughout, peptic activity 1: 4, motility normal. Blood-sugar curve: Hyperglycæmia with glycosuria.

Urine: 24-hour sample 1,230 c.c. Normal chemical (quantitative and qualitative) and cytological findings.

Fæces: Stercobilin almost absent; soluble mucus excessive; assimilation fat deficient.

Bacteriological.—Dental culture: *Streptococcus anginosus* + + +, pneumococcus + +, *Micrococcus catarrhalis* No. 1 + +; anaerobic culture—*Micrococcus catarrhalis* No. 2 + + +. (This organism was a strict anaerobe and quite different from No. 1.)

Resting juice: *Streptococcus anginosus* + +, *Streptococcus pyogenes mitis* +, *Streptococcus pyogenes* (peroxidase type) + +, *Micrococcus catarrhalis* + +; anaerobic culture—*Streptococcus anginosus* 1 and 2 + +, *Micrococcus catarrhalis* 1 and 2 (one a strict anaerobe as in dental), each + +.

Intestine: *B. Friedländer* + + +, *B. coli communis* ±, *Streptococcus faecalis* + + +, *Streptococcus faecalis globiniticus* + +; anaerobic culture—putrefactive type of bacillus + + +.

Comments.

From a clinical point of view there would seem to be little relationship between the patient's physical condition and his psychosis. In fact for the past nine years, during which he had been either melancholic or maniacal, there was nothing definite physically to which his doctors could take exception apart from his teeth, the extraction of which from time to time had not apparently influenced the onset or subsequent course of his mental trouble. The abdominal discomfort was not more than one might expect from one accustomed to overeat, and his appearance suggested robust health in spite of pyorrhœa and two loose stumps. Investigation, however, of his economy by systematic laboratory examination brought to light definite, if not serious, functional disorder, accompanied by severe focal infection and intoxication. The blood-count showed a disturbance of the hæmopoietic system and biochemical examination a reduced blood alkali reserve. Other findings were normal. There was evidence of disturbance of the parasympathetic side of the endocrine system. Sugar tolerance was much lowered on account of pancreatic and liver metabolic deficiency; hyperglycæmia and glycosuria were present. Gastric function was abnormal. Free hydrochloric acid was absent throughout, peptic secretion very low, and mucus was present in large amount. Added to this was the cultural evidence of severe infection by streptococci of the anginosus and pyogenes group and by anaerobic *Micrococcus catarrhalis*. In this case, as in many others I have studied, the resting juice showed a greater variety and severity of bacterial flora than did the teeth—an example of cumulative infection. In another paper (3) I have shown that the

presence of hydrochloric acid and pepsin in the resting juice in sufficient concentration to act as a bactericidal barrier has an important bearing on the question of gastric infection. Study of the excreta gave evidence of biliary deficiency and defective fat assimilation in consequence. Later both became normal. No colitic mucus was found on Plombières lavage, but chemically soluble mucus was excessive, denoting a mild catarrhal condition of the colon. The bacterial flora was abnormal both in coliforms and in faecal streptococci, while anaerobic methods showed the presence of a putrefactive organism in moderate numbers.

Progress and treatment.—Complete rest in bed and six hours' prolonged immersion athermal baths at 97° F. divided into two periods were given daily for two months. For seven weeks Plombières lavage on alternate days was given. At first sedatives were needed, but these were soon reduced. Restrictions in diet, especially farinaceous foods, were made, and 1 drm. of HCl dil. with liquor pepsini 30 min. were given as a drink with meals. Dried thyroid extract 2 gr. was tolerated well, and at the end of this period he had lost 14 lb., was sleeping better, and was much quieter, and better behaved, but still euphoric. Eight teeth were next extracted under gas, no obvious disturbance being produced. The baths were continued, but gradually reduced to one hour daily. Immunization was next tried by giving small doses of autogenous dental vaccine; no disturbance was produced. Later the intestinal vaccine was introduced, and at a dose of 800 millions and higher definite reactions were to be noted in exacerbation of the mental condition and diarrhoea for 24–36 hours. Interspaced between these doses intravenous injections of T.A.B. were given and were well tolerated with reactions up to 104° F. Ten doses were administered in all. At the end of six months his mental condition had improved greatly; he was quiet and almost reserved. The baths were omitted. The blood-count at this stage showed improvement and the blood alkali reserve was fully normal. The blood-pressure was slightly lowered, being 131·87. Improvement continued, and he was able to live a practically normal life. At the end of the eighth month he was transferred to a villa, but continued treatment as an outpatient. The autogenous vaccine was continued in order to keep up his immunity, though he had quite ceased to react. In November, 1928, he was discharged from certificate and remained as a voluntary patient.

Two months later a course of gastric lavage was given, using Senoran's evacuator and water and hydrogen peroxide as advised by Hurst (4). At first the amount of mucus was very considerable, but the quantity was greatly reduced after the sixth lavage and has

remained so up to date with one interesting exception. The patient contracted a severe cold, which had been going for some days when he came for his next lavage, and on this occasion the amount of mucus was considerably increased. This suggested that the catarrhal condition had extended to the stomach. Up to the present he has kept perfectly well and is busy writing a book on mathematics, and it is worthy of note that he has not gone through the period of depression characteristic of previous attacks. The bacteriological flora shows much improvement.

This case illustrates how entirely hidden the disorders of the internal environment may be unless they are especially looked for. His present satisfactory recovery strongly suggests that general alimentary infection and its resulting toxæmia were important contributory factors, which he could only overcome by scientifically applied treatment based on the findings.

CASE 2.—Mr. A. B—, recurrent confusional insanity, single, æt. 29. Admitted (transfer) to Wantage House, February, 1928. Certified March, 1924.

History.—Family: Father committed suicide at 50. Mother became weak-minded. Second cousin committed suicide. Paternal aunt insane; melancholia, with delusions.

Personal: In infancy convulsions, at 9 pneumonia. Brilliant at school, university scholarship at 17. War 1917–1919. Wounded, blown up. University 1919–1922. Consular service 1923.

Present illness: March, 1924, acute mental breakdown preceded by love affair. Transferred to St. Andrew's, May, 1925. During his 21 months of residence he suffered from periodical attacks of confusion lasting for two to three weeks, but occasionally for much longer. He was noisy, abusive, restless and destructive. Incoherent in speech, deluded and sometimes hallucinated. It was observed that his physical condition, which as a rule was outwardly good, deteriorated prior to the attacks. For some months before his transfer from the main hospital to Wantage House, treatment by rest, baths and purges tended to shorten the attacks. At the time of his transfer he was quiescent and quite normal in conduct.

Physical state.—Physique good, muscular, but 11 lb. under ideal weight. Skin rather coarse and greasy, tending to acne on back. Reflexes and pupils normal. Tongue slightly coated; breath sour; gums healthy. X-rays: One devitalized tooth, no obvious apical focus.

Tonsils: Both slightly enlarged, a few crypts present filled with muco-pus; fauces inflamed especially around tonsillar areas.

Nasal passages: Dirty, much mucoid secretion; septum deflected but no obstruction. Right middle turbinate enlarged.

Antra and sinuses: Clear by transillumination and stereoscopic X-rays.

Stomach: Appetite good but occasionally mild digestive disturbance.

Bowels regular except during attacks; some tonic hardening of the descending and pelvic colon; cæcum palpable but not contracted, slightly tender to deep pressure.

Chest, heart and circulation good. Blood-pressure 127/78; pulse-pressure 49.

Laboratory findings.—Blood: Red blood-cells 5,184,000, hæmoglobin 16.3 grm. %, colour index 0.79, white blood-cells 6,200, 38% lymphocytic; blood CO₂ (Van Slyke) 64 c.c. %. Van den Bergh: Direct, negative; indirect, trace.

Glucose tolerance test: 50 grm. normal curve. No glycosuria.

Fructose gastric test meal: No free HCl in resting juice, none secreted until one hour; maximum tide 10° at 1½ hours; motility deficient; pepsin 1–16 at 1 hour (normal 1–64). Gastric mucus small in amount.

Urine : 24-hour sample, normal findings.

Fæces : Very offensive odour, stercobilin very deficient, soluble mucus excessive; assimilation, neutral fat deficient.

Bacteriological.—Tonsillar culture: *Streptococcus anginosus* +++ *Micrococcus catarrhalis* ++. Anaerobic culture—diphtheroid No. 1 (strongly meta-chromatic type) +++, diphtheroid No. 2 (clubbed type) ++.

Resting juice culture: *Streptococcus anginosus* No. 1 +++, ditto No. 2 +.

Intestine: *B. coli communis* +++, *Streptococcus faecalis* ++, *Streptococcus faecalis globinificus* +. Anaerobic culture—diphtheroid No. 1 (strongly meta-chromatic type) ++, ditto No. 2 (clubbed type) ++, leptothrix +++.

Comments.

Clinical examination in this case again yielded disappointingly negative findings, although one was forced to the conclusion that his physical condition was generally unsatisfactory and that he was subtoxic. Analysis of the laboratory results gave, however, definite evidence of internal environmental disorder and severe focal infection by anaerobic species of bacteria. The blood-count was low normal, but showed a disturbance of the differential count towards the lymphocytic side, which in the light of the bacteriological findings has, I think, some significance. Gastric function was disordered, there being present a marked hypochlorhydria, with positive culture from the resting juice. Although gastric catarrh was not excessive, I believe one is justified in assuming that the mucous membrane was infected. The blood alkali reserve was taken during the remissions and exacerbations for comparative purposes. It is interesting to note that the average during remissions was 66 c.c. %, and 58 c.c. % when in an attack. Although within the normal range, it is possible that the drop of 8 c.c. %, in his case at least, has some significance. This point suggests itself: the relatively small change towards the pathological of this particular mechanism of his internal environment may be the indication of somatic tolerance, but also of neuropathic susceptibility to some toxic state. In this connection his abnormal psychotic heredity is of interest. The glucose tolerance test showed no disturbance of glyco-synthesis, but the mildly positive indirect Van den Bergh indicated a reaction of the reticulo-endothelial system of the liver. Bacteriological analysis of his case is of interest. Aerobic streptococcal infection of the tonsils was considerable, and this organism was also isolated from the resting juice along with other species. If anaerobic methods had been omitted throughout no special ætiological importance would have been placed on these findings, but in this case, as in many others, anaerobic culture presented an entirely different picture, which has, I believe, a considerable significance.

Two species of diphtheroid were isolated, one highly meta-chromatic and morphologically almost identical with the Klebs-Loeffler bacillus; the other, a sub-species, was not so numerous. This picture of focal infection does not, however end there; both bacteria were isolated in almost similar numbers from the intestine, not only once, but several times. In addition to these, anaerobic leptothrix colonies were likewise very numerous. In many cases I have been fortunate enough to be able to trace streptococci, *Micrococcus catarrhalis* and anaerobic diphtheroid species from oral sources to the stomach and then to the intestine. By so doing one is better able to realize how extensive and deep-seated chronic sepsis may become. This case is illustrative, and one where ordinary bacteriological methods would have failed, the aerobic culture of the stool showing a comparatively innocuous flora of *B. coli*, *Streptococcus faecalis* and a sub-species. After treatment and recovery from the confusional condition the diphtheroid flora in the tonsil entirely disappeared, and that of the intestine was much modified, but the infection by no means eliminated.

Progress and treatment.—On admission, mental condition quiescent, patient bright and normal, under observation. On the 27th day, without much warning, he developed a characteristic attack of confusion, during which he was restless and talkative, noisy and deluded. Sleep was very poor, he became constipated, and examination of the throat showed considerable increase of the inflammation. Athermal baths 30 minutes in duration were given daily and Plombières lavage on the occasions the bowels failed to act. The motion was constipated, very offensive and slimy. On the seventh day of the attack 50 million T.A.B. was given intravenously and a good reaction followed. Next day he was a little better mentally. Two further doses were given at an interval of three days. At the end of ten days the acute phase was over. He was quiet and almost rational, reaching normality nine days later. He was then tested for reactive response to a small dose of the autogenous tonsillar and intestinal vaccine. The first produced a slight return of the confusion for twenty-four hours. An increased dose given five days later resulted in a definite return of symptoms which lasted several days. While still confused another T.A.B. was given and a good reaction followed. Next day he was almost normal. In all, eight T.A.B. pyrexial injections were given at about seven days' interval, and the autogenous vaccine interpolated. It was interesting to note the mental exacerbations to the latter and the cutting short effect of the former. During one of the later T.A.B. reactions I had the opportunity of observing during the short period of maximum temperature the return for a

few minutes of his more acute mental picture. Four months after admission it was evident that the cycle of attacks had been broken. He remained quiet and normal for seven months, able to be actively engaged in all forms of recreation. In January of this year he had a slight return of confusion and talkativeness which under hydrotherapeutic treatment lasted barely ten days. Since then he has kept well physically and his conduct is satisfactory. It is unfortunate and yet interesting, especially to those more interested in the psychological aspects of his case, that he retains some of his delusions which concern his identity and one of his near relatives. When he is well he is most reticent about his ideas and his behaviour is not affected. Only with the onset of confusion does he give expression to them. One wonders, if he had had the opportunity of being treated at the onset of his long illness, whether he might not have been once more a useful member of the community.

His physical health has much improved and has been maintained; from time to time immunization is carried out along with stimulative hydrotherapy and occasional intestinal lavage.

CASE 3.—Miss C. D.—, dementia præcox, single, æt. 27. Admission to Wantage House December, 1927. Certified 1925.

History.—Family: Paternal aunt, melancholia, æt. 75.

Personal: Two sunstrokes; at puberty "anæmia" and "nerves." No history of gastric trouble, but never had much appetite.

Present illness: Mental symptoms two years ago; no remission since. On admission she was confused, very restless and resistive, at times violent. Delusions prominent. She said "there were Chinamen and knives in the mattress." Rambling and incoherent, emotional at times, habits defective, refused food, sleeping badly.

Physical state.—Very thin, being 2 st. under ideal weight. Face showed stigmata of degeneration. Skin dark, almost pigmented, dry. Mucous membranes anæmic. Left ear scarred from hæmatoma. Condition obviously toxic. Reflexes exaggerated. Pupils equal, reacted to light and accommodation.

Tongue thickly coated; general sordes, breath most offensive; gums inflamed; molars well filled. X-ray: Two devitalized, one with large apical focus.

Tonsils: Small, firm; crypts contained muco-purulent secretion; peritonsillar injection marked. Fauces: Oedematous and very inflamed.

Nasal passages: Dirty, muco-pus present. Turbinates slightly enlarged, no obstruction.

Antra and sinuses: Clear by transillumination and stereoscopic X-rays.

Abdomen: Muscular rigidity marked, no tenderness. Bowels very constipated, 2-4 days. Descending and pelvic colon showed extreme tonic hardening, portions being no thicker than one's finger.

Heart-sounds slightly accentuated. Blood-pressure 102/76; pulse volume poor and pressure 26 indicating low cardiac reserve. Extremities cold with some peripheral stasis.

Chest: Poorly developed, sounds normal.

Laboratory findings.—Blood: red blood-cells 4,176,000, hæmoglobin 13.5 grm. %, colour index 0.9, white blood-cells 5,900, differential count normal. Biochemical: Blood CO₂ 68 c.c. %; non-protein nitrogen 35.2 mgrm. %; uric acid 2.35 mgrm. %. Serum calcium 9.2 mgrm. %. Van den Bergh, both reactions negative.

Glucose tolerance test 50 grm.: Fasting level 89 mgrm. %; 1 hour 156 mgrm. %, 2 hours 207 mgrm. %; at one hour 0.5 % urine sugar; no other sample available owing to incontinence.

Fractional gastric test meal: Free HCl absent throughout; mucus very excessive in most samples; hypermotility; peptic activity, resting juice 1-16 and at one hour 1-8.

Urine: 24-hours sample about 740 c.c.; albumen, faint trace; other findings negative or low normal; faeces, soluble mucus excessive, stercobilin deficient; assimilation, fat deficient; Plombières lavage showed moderate degree of colitis.

Bacteriological.—Dental culture from molar with apical focus, *Streptococcus pyogenes* (peroxidase type) two varieties, both ++, *Streptococcus salivarius* ++++, diphtheroid ++.

Resting juice: *Micrococcus catarrhalis* ++, *Streptococcus anginosus* +, *Streptococcus pyogenes mitis* ++, *Streptococcus pyogenes* (peroxidase) No. 2 as in dental culture +++.

Intestinal: *B. coli* +, *Streptococcus faecalis globiniticus* +; anaerobic culture, *B. coli* +, diphtheroid two types, both metachromatic, each ++, diphtheroid 3rd type ++, *Streptococcus faecalis globiniticus* as in aerobic culture ++, *Streptococcus pyogenes* (peroxidase type) +.

Comments.

Clinically this case showed severe toxæmia with defective metabolism and general endocrine deficiency. Amenorrhœa since commencement of illness. Cardiac weakness was evident along with hypotension. Teeth not obviously infected, but X-rays showed one extensive apical focus. The flora of the tonsils, fauces and nasal passages, although not examined bacteriologically, was without doubt represented by that found in the resting juice. The laboratory findings were in keeping with the clinical, but showed that she was the victim of achlorhydria and a very severe gastritis. The glucose tolerance curve was unusual and suggested slow absorption, but at two hours a hyperglycæmia occurred. At one hour slight glycosuria resulted with only 150 mgrm. % of blood-sugar. The low blood-calcium of 9.2 mgrm. % may, however, explain this in causing renal permeability to sugar. Four months later this test was repeated and a practically normal curve resulted, but slight glycosuria again occurred. The blood alkali reserve as estimated by the CO₂ combining power of the plasma gave a high normal figure, but later, as her physical condition further deteriorated, it fell to almost pathological limits—53 c.c. %. The non-protein nitrogen and uric acid figures did not indicate any obvious renal involvement, in spite of the albumen which appeared in all samples of urine except the one on admission. The admission twenty-four hours' sample did not contain abnormal constituents, but later sugar, acetone and albumen appeared.

The faecal sample was offensive and indicative of disordered bowel function. Later the cerebro-spinal fluid was taken, but showed nothing abnormal; the colloidal gold curve gave, however, the following mildly positive luetic type of curve: 112310000. Whether it has any significance is doubtful. The bacteriological

findings gave evidence of severe focal infection, the gastric infection alone was sufficient to cause serious toxæmia, and this state of affairs was probably in existence for years prior to her breakdown. The infective condition of the mouth and respiratory passages probably augmented and maintained the gastric mucous membrane as a large focus of infection.

The anaerobic intestinal flora, as in the other cases, was most abnormal. No fewer than three types of diphtheroid were isolated and the sum total constituted a neurotoxic infection of great severity. The omission of tonsillar cultural examination did not give me the opportunity of tracing the path of infection as I had been able to do in other cases. If time had permitted, a more detailed investigation of the blood, urine and stool during the period of her residence might have thrown further light on the disordered internal environment. As it will be seen, she proved unresponsive and a failure in every way.

Progress and treatment.—For the first six weeks prolonged immersion baths were given at 97–98° F. for six hours daily. Intestinal lavage was also given each day, and during the course colitic mucus appeared in moderate amount, and later diminished. Sedatives were given at night. At the end of this period, her confusion had improved to some extent; she was still deluded. Her skin and general appearance had improved considerably, but she lost some weight. After ascertaining the gastric condition, HCl and pepsin were given as a drink with meals, but had no effect on her appetite. A course of artificial sunlight was tried in the hope of improving assimilation and raising her resistance. Little or no skin reaction was produced. She was quieter after each treatment but only for a few hours. Fifteen exposures were given in seven weeks, cod-liver oil being given at the same time. At the end of the treatment there was no gain in weight, but her physical condition had shown further slight improvement.

She was less confused but remained restless and resistive. It is necessary to mention that intestinal lavage was continued and given every second day on account of the severe constipation. Two teeth were extracted without affecting her mental state. An attempt was then made to immunize her by an autogenous dental vaccine. Small but increasing doses were given for a period of three months. Owing to the mental condition it was very difficult to judge whether reactions occurred; at the end of this period she, however, was much clearer mentally and could converse at times quite coherently. She remained deluded and restless, but was more cooperative. Her physical health was definitely better and she gained weight. Having got thus far a T.A.B. injection was tried, but with a poor

reaction, maximum temperature 99° F., pulse good. No effect on her mental condition was observed. Four days later another intravenous injection was given, again with a disappointing reaction and no improvement. In fact her delusions were more marked and her behaviour deteriorated. One more intravenous injection was, however, tried. Practically no reaction occurred, her temperature rose from subnormal to normal, the pulse was rapid and feeble and she looked ill. Mentally she became worse. After a brief interval the autogenous intestinal vaccine was tried, small doses being given at five to seven days' interval. Again, owing to her constant restless and confused condition possible reactions were difficult to ascertain, but occasional rises of temperature to 99° F. followed. After two months' immunization she showed definite improvement and more than regained the lost ground. A month later she once more relapsed, at a time when larger doses of vaccine were being given. Her mental and physical condition grew worse and the treatment was discontinued. On November 6, 1928, she developed œdema of the ankles and showed more definite heart weakness. Indican, acetone, sugar and albumen were present in the urine in small amounts. The cerebro-spinal fluid was taken at this time. Tube-feeding had to be resorted to. Before giving the feed the stomach was washed out, using Senoran's evacuator. Three separate lavages were made by introducing 1½ pints of water containing 3 oz. of hydrogen peroxide. This treatment was carried out on eight successive days. On all occasions the amount of gastric mucus was tremendous. The patient was transferred to the main hospital on November 28, 1928; no improvement had been brought about mentally or physically. This case was a dismal failure in spite of treatment, which had been based on a fairly sound knowledge of the underlying physical disorders. Due consideration must be taken, I think, of the duration of the illness, its severity, and the extreme nature of the alimentary focal infection in assessing the powers of recovery. Too much should not be expected with our present limited knowledge of the treatment of such cases. The patient's resistance was very poor, in fact overwhelmed, and the mechanism of the brain completely disorganized. Nevertheless there was some response to specific stimulation, as her temporary improvement showed. The difficulty of observing reactions and thus controlling the vaccine dosage probably allowed one to overstep the small margin without any warning of its approach until too late. The T.A.B. injections were a failure for the same reason and probably did harm. Her subsequent course I have not been able to trace, as her relations decided to have her under care at home. The prognosis in the case was bad, but I think rendered more hopeless

when the underlying disorders of her internal environment were revealed. From each case we may learn something, and the chief lesson from this one can be summed up in a few words: Diagnose and treat early.

CASE 4.—Miss E. F—, recurrent confusional, single, æt. 18. Admitted (transfer) to Wantage House, November, 1927. Certified, November, 1926.

History.—Family: Uncle insane. Mother alcoholic.

Personal: No serious illnesses; appendicitis, recurrent septic throats.

Present illness: In the summer of 1925 she became worried, morose, sometimes restless and excited at night. Turned against her mother and threatened suicide. Later she developed hallucinations, and, the voices and visions affecting her conduct, she became noisy and violent.

She showed insight into her condition and felt that she had lost control and that her mind was going. She deteriorated, and in November, 1926, was admitted to St. Andrew's Hospital. Her mental condition was reported as confused, emotional, phrases reiterated again and again, auditory hallucinations marked. She was well nourished, and there was apparently nothing to take exception to in her physical health. Later examination by a neurologist pronounced that there was no organic disease of the brain and she was free from any sign of disease elsewhere, but that endocrine disturbance associated with her periods might have a bearing on her mental condition. During the course of the year remission followed exacerbation at fairly regular intervals. The attacks of restlessness and confusion gradually became more frequent and severe, their onset sudden and the confusion subsequently deepening into a trance-like state lasting sometimes for a week. Her physical state deteriorated; she had lost 19 lb. since admission. Treatment was baths, sedatives, laxatives and endocrines.

Mental condition.—In remission, slightly confused and restless but able to talk and answer questions fairly rationally.

Physical condition.—Looked ill and toxic, development poor, amenorrhœic for months. 1 st. 2 lb. under ideal weight. Skin pale, sallow, slight pigmentation on body. Complained of headache, variable, but when severe localized to the occipital region. Pupils dilated, equal, reactive. Reflexes sluggish. Endocrines general hypo-function, especially thyroid and gonads.

Tongue coated, breath offensive, gums healthy, teeth very good; X-rays showed no apical foci.

Tonsils: right, no enlargement, secretion small; left enlarged, irregular, crypts filled with *débris* and muco-pus. Fauces: very injected, peritonsillar flush marked.

Post-nasal spaces inflamed, secretion excessive. Nasal passages inflamed, turbinates slightly enlarged, mucoid secretion present.

Antra and sinuses: Clear by transillumination and stereoscopic X-rays.

Abdomen flaccid. Complains of gastric discomfort after food having become worse, no abnormality of stomach to be made out. Bowels: Constipated, descending and sigmoid definitely hardened and slightly tender to firm pressure. Other organs normal.

Heart normal. Pulse soft, regular, feet cold; blood-pressure 113/84, pulse-pressure 29.

Chest normal.

Laboratory findings.—Blood: A count was taken a few hours prior to an attack. Red blood-cells 4,464,000, hæmoglobin 13.3 grm. %, white blood-cells 15,700, differential count 70% polymorphs. Biochemical: Blood CO₂ 47 c.c. %, non-protein nitrogen 26.06 mgrm. %, uric acid 1.8 mgrm. %, calcium 10.85 mgrm. %. Van den Bergh negative.

Cerebro-spinal fluid taken while patient was unconscious. Pressure raised, cells lymphocytic, 5.6 per c.mm., globulin *nil*, albumen 0.0264 %, sugar 62 mgrm. %, non-protein nitrogen 12.2 mgrm. %, chlorides 0.7%.

Glucose tolerance test, 50 grm. carried out 24 hours after consciousness was regained. Fasting blood 112 mgrm. %, at $\frac{1}{2}$ hour 191 mgrm. %, 1 $\frac{1}{2}$ hours 171 mgrm. %, no glycosuria.

Fractional gastric test meal: Resting juice 6° free HCl; no secretion of free acid until 1 hour, then only 8°, maximum 12° at 2 hours; peptic activity 1-2 at 1 hour; gastric mucus excessive.

Urine: 24-hour sample collected immediately following recovery from first attack. Low specific gravity, albumen trace, ammonia 0.625%, other findings low.

Fæcal: Stercobilin deficient, soluble mucus excessive; colitic mucus, as ascertained later from Plombières reports, was present in moderate amount. Assimilation, fat deficient.

Bacteriological.—Left tonsil: *Streptococcus pyogenes mitis* + + +, *Streptococcus pyogenes* (peroxidase type) + +, *Micrococcus catarrhalis* No. 1 + +, diphtheroid clubbed type +. Anaerobic culture—diphtheroid (metachromatic type) + +, *Streptococcus anginosus* +, *Micrococcus catarrhalis* No. 2 (strict anaerobe) + +.

Resting juice: Culture obtained at second test-meal. No free acidity, *Streptococcus pyogenes mitis* + +, *Streptococcus pyogenes* (peroxidase type) +, leptothrix +; no anaerobic culture made.

Intestinal: *B. coli communis* + +, lactose non-fermenter, *Proteus* +, *Streptococcus anginosus* + +, *Streptococcus pyogenes* peroxidase type + +, *Streptococcus faecalis globinificus* + +. Anaerobic culture—diphtheroid No. 1 (clubbed type) + +, diphtheroid No. 2 (metachromatic type) + +, leptothrix + +, *Micrococcus catarrhalis* (strict anaerobe) +.

Comments.

The clinical picture can be summed up in two words—intense toxæmia—and yet detailed examination did not give any obvious clue to the cause of her serious condition. Symptoms such as gastric pain would have passed as hypochondriacal delusions. The endocrine disorder represented by absent menses was probably only one manifestation of a complex of disordered functions. The laboratory findings, on the other hand, expressed in no uncertain terms the state of the internal environment. The secondary anæmia and polymorphic leucocytosis of 15,700 showed the reaction to bacterial toxins, which, as it so happened, must have been reaching a climax of intensity prior to an attack. The low CO₂ reading of 47 c.c. %, indicating acidosis, is also clearly in keeping with events. The blood calcium gave a normal figure, but subsequent examinations throughout the illness showed a deficiency. The glucose tolerance test taken after the first attack was only slightly outside strictly normal limits, but the test-meal showed a very definite hypochlorhydria and an accompanying gastritis. A repetition of the test eleven months later confirmed this, but the signs of inflammation had much improved. The twenty-four hours' sample of urine and others were surprisingly negative, but later definitely pathological constituents appeared. The stool, as in other cases, was offensive, biliary excretion was deficient, catarrh excessive and assimilation lacking. The cerebro-spinal fluid with its negative findings helps to support the supposition that the effects on the central nervous system were purely toxic, *viâ* the blood-stream or lymphatics. The bacteriological findings are of special interest if not of considerable importance. They show

particularly clearly how the whole of the upper respiratory flora can be traced to the stomach and then to the intestines. The streptococcal flora represented by the anginosus and pyogenes groups were isolated from the stool and were identical with those in the tonsils. Of the anaerobes, not only had the two diphtheroids become firmly implanted as a bowel infection again derived from the tonsils, but so also had the *Micrococcus catarrhalis*—a fairly rare occurrence in my experience. The leptothrix was the only organism not definitely accounted for. With evidence of generalized focal infection of this kind it is hardly surprising that some serious disorder should result. This patient, as with many others in my experience, was seriously ill not only mentally, but also physically.

Progress and treatment.—Within a few hours of admission a severe attack developed. The symptoms were so remarkable that they are worth giving in detail. She became restless and noisy, having to be held in bed. She complained of severe epigastric pain, flatulence, intense occipital headache and diplopia. Her distress and fear of her impending fate made her cry out in agony of mind and body. The pupils were greatly dilated and sluggish in reaction, head retracted, facial expression drawn and anxious. Suddenly she screamed, "Save me. I'm going!" and almost immediately the head and body extended fully in extreme opisthotonos, and, with one convulsive movement, she precipitated herself out of bed deeply unconscious. For four days she remained in this state, and during this time she exhibited regular muscular movements, the head turning from side to side for long periods, arms and legs likewise being affected. Later she became noisy and sedatives were given. On the evening of the fourth day consciousness was regained and she was able to speak. She complained of gastric pain and earache, but the headache had gone. The leucocyte count had fallen to 12,400. It was four days before another exactly similar attack occurred. While unconscious a T.A.B. intravenous injection of 50 millions was given, with maximum temperature 101° F., the temperature falling to normal twenty-four hours later. Morphia $\frac{1}{4}$ gr. was given during the night as in the previous attack. Complete consciousness was regained in the early morning, and she was quiet and rational during the day, but still complained of gastric pain. The duration of this second attack was obviously shortened. The same night she became restless and noisy and slept very little. In the morning it was obvious she was working up to a third climax and a second T.A.B. was given. The reaction was severe, maximum temperature being 104.6° F., preceded by a period of collapse with vomiting. She continued to be noisy during the day, but did not lose consciousness. Towards night she quietened, and with $\frac{1}{4}$ gr.

morphia slept for eight hours. Next morning she was exhausted and dazed. The fourth attack occurred two days later and lasted forty-eight hours, but this time there was no dramatic onset. She was restless and noisy, but capable of being aroused and understanding more or less what was said to her. Complete consciousness was regained and she was quite rational, expressing herself as feeling much better. Twenty-four hours later an even more modified attack occurred, its interest lying in the fact that it was similar in every detail to those of twelve months before. She was obviously hallucinated, and kept sitting up in bed repeating phrases over and over again. On being roused she would stop and try to answer questions. This observation is, I think, illustrative of a symptomatic regression occurring in a process of recovery—a feature I have been able to note in more than one case. The fifth and last attack occurred, again much modified, and a third T.A.B. was given during it. Maximum temperature was 102·4 and there was diarrhoea and vomiting. Next morning she had completely recovered. For three weeks there were threatening periods of restlessness, occipital headache and gastric pain, but the combination of immersion baths, Plombières lavage, mild sedatives and two well-borne T.A.B. reactions prevented recurrence. After a period of eight days the sixth T.A.B. injection was given on the evening of January 3, 1928, as it looked as if another attack was imminent. The reaction on this occasion was peculiar. Collapse was severe and she looked ill, the temperature failing to rise until next morning. Vomiting and diarrhoea occurred frequently during the night, but with the rise of temperature in the morning (maximum 101° F.) her general condition improved. All signs of the mental disturbance had gone, but in place of this she complained of feeling acutely ill physically. Gastric pain, vomiting, abdominal tenderness and frequent stool were prominent symptoms. The throat was greatly inflamed and covered with muco-purulent secretion, and a moderate degree of tracheitis developed. These symptoms persisted for nearly three weeks, but gradually abated in severity.

Five blood-counts were taken, the first being made on the morning of January 4, 1928.

Jan. 3. 6.40 p.m. T.A.B.

„ 4.	White blood-cells	97,200.	Polymorphs	82%.	Red blood-cells	5,520,000.
„ 5.	„	63,000.	„	89%.		
„ 6.	„	28,000.	„	86%.		
„ 7.	„	9,300.	„	70%.		
„ 9.	„	7,400.	„	68·5%.		

On Jan. 4th and 11th, examination of the urine showed

albumen and acetone in small amount. Indican was estimated as + + + +, and it is worthy of note that on no other occasion was this found. It is evident that these findings, along with the clinical picture, indicated a crisis such as occurs in an acutely toxic illness. In pneumonia, for example, leucocytic mobilization, if sufficient, overcomes the invader in this manner. In this case, I think we have a picture of an economy saturated with a toxin of a special type producing a psychotic symptomatology which tended to obliterate more or less the underlying and causal somatic disorders in terms of physical signs and symptoms. The conversion of her condition from one of acute mental to acute physical illness was nothing short of dramatic. I have observed this phenomenon in many cases, but usually it is more gradual. Without special treatment the patient had poor chances of spontaneous recovery, as the history of her decline shows. That her life was in danger during this crisis I have little doubt, but it was the turning-point, and led to gradual but complete recovery. For a month she required most careful nursing, her gastric and intestinal condition giving great trouble. Mentally she was emotionally unstable, and on one occasion she expressed her former delusions. Except for this single recurrence she had complete insight. The treatment during this time consisted of baths, Plombières, injections of collosol ferro-manganese, small doses of a compound detoxicated intestinal vaccine and strict diet. Under this *régime* she made good progress. For the next three months treatment was directed towards stimulating her powers of recovery, and consisted of autogenous vaccine injections, endocrines, thyroid and ovary, the latter by injection, and a course of artificial sunlight. The acid drink of HCl and pepsin taken with meals proved to be of great value; without it pain and flatulence occurred. At first she proved to be very sensitive to the tonsil and intestinal autogenous vaccine. Reactions were noted by soreness of the throat, slight headache, increase of gastric discomfort, loss of appetite, and these were accompanied by languor, some depression and emotional upset for twenty-four hours. Sleep was usually disturbed. Later the reactions were much less obvious. At the beginning of June she was sent out on trial, her mental condition having greatly improved. She was bright, less emotional, and her delusions and hallucinations had disappeared. Physical re-examination showed marked improvement all round and weight had been gained. The laboratory findings were satisfactory, but not yet fully normal. In four months' time the patient returned for general overhaul. She had kept well, but continued to show at times her emotional instability and difficult temperament. Weight had been gained to the extent of 2 st. The biochemical and

bacteriological tests showed further improvement except that the hypochlorhydric condition of the stomach remained, but the degree of gastritis was very much less. At this stage she went to live at home and was discharged from certificate. At the end of November, 1928, owing to her own emotional instability and introspective outlook she was unable to cope with a very difficult environment. She rebelled, and attempted violence to herself by jumping out of a window. She was taken firmly in hand and returned as a voluntary patient. There was little evidence of physical deterioration except that she was constipated and her periods, which had just begun, had again stopped. In a few days she was much more balanced, and treatment on vaccine, endocrine and stimulative hydrotherapeutic lines was given during her two months of residence. Strict but kindly discipline brought about a better outlook and she remained bright and active. On leaving, the laboratory findings had reached a high normal level, the intestinal flora had much improved, but the abnormal elements were still to be found. Having regained her physical health and menstrual function she is now leading a normal family life, but away from home, where re-education and adjustment of her mentality to her environment is being carried out under careful guidance.

CONCLUDING COMMENTS.

These few cases help, I think, to emphasize how complex if not elusive are the problems of the physical disorders underlying insanity. It is evident that little information could be gained by clinical examination alone, and, without knowledge gained by special methods such as have been applied to the cases under consideration, little but symptomatic treatment could have been given. Without in the least wishing to criticize, it is obvious that in three of these cases treatment based on clinical examination alone over a long period had failed to bring about improvement or recovery. My observations on some 120 cases, all investigated in the same manner, lead me to believe that the individual or psychotic tendencies, especially if they be strongly hereditary, fail to reveal at all clearly the underlying pathology of the internal environment by ordinary signs and symptoms. The gastritis in Cases 1 and 3 is an example. The absence of this normal reaction permits to pass unrealized by physician and patient alike the true nature of his illness. In others, again, a more definite physical symptomatology may exist, but there will come a time when this is finally overshadowed by the masking effect of disordered cerebral function. In my experience many of the so-called hypochondriacal delusions

are the attempt of a disordered intelligence to express what may be actually the truth, but again, without special knowledge, we have no means of adequately diagnosing and treating such cases. What bearing have the four cases upon the much discussed question of focal infection in relation to mental disease? Kopeloff and Kirby in their recent article in the *Journal of Mental Science* (5), in defending their own conclusions on the functional psychoses, emphasize certain fundamental aspects of the present position. They submit three important questions :

(1) Is focal infection the specific cause of the functional psychoses? Their answer is in the negative. I think you will agree that in this country we are not yet in a position to reply, but I believe that a time will come when we will be able to differentiate more clearly between cause and effect.

Then we will be less hesitant in answering this difficult problem. The method of research I have adopted is an attempt towards reaching this goal, and the cases under consideration will, I think, give some of us good reason for anticipating that certain types of mental disorder have a combined specific cause.

(2) Can surgical removal of foci of infection alone bring about improvement and recovery of patients with mental disease? Their answer again is in the negative, and I think most of us will feel inclined to agree. If it were merely a question of surgery the problem would be near solution to-day. The removal of tonsils and teeth and the drainage of infected sinuses may be essential in some cases, but unfortunately the matter, as will be seen, does not rest there. Clearing the mouth of septic teeth or tonsils is in many cases only tackling a mere fraction of the actual focus of infection. Indeed, in my experience, so extensive can bacterial infection become that one could on merely logical grounds ask the surgeon to remove the entire alimentary canal. It is evident, therefore, that we must seek other means of solving the problem.

(3) Is focal infection of importance in mental disease? I have no hesitation in stating that it is of the greatest importance.

My conclusions are based on what is considered to be a reasoned scientific hypothesis. If in mental disorders special bacteriological methods enable one to associate definite types of focal infection with disordered biochemical functions, and upon treating these conditions by specific and general therapy there is an improvement in the mental and physical condition, then we may assume that we have been dealing with factors which we must regard with strong suspicion in possible ætiology. Three of the four cases I have given support this claim, and had time permitted I could cite many other examples. In mental disease there is strong evidence

that we are dealing with special types of microbial infection super-added to what can be found by ordinary bacteriological methods. The bacteriological researches of Ford-Robertson point out that invasion of the tissues by anaerobes forms the major part of the bacteriological flora in mental patients. For the past six years I have continued this research and have had the opportunity of carrying out a large amount of control work. My results, so far, support most emphatically the opinion of my predecessor. Whether on account of susceptibility or chance, the insane, without doubt, harbour anaerobic bacteria of the diphtheroid and leptostreptothrix group, which not infrequently infect the major part of the alimentary canal. Many of the diphtheroids are morphologically identical with the Klebs-Loeffler bacillus, but are rarely found except as strict anaerobes. We all recognize the highly neurotoxic character of the Klebs-Loeffler bacillus, even when operating in the relatively small area of the tonsil and fauces. Why, then, should we overlook the importance of this bacillus and its sub-species as an anaerobe, especially since it can be traced to an infinitely wider focus of infection? The morphological characteristics of the leptostreptothrix bacteria suggest that they are closely allied to the diphtheroids, and are similar in their toxic effects.

The correlation of the biochemical and hæmatological data to the toxic conditions presented shows how variable the response of the individual may be. It must be in some measure dependent on physiological balance, and in mental disorders we must recognize not only somatic, but neuronic resistance. The margin of safety to toxic action on the central nervous system may be small as suggested in Case No. 2, or wide as in Case No. 4. I suggest that if we study our cases from this aspect we may get nearer to the solution of what neurotoxic susceptibility involves. I make no pretence to understand the full significance of some of the findings; many are as yet problematical. I submit them to you, however, for your criticism and advice in the hope that much may come out of little.

My thanks are due to Dr. D. F. Rambaut, Medical Superintendent, for his interest and help and his permission to publish the cases, to Dr. D. M. Tudor for her assistance in compiling statistics, to Mr. C. Webb, my laboratory assistant, for much of the biochemical work, and to Mr. Tranmer for his help in the X-ray Department.

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CHARCOT'S DISEASE IN TABO-PARESIS: ILLUSTRATIVE CASES.*

By GORDON F. PETERS, M.R.C.S., L.R.C.P., D.P.M.,
Assistant Medical Officer, Horton Mental Hospital, Epsom.

INTRODUCTION.

JEAN Martin Charcot, Physician to the Salpêtrière, and described by his biographer as the Prince of Neurologists, was an Honorary Member of this Association and lived from 1825 to 1893. Though the centenary of his birth, I believe, passed unnoticed in this country, he was in his day a master in clinical medicine and pathology, and his loss was keenly felt both at home and abroad.

The last fifteen years of his life were largely devoted to the study of suggestion and hypnotism in relation to hysteria and hysterio-epilepsy, and with Braid and Bernheim he rescued hypnotism from the charlatan. His neurological teachings are chiefly found in his *Leçons sur les Maladies du Système Nerveux faites à la Salpêtrière*. The publication of these lectures commenced in the '70's and continued for eighteen years. Apart from his famous controversy with the Nancy School in regard to the nature of the hypnotic state, the medical student of these days best knows him perhaps as being the first to describe a peculiar form of arthritis met with in cases of locomotor ataxia and known as Charcot's disease.

I have been at some trouble to find out when he first described this affection. He refers to it in his lectures on locomotor ataxy published in 1873, but this was eleven years after his advent to the Salpêtrière and is not likely to be the original description. In 1885 he published *The Spinal Arthropathies*, which was a clinical report of six cases. A description is also found in his greater work to which I have referred. Oppenheim speaks of a good review of this condition by Sadler, *Über tabische Knochen- und Gelenkerkrankungen* (cf. Gr. 1903), to which I have not had access.

I need not enter deeply into the many details of this condition before an audience such as I now address. It will be sufficient to say that this form of arthropathy appears in tabes usually in the early stages and is thought to light up from some minor injury—a

* A paper read at the Annual Meeting held in London, July 11, 1929.

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slight strain or sprain. It is commoner in women than men and usually affects the knee-joint. Its onset is frequently sudden. The joint and neighbouring parts swell. The condition may affect the whole leg and reach its height in a few hours. There is neither pain, redness nor fever. Dislocation of the joint, and destruction of bone follows, and, in some cases, there is subsequent formation of bony excrescences. The hip-joint may be affected, and less frequently the shoulder, elbow-joint, foot and spine.

My main purpose this morning is to bring to your notice a well-marked case of Charcot's disease affecting the spine. Such are infrequent, but have been recorded by Krönig, Abadie, Spiller, Frank, a case by St. J. Buxton in 1924 and three cases by Herndon in 1929.

At a clinical meeting of the Medical Society of London on November 26, 1928, Mr. R. Davies-Colley showed a case of this disease affecting the 2nd, 3rd and 4th lumbar vertebræ with exaggerated osteo-arthritic outgrowths. The condition developed 6 years after syphilitic infection. Pain was marked at first but disappeared entirely later. Pain was also absent in four cases described by Mr. P. J. Verrall and one by Dr. J. A. Ryle. Dr. A. Feiling thought the condition frequently had a painful onset but that pain disappeared with the absorption of fluid and disorganization of the joint.

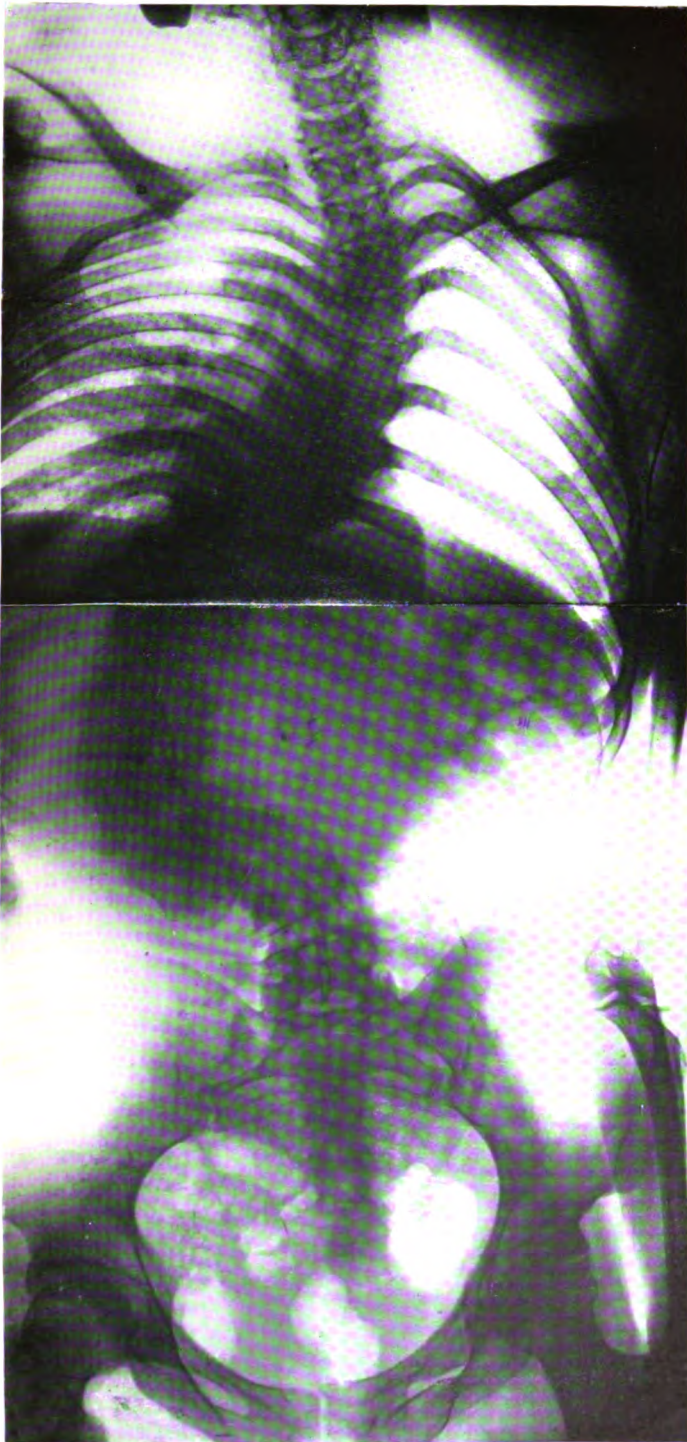
I have with me the records of two other cases, in both of which the knee-joint was affected. I will deal with these afterwards. All three cases were patients at Horton Mental Hospital, to the Medical Superintendent of which I am indebted for permission to publish the clinical notes and for assistance in preparing this introduction.

A. B—, a single girl, æt. 29, was admitted to Horton Mental Hospital on November 13, 1928, with acute general paralysis of three months' duration. She was the subject of congenital syphilis, and had suffered from *tabes dorsalis* for several years, with Charcot's disease of the spine.

CLINICAL RECORD.

History.—From the age of twelve, following a fall, she had suffered from severe pain in all her joints. Curvature of the spine had developed and she was unsteady on her feet, but for the past two years pain had been absent. With the cessation of the pain her back seemed to be much straighter for a time. She was never able to earn her living, but was a well-behaved girl of good moral character, and was said to have had no relations with men. Her brother was said to have a tubercular knee-joint. Her mother's blood-serum on examination showed a negative Wassermann reaction. She did not menstruate until she was twenty-five, but when established, the periods were regular.

Mental state.—Definite signs of mental disorder were first observed in September, 1928, although she had been rather backward for some years. She became



strange in manner and was restless, noisy and violent. Her emotional state was one of elation, and she said she was "the bride of Christ," and had already been to heaven. As time went on she became mischievous, interfering and resistive; her memory grossly impaired; she was disorientated for time and place, and required every nursing attention.

Physical signs.—Pupils elliptical in shape, irregular and fixed to light and on accommodation. Double internal strabismus. V.R. no perception of light, V.L. $\frac{1}{8}$. Signs of old iritis. Optic atrophy and old choroido-retinitis. Left ptosis. Defective upward movement left eye. Fixation nystagmus.

Tongue protruded slightly to the left. Slight hypotonia of arms. Weakness of left leg with ataxia. Knee- and ankle-jerks absent. Left plantar reflex flexor, right plantar reflex sometimes flexor and sometimes absent.

Loss of vibration and postural sensibility in upper and lower extremities. Marked hyperalgesia over legs, chest and ulnar aspect of right arm; later, sensitiveness to pin-pricks was very dull all over body and there was anæsthesia to deep pressure pain.

She was well nourished, and had no signs of disease in heart, lungs or abdominal viscera. Speech clear. Teeth deficient but good. Tonsils slightly enlarged. Urine normal.

Serological and blood tests.—The Wassermann reaction of the cerebro-spinal fluid was positive, and the Lange reaction showed a tabetic curve. The Nonne-Apelt and Pandy reactions were negative, there was no increased cellular content and the total protein was 0.015%.

The blood-serum also showed a positive Wassermann reaction.

Radiology.—There was skiagraphic evidence of Charcot deformities in both knee-joints, and the spine showed marked kypho-scoliosis.

The vertebral column could be lengthened by forced traction without causing any pain. She flopped about and felt as if she were coming apart when lifted, but there was no alteration in the angular deformity in the upper lumbar region.

Course and termination.—A course of malarial therapy with the quartan parasite was carried out in February and March, 1929, but mental and physical deterioration continued and she became very weak and emaciated. Septic foci appeared on both feet and in the parotid gland on the left side, and she died on May 28, 1929.

PATHOLOGICAL REPORT.

A *post mortem* examination was made the following day :

The first to the tenth dorsal vertebræ formed a curve with its convexity to the left; the vertebræ from the eleventh dorsal to the second lumbar formed a curve convex to the right. The second and third lumbar vertebræ met at an acute angle pointing towards the right, and the third, fourth and fifth lumbar vertebræ formed a curve with its convexity to the left. There was evidence of new bone formation in the eighth, ninth, tenth, eleventh and twelfth dorsal vertebræ and in the lumbar vertebræ. New osteophytic growth buttressed the eighth to the twelfth dorsal vertebræ. The first, second and third lumbar vertebræ were welded together by bony outgrowths. The new growth of bone was purposive in arrangement. Rarefaction of bone was marked in the seventh dorsal to the fifth lumbar vertebræ, and the laminae in this part of the spinal column could be cut with a stout knife in places, but in some situations they had to be sawn through or cut with bone forceps. The most extensive morbid changes in the spinal column were from the tenth dorsal to the fifth lumbar vertebræ. In this

region there was much softening of the ligaments and destruction of the intervertebral discs, erosion of the articular cartilages and rarefaction of the vertebral bodies, particularly that of the third lumbar vertebra, which, with the exception of the transverse and spinous processes, was represented merely by an irregular mass of friable osseous tissue. No loose bodies were found. To the naked eye the spinal cord did not appear to have suffered any gross injury from the deformity.

The nature of the lesions as described by Charcot* was well exemplified, having in mind the site of the disease. It is not clear whether the initial pain was due to the disease itself, or to mechanical interference with the nerve-roots. As in the three cases reported by Dr. Richard F. Herndon† the morbid changes were most marked in the lower part of the spinal column.

Only two other patients out of 195 female cases of general paralysis and tabo-paresis admitted to Horton had Charcot's disease.

One was a married woman who was admitted in October, 1927, æt. 41. Symptoms of mental disorder were first noticed in December, 1925. In January, 1926, she fell and hurt her left knee. Fluid appeared in the joint, but there was no bony injury. The Wassermann reaction of both the blood and the cerebro-spinal fluid was strongly positive. The cerebro-spinal fluid showed an increase of globulin content and a cell-count of 18 per c.mm., of which polymorphonuclear leucocytes contributed 26% and lymphocytes 74%. The colloidal gold reaction showed a typical parietic curve. There was a history of her having had venereal disease fourteen or fifteen years before. Her father had been a patient in Colney Hatch Mental Hospital.

On admission to Horton she showed slight tremors and slight Rombergism, and marked incoordination. The knee-jerks and ankle-jerks were absent. The left pupil was larger than the right, and the light reflex was absent in both eyes. There was wasting of the muscles of the left thigh. The left knee presented a typical Charcot's joint. Considerable hyper-extension was possible at the right knee-joint and the ligaments of both sterno-clavicular joints were very loose.

The patient had a course of malaria therapy in November, 1927, without improvement and she died in February, 1928.

The third patient with Charcot's disease was a married woman who was admitted to Horton in November, 1923, æt. 50. She had given birth to a child in March, 1911, and a few weeks later she noticed an increasing unsteadiness of gait. In May, 1911, tabes dorsalis was diagnosed, and in less than a year she had lost the power of her fingers, arms and legs. Notwithstanding this, she had another child in November, 1912. After the death of this child in May, 1914, her vision became bad, and within the same year the sight of the left eye was lost entirely, and with the right eye she could distinguish only the difference between light and darkness.

In June, 1922, she had several epileptiform seizures which were attributed at first to epilepsy, as a sister of the patient had suffered from this disease, and about the same time she developed symptoms of mental disorder. There is no record of any serological examination, but she was regarded clinically as a case of tabo-paresis and the diagnosis was confirmed at autopsy. In 1923 she experienced "girdle pains" and there was muscular wasting. Superficial and deep reflexes were absent; movements were incoordinated; sphincter control was lost;

* *The Spinal Arthropathies: A Clinical Report on Six Cases of Charcot's Joints*, Charcot, 1885.

† "Three cases of Tabetic Charcot's Spine," Dr. Richard F. Herndon, *Journal of Bone and Joint Surgery*, vol. ix, No. 4, October, 1927.

sensibility to pain was diminished, and she became completely blind. In February, 1929, Charcot's disease of the right knee-joint was diagnosed. Her general condition became worse; she had severe seizures, and after one of these she died in June, 1929.

COMMENTS.

A comparison of the three cases brings out several points of interest.

In all three there was a family history of serious mental or nervous instability, so extreme in one case as to have led to certification.

The earlier the age at which the Charcot's joints occurred in the respective patients, the more severe and widespread were the lesions, and it was in the juvenile case that Charcot's disease was most marked in an uncommon situation, namely, in the spinal column.

In the juvenile case the Charcot lesion had existed for seventeen years before signs of mental disorder made it necessary for the patient to be certified.

The patient who was *æt.* 41 when she was admitted to Horton had signs of mental disorder for a year and ten months before the Charcot joint appeared.

The patient who was *æt.* 50 on admission was under certificate for about seven years before the joint lesion occurred.

It was the Charcot lesion in two of the cases that first drew attention to the patient's physical condition.

In two of the cases there was a definite history of injury to which the condition was at first attributed, and several severe falls were suffered by the third patient prior to the appearance of the lesion.

One of the patients noticed symptoms of *tabes dorsalis* for the first time soon after giving birth to a child, and had another complete pregnancy after she had lost power in her fingers, arms and legs.

AN INVESTIGATION INTO THE DISTRIBUTION
OF CHLORINE IN THE BLOOD AND
URINE IN CERTAIN TYPES OF
MENTAL DISORDER.*

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THE migration of chloride in the blood was first investigated by Hamburger (1) who showed that when blood is exposed to increased tensions of CO_2 there is a shift of chlorine ions from the plasma into the corpuscles. This phenomenon is known as the Hamburger phenomenon or chloride shift.

Van Slyke and Cullen (2) have shown that the plasma of whole blood which has been shaken with varying proportions of CO_2 loses an amount of chloride sufficient to account for about two-thirds of its increase in bicarbonate, and Fridericia (3) has published data which show that the loss in chloride approximates even more closely to the gain in bicarbonate.

Doisy and Eaton (4) put forward the view, which is now generally accepted, that hæmoglobin is the main factor in the transport of CO_2 in the blood, but, as hæmoglobin is non-diffusible, there is an auxilliary shifting backwards and forwards of HCl across the corpuscle membrane, depending on the tendency to slight variations in the pH of the plasma consequent on variations in CO_2 tension.

Simpson and Wells (5) have studied the effect of over-breathing, and of breathing relatively high concentrations of CO_2 , on the urinary excretion of water and chlorides, and conclude that with increased ventilation the chloride output in the urine is increased, while with the high alveolar CO_2 tensions chlorides are retained. The urinary chloride output, therefore, is an index of the degree of pulmonary ventilation, as has already been observed in lobar pneumonia. Simpson and Wells also point out that during sleep

* Part of a Thesis presented for the degree of M.D. at the Queen's University of Belfast.

the urinary excretion of chlorides is much diminished, while the alveolar CO_2 tension is high. On waking there is an increased output of chlorides and the alveolar CO_2 tension is much lower. These authors suggest that, should the blood-stream act as a closed system, it ought to be possible to demonstrate a shift of chlorine from plasma to corpuscles *in vivo* when high concentrations of CO_2 are breathed, and possibly such a shift might be demonstrated as the result of changes in alveolar CO_2 tension induced by sleep.

At the Central Pathological Laboratory of the London County Mental Hospitals, Golla, Mann and their co-workers, in a series of papers (6, 7, 8), have shown that there is a marked disturbance of the respiratory compensatory mechanism of the acid-base equilibrium in certain types of mental disorder—notably in the so-called "acid" psychoses which comprise chiefly depressive types and cases of dementia præcox. Golla, Mann and Marsh (8) found that, while normal persons respond to the inhalation of an atmosphere containing 2% of CO_2 by increased pulmonary ventilation, only two of the twenty psychotic cases examined showed any respiratory response to the CO_2 mixture.

Marsh (9), continuing these investigations on certified psychotics at Claybury Mental Hospital, found a decreased sensitivity of the respiratory centre in cases of long-standing depression, while Mann (10) and Mann and Scott (11) have demonstrated that there is a failure of glycogenesis in similar patients and adduce arguments to show that this is dependent on a deficiency of respiratory adjustment.

These workers have furnished considerable evidence that, in many psychotic patients, there is an "acid" state closely resembling that which normally obtains during sleep, and their evidence all goes to show that the condition is not one of acidosis, but must be ascribed to a failure of CO_2 regulation dependent on a lowered excitability of the respiratory centre to the normal stimulating effect of CO_2 .

Assuming, therefore, that there is in certain types of mental disorder a disturbance of respiratory regulation leading to a permanent "acid" condition, one might expect to find in these cases some alteration both in the urinary chloride output and in the distribution of chloride in the blood. Accordingly it was decided to select cases of certified psychoses and investigate their metabolism on the following lines:

(1) The chloride output in the urine over a period ranging from waking until 12 noon, the patient being kept fasting to avoid any dietary interference with the results.

(2) The collection of blood specimens in both sleeping and wakin

states, with a view to finding whether any variation in the chloride content of the red corpuscles took place.

The cases selected for investigation comprise normal persons, physically normal imbeciles, cases of depressive psychosis, and dementia præcox patients of the katatonic type. The first two groups provide the necessary controls for the purpose of comparison, while the two latter groups were chosen for investigation, not on account of any common factor of disordered conduct, but because they have been shown by other workers to possess a common factor of disordered metabolism, *viz.*, a deficiency of respiratory regulation.

CLINICAL DESCRIPTION OF CASES.

Sv., St., Dr. and W. are normal persons who volunteered to act as controls in several of the experiments.

H. and R. are the subjects of imbecility without epilepsy. Their physical state is normal in every way.

Psychotics.

O., æt. 56. Diagnosis: Chronic melancholia of about four years' duration, in which time his symptoms have shown little change. He is depressed, apprehensive, frequently agitated, and absorbed in gloomy thoughts of a self-accusatory nature. He has the delusion that he is to be poisoned, and is very suspicious of his food and drink.

Physically he is poorly nourished, and there are signs of arteriosclerosis. He is also being treated for cystitis.

B., æt. 60. Diagnosis: Recent melancholia of about one year's duration. He is profoundly depressed, self-centred and morbidly introspective. He has many delusions about his viscera and is very hypochondriacal in consequence. Suspicious of his food and of those who attend him.

Physically he is poorly nourished and is the subject of arteriosclerosis.

T., æt. 43. Diagnosis: Recent melancholia of one year's duration. He is dull, introspective, and very depressed. He has the delusions that his bowels are stopped up and his viscera diseased. Takes no interest in his surroundings.

Physically he is rather thin but in very fair general health.

Bo., æt. 54. Diagnosis: Recent melancholia of about one year's duration. He is agitated, apprehensive and deeply depressed. Wringing his hands and moaning, he accuses himself of imaginary crimes and unforgivable sins. He pays no attention to his surroundings or to his personal needs.

Physically he is sparsely nourished and shows some degree of cardio-vascular degeneration.

G., æt. 41. Diagnosed as chronic melancholia of five years' duration. He is in an anergic, semi-stuporose condition which is indistinguishable from katatonia. Almost completely mute, he will stand, if allowed, in one position all day, and he exhibits well-marked *flexibilitas cerea*.

Physically he is sallow and his general musculature is flabby. Chest flat with poor expansion. He is fairly nourished and there are no signs of active disease.

Hu., æt. 23. Diagnosis: Dementia præcox of two years' duration. He is in a condition of katatonic stupor—mute, inaccessible, and at times resistive. He is indifferent to his surroundings and neglects his personal needs. Occasionally he is violently impulsive.

Physically he is asthenic and poorly developed. Chest expansion very poor. There is a functional mitral systolic bruit.

F., æt. 24. Diagnosis: Dementia præcox of about three years' duration. He is grossly introverted, takes no notice of questions, and is practically mute. For the most part his condition is one of katatonic stupor, and at times he becomes resistive and impulsive.

Physically he is in very fair health.

Rd., æt. 34. Diagnosis: Dementia præcox of ten years' duration. He is a well-marked case of katatonia and has been almost entirely stuporose for the last five years. He is quite inaccessible and rarely speaks or takes any notice of what is said to him. Quite tractable but completely anergic and dependent.

Physically he is well nourished and in very fair health. There is some degree of pulmonary emphysema.

E., æt. 19. Diagnosis: Dementia præcox of two years' duration. At times he has auditory hallucinations, and is noisy and destructive. More often he lapses into a stuporose condition when he is resistive to attention, anergic and quite inaccessible.

Physically he shows no signs of active disease, but his musculature is flabby, and his chest flat and poorly developed.

D., æt. 24. Diagnosis: Dementia præcox of one year's duration. He is dull, introverted, and inaccessible. He rarely speaks and is quite indifferent to his surroundings and to his personal needs. At times he becomes exceedingly impulsive, but for the most part he is quiet and semi-stuporose.

Physically he is well nourished and in very fair general health. There is, however, considerable cyanosis of the extremities.

S., æt. 24. Diagnosis: Dementia præcox of several years' duration. He is in a state of marked katatonic stupor. Completely mute and quite inaccessible, he is neglectful of his personal needs and is very anergic.

Physically he is well nourished but poorly developed, with flabby musculature. There are no signs of active disease.

DISCUSSION OF METHODS.

(1) *Urine.*

Specimens of urine were collected immediately on the patient's waking, at 9.30 a.m. and at 12 noon. The first specimen shows the amount of chloride excreted during the period of sleep, and care was taken that the patient rose and passed urine immediately on waking. The second and third specimens, taken at approximately equal intervals, show in normal persons the effects of increased ventilation in an increased output of water and chlorides, as described by Simpson (12).

The patients were kept in a fasting condition over the period of collection of specimens, *i.e.*, until 12 noon, in order to obtain a state of chloride equilibrium. They were allowed water to drink, but it is obvious that any chlorides taken in food would tend to mask the effects of increased ventilation (if such occurred) upon the urinary chloride output.

It was also considered desirable to estimate at the same time various other important urinary constituents in the specimens obtained in order to provide a basis of comparison with the chloride output.

The urine specimens were collected in clean vessels and measured. Owing to difficulties in collection, all the experiments were performed on male patients. Analyses were made on the same day and generally within a few hours of collection.

The following determinations were carried out.

(a) Hydrogen ion concentration. These estimations were made by the usual method of the addition of indicator to diluted urines and to a standard series of buffer solutions of pH 4 to pH 7·8 similarly diluted, the colours being then matched.

(b) Total acidity. Known quantities of urine were titrated with N/10 alkali to the phenolphthalein end-point (pH 7·8).

(c) Ammonia nitrogen. This was determined by the Malfatti formol titration. Known quantities of urine are titrated with N/10 alkali in the presence of powdered oxalate to the phenolphthalein end-point. Neutral formol is then added and the mixture again titrated with N/10 alkali to the same end-point. The latter titration figures give, by calculation, the amount of ammonia nitrogen plus amino-acid nitrogen.

(d) Chlorides were estimated by the Volhard-Harvey procedure. A known quantity of standard silver nitrate solution is added to an amount of urine in the presence of a small quantity of pure nitric acid. The excess of silver nitrate is then titrated with standard thiocyanate solution, using ferric alum as an indicator.

(e) Total inorganic phosphorus was determined by the Briggs modification of the Bell-Doisy technique.

(f) Total nitrogen was estimated by Kjeldahl's method in the usual manner.

In one case of depressive psychosis, O., the urinary pH was found to be so strongly alkaline that the presence of cystitis was suspected and this was subsequently confirmed clinically. For obvious reasons the usual estimations were not proceeded with in this patient's urine, apart from determining chlorides.

In another case, Bo., the patient became very resistive and refused to pass urine at 9.30 a.m. and at 12 noon. He actually did not pass urine until late on the same day, so that only the first specimen could be obtained in this case.

(2) *Corpuscle Volume.*

It is necessary to estimate the volume of red cells in the blood specimens in order to calculate the amount of chloride contained in them, and this was done by means of hæmatocrits. As the blood specimens were oxalated there was no difficulty with clotting of the blood in the hæmatocrit tubes, but two determinations were always made in each specimen to avoid experimental error. For the same reason the hæmatocrits were always spun on the same centrifuge machine for exactly the same time in each case.

(3) *Blood Analysis.*

At the outset the difficulty experienced in the collection of large specimens of blood must be emphasized. To persuade certified psychotics to submit to the process required much tact and perseverance. More especially at night many of the patients became very hostile when they awoke to find the author engaged in venipuncture. In addition the patients who were most suitable for the purpose of this work were the least capable of appreciating its *rationale* or of cooperating in any way. At the same time it was decided at the outset that, in order to demonstrate small differences in corpuscle chloride content during the waking and sleeping states, it would be necessary to take as large blood specimens as possible in order to reduce the margin of experimental error. The amounts decided on were at least 5 c.c. both of blood and of plasma for each estimation. As alkali reserve and hæmatocrit estimations had also to be made in each case, this meant the taking of at least 20 c.c. on every occasion. These quantities were adhered to throughout the experiments.

The blood was taken from the median basilic vein into a 20 c.c. record syringe which had been rinsed with oil. A tourniquet was used momentarily to make the vein stand out well, but was removed before blood was withdrawn. The blood was then ejected under oil in a glass bottle which also contained a pinch of potassium oxalate. In this way oxalated blood was obtained without contact with the air.

In the case of blood specimens taken from sleeping patients, the operation was performed with rapidity generally between midnight and 2 a.m., when sleep is soundest. The fact that the patients generally woke before the operation was completed does not affect the results as no change could occur in the distribution of chlorides in the blood in the few seconds required to complete the withdrawal of blood. Alkali reserve determinations were made on the "day" bloods within one hour of collection.

As regards the actual chloride estimations, there are a considerable number of methods available and these were first critically reviewed and some of them tried before deciding on a particular method.

There are two stages in the technique to be considered, *viz.*, deproteinization and chloride estimation. As regards deproteinization, in the experience of the author, the Folin-Wu procedure (13) is by far the most simple and complete way of obtaining precipitation of all the blood proteins. A water-clear filtrate is almost invariably obtained provided that too much oxalate is not used to prevent clotting of the blood sample.

As regards chloride estimation, the Volhard titration carried out in the manner described by Whitehorn has been found to be both simple and accurate. It was accordingly decided to adopt the Whitehorn procedure (14).

As it was obvious that, in the investigation undertaken, the differences found would be of an extremely fine nature, it was decided to treat every specimen in exactly the same way and to avoid errors due to the apparatus used. The same standard pipettes were used throughout, and a very accurate 5 c.c. burette which could be easily read to 0.05 c.c. was employed for all titrations. In addition, careful blank estimations were performed from time to time in order to check the reagents.

(4) *Determination of Alkali Reserve.*

These investigations were carried out on the Van Slyke and Neill manometric gas analysis apparatus on specimens of blood obtained during the day. It was not practicable to make similar estimations on bloods obtained during the night. It must be remembered that venous blood was used and the results are therefore rather on the high side.

The object of these determinations was to throw further light on the acid-base economy of the patients selected.

DESCRIPTION OF RESULTS.

Table I shows the results of urine analysis carried out on 2 physically normal imbeciles, 4 cases of melancholia and 4 cases of dementia præcox.

The various urinary constituents estimated are shown calculated in percentages and in hourly amounts. Of the three lines of figures in each case, the first shows excretion over the sleeping period of approximately eight hours, while the second and third show excretion over the waking, fasting period until 12 noon.

Examining the figures obtained we find that in the two control patients the results coincide with the findings of other observers. The urinary pH, which is markedly acid during sleep, becomes less acid after waking owing to the increased pulmonary ventilation and consequent decrease of alveolar CO₂ tension. The total acidity follows approximately the pH, and decreases after waking, while the ammonia nitrogen behaves in a similar manner. The output of chlorides and water shows a marked increase in the second and third specimens, and this is in accordance with the findings of Simpson (15). Total inorganic phosphorus shows a decrease in the second and third specimens associated with the increased pH of

Name and description.	Quantity in c.c.	Hourly quantity.	pH.	Total acidity in c.c. %.	Hourly total acidity.	Ammonia nitrogen in mgrm. %.	Hourly ammonia nitrogen.	Chlorides in mgrm. %.	Hourly chlorides.	Phosphates in mgrm. %.	Hourly phosphates.	Total nitrogen in mgrm. %.	Hourly total nitrogen.
R.; physically normal imbecile	348	43.5	6.5	16	7	39.2	17.2	400	170	47	20.4	630	273
	341	136	7.1	1.2	1.7	7.8	10.6	380	520	Trace	Trace	280	386
	339	135	7.1	1.2	1.7	3.9	5.3	360	470	"	"	280	385
H.; "	350	44	6.7	8	3.5	20.2	8.9	470	210	36	16	350	153
	345	137	7.1	1.5	1.75	5.6	7.67	350	480	Trace	Trace	240	331
	341	136	7.1	1.5	1.7	4.8	6.53	470	660	"	"	280	386
Hu.; dementia præcox	199	25	5.4	36	9	82.9	20.75	320	80	68	17	994	248
	57	22	7.1	1	.23	5.6	1.23	370	90	Trace	Trace	336	67
	170	68	4.8	65	44	96.3	67.9	490	340	125	85	1246	850
Rd.; "	341	136	4.8	44	18.7	96.6	132	740	310	101	136	1050	1428
	85	34	7.8	2	.7	21	7	880	300	32	11	816	272
	114	46	7.8	1	.45	11.2	5.15	750	310	28	13	686	317
F.; "	227	28.5	5.7	47	13.25	124.6	35.6	440	120	93	26.5	1512	428
	57	22	6.6	14	2.85	56	12.3	1360	300	48	9.5	486	98
	85	34	7.4	5	1.7	30.8	10.5	1480	500	33	11.3	480	160
S.; "	390	49	5.5	40	14	78	28	1460	517	79	39	952	475
	85	34	5	29	8	52	15	1880	519	49	17	1218	407
	50	20	5.7	33	8	69	17	1540	385	52	10	1134	227
O.; melancholia.	201	25	9	..	..	..	..	590	147.5	..	..	..	..
	170	68	7.5	..	..	..	..	870	590	..	..	..	..
	87	34.5	8.2	..	..	..	..	790	275	..	..	..	..
B.; "	284	35.5	4.6	63	22	106.4	38	800	280	87	31	1022	362
	199	80	6.2	19	15.5	26.3	21	1130	900	43	34.4	826	660
	85	34	5.9	29	10	33.6	11.2	1000	330	70	23.4	812	271
Bo.; "	284	35.5	5.2	50	16	60.2	21.3	210	75	88	31	1302	462

T.; "	370	46	5.4	18	8.3	11.2	5.06	210	97	28	13.8	476	219
	170	68	7.1	2	1.4	..	..	640	442	Trace	Trace	462	314
	142	56	7.6	..	..	..	..	430	241	21	11	434	243

the urine and the increase in carbohydrate metabolism after waking. Total nitrogen shows a moderate increase in the two latter specimens, but is restricted by the fact that the patients are fasting.

Turning now to the results from the psychotic patients we find in several cases, taking the pH, total acidity, and ammonia nitrogen figures in conjunction, a marked delay or even absence of the normal alkaline tide shown in the second and third specimens. Hu. shows a marked swing-back to acidity in the third specimen, F. shows a very slow response to ventilation, as does also B., while S. remains uniformly acid over the whole period of investigation. We also find that there is a general tendency to retention of chlorides and water after waking, pointing to a deficiency of pulmonary ventilation and a persistence of high alveolar CO₂ tension. In the patients Hu., Rd., and S.—all cases of dementia præcox—this retention is very marked. The melancholic patients do not show nearly so marked a retention of chlorides after waking and are presumably ventilating in a more satisfactory manner. The phosphate figures are variable, as might be expected in psychotic patients where muscular exertion with its consequent carbohydrate metabolism is variable and erratic. The total nitrogen figures do not show any great deviation from the normal.

Summarizing the results shown on Table I one may legitimately say that in the cases of dementia præcox examined there is a marked tendency to the retention of chlorides after waking, while in the cases of melancholia this retention is slight or absent. The increased urinary acidity in many cases and the diminution or absence of the alkaline tide have already been emphasized.

Table II shows the results of blood chloride estimations, hæmatocrit values, and alkali reserve determinations in two controls, 2 cases of melancholia, and 6 cases of katatonia. Examining first the hæmatocrit values we find in nearly every case that there is a decrease in total corpuscle volume during sleep. This is in accordance with the results obtained by Gollwitzer-Meir and Kroetz (16), who explain this decrease in corpuscle volume on the grounds that, during sleep, there is a streaming-in of water from tissues to blood causing a dilution of the blood. These authors have estimated the dry substance of the blood in both waking and sleeping states and find that it is uniformly diminished during sleep, which confirms their contention that the blood is diluted during that state. This will be discussed at a later stage.

In the two adjacent columns of this table the figures for the chloride content of whole blood and plasma are given, and from these, by means of the hæmatocrit values, the chloride load of the corpuscles is calculated and set down in the next column.

TABLE II.

Name and description.	Conditions.	Hæmatocrit value.	Chlorides in whole blood in mgrm. %.	Chlorides in plasma in mgrm. %.	Chlorides in corpuscles in mgrm. %.	CO ₂ in volumes %.	
						Whole blood.	Plasma.
Sv.; normal	Awake	42	485	585	347	} 62.73	74.44
	Sleeping	40	490	560	385		
R.; imbecile	Awake	52	455	555	363	} 54.4	60.13
	Sleeping	48	470	535	399		
O.; melancholia	Awake	40	440	515	327	} 63.50	76.90
	Sleeping	46	470	565	358		
T.; melancholia	Awake	46	450	565	315	} 61.93	71.25
	Sleeping	33	465	515	365		
Hu.; dementia præcox	Awake	46	485	541	419	} 56.62	61.50
	Sleeping	51	445	560	334		
Rd.; dementia præcox	Awake	44	465	550	357	} 54.54	69.45
	Sleeping	38	475	550	353		
F.; dementia præcox	Awake	48	490	545	430	} 60.12	70.87
	Sleeping	39	455	560	391		
D.; dementia præcox	Awake	52	470	575	373	} ..	..
	Sleeping	37	465	555	312		
G.; dementia præcox	Awake	41	495	575	382	} ..	..
	Sleeping	35	475	535	364		
E.; dementia præcox	Awake	43	540	620	434	} ..	..
	Sleeping	35	535	595	425		

It is to these last figures that attention is mainly directed and the results are very striking. In the two controls and in the two cases of melancholia, the chloride load of the corpuscle is increased during sleep, which was expected on the grounds that the increased alveolar CO_2 tension during sleep causes a shift of chloride ions from the plasma into the corpuscle. In the cases of katatonic dementia præcox, on the other hand, the chloride content of the corpuscle is in every case greater during the day and decreased during sleep, which argues that the alveolar CO_2 tension is decreased in these patients during sleep, since the chloride shift is in the reverse direction to what the author has found in the normals.

The figures for the alkali reserve of the blood specimens are given for whole blood and for plasma in several of the patients examined. Bearing in mind that these figures are for venous blood and are therefore high, they do not show any striking deviation between normals and psychotics, and this bears out the contention already put forward that the "acid" condition of these psychotics is not an acidosis, but a defect of respiratory regulation.

TABLE III.

Name and description.	Conditions.	Hæmatocrit value.	Chlorides in whole blood in mgrm. %.	Chlorides in plasma in mgrm. %.	Chlorides in corpuscles in mgrm. %.
D. ; dementia præcox	Before exercise	52	470	575	373
	After "	54	455	585	341
G. ; dementia præcox	Before "	41	495	575	382
	After "	45	465	585	319
E. ; dementia præcox	Before "	43	540	620	434
	After "	45	525	605	416
St. ; normal control	Before "	41	465	550	342
	After "	41	465	545	350
Dr. ; normal control	Before "	37	490	550	388
	After "	37	485	545	383
W. ; normal control	Before "	37	505	555	420
	After "	37	505	555	420

Table III: In view of the results obtained in the cases of katatonia, as shown in Table II, which pointed to an actual improvement of pulmonary ventilation during sleep, as shown by the decreased chloride load of the corpuscles in that state, it was decided to investigate the effects of exercise on these patients in order to ascertain whether the increased ventilation occasioned by exercise would decrease the chloride load or still further increase it.

Accordingly three katatonics who were capable of being exercised were selected, and in addition three normal persons who volunteered

to act as controls for the purpose of comparison. Blood specimens were taken by the technique already described and the six subjects were then made to perform physical exercises for about twenty minutes and to run up and down stairs several times. Further specimens of blood were taken immediately at the end of this period and analysis were carried out in the same manner as in the other experiments. The results of these estimations are given in Table III, and, examining the figures giving the chloride content of the corpuscles, we find that in the three normal persons there is no appreciable change in the corpuscle load after exercise, showing that the respiratory regulating mechanism is active and sensitive. In the three psychotics, on the other hand, there is in every case a decrease in the chloride content of the corpuscles after exercise pointing to a preponderance of the effects of increased ventilation over the effects of increased metabolism, causing a decrease of alveolar CO_2 tension and a consequent shift of chloride out of the corpuscle.

The clinical effects of exercise on these three katatonic patients were interesting. It was, of course, necessary to encourage and assist them to exert themselves; in fact it was necessary to run up and down stairs with them in order to keep them moving. At the end of the exercise period, however, all three were panting and ventilating freely and coincident with this, a slight but definite improvement of their mental symptoms was observed by the author and by two nurses who were assisting. The patients became brighter and less self-absorbed. Patient G., who is ordinarily mute, made a few remarks in quite a rational manner, while patients E. and D. took an interest in what was being done to them, and answered several questions sensibly. This effect passed off in the course of the next half-hour, and all those patients again lapsed into their customary stuporose state.

DISCUSSION.

Before dealing with the results obtained in this investigation, it is necessary first to recapitulate the work of other authors who have already been quoted so far as it is relevant to this discussion. The facts may be arranged as follows:

1. The work of Hamburger (1) and others (2, 3, 4) demonstrates clearly that, in the presence of increased tensions of CO_2 , chlorine shifts from the plasma to the corpuscles of the blood.

The shifting backwards and forwards of HCl between plasma and corpuscle is in the nature of a directed osmosis, made possible by the cell membrane acting as an osmotic membrane. With the gain of an HCl molecule the osmotic pressure inside the corpuscle is

increased and water enters the cell, so that its volume becomes greater. That the osmosis between cell and plasma is a directed one is evident by the fact that the sodium and potassium kations do not shift to any appreciable extent if at all (4). The increase in cell volume caused by the gain of an HCl molecule is of interest in view of the fact that the hæmatocrit values were found both in normals and psychotics to be lower during sleep than in the waking state. This finding can only be accounted for on the theory put forward by Gollwitzer-Meir and Kroetz that there is a considerable dilution of the blood during sleep.

(2) Simpson (12, 15) and Simpson and Wells (5) working on normal persons, have shown that during sleep there is a retention of water and chloride by the organism, and with this is associated a tendency to a lowering of blood pH and a considerable increase in alveolar CO₂ tension. These authors also demonstrate that during the waking period there is an increased output of urinary chlorides, a tendency for the blood pH to rise, and a lowering of alveolar CO₂ tension, and that these effects are further increased by artificial over-breathing. Simpson and Wells also suggest that the variations in urinary chloride output are associated with the shift of chloride from plasma to corpuscle during sleep and the reverse action after waking, but they are doubtful whether the Hamburger shift could be demonstrated as a result of the comparatively small changes in alveolar CO₂ tension, induced by sleep. The data obtained in this thesis go to show that such changes *can* be demonstrated by a refined blood-chloride technique.

(3) Golla, Mann and their co-workers in a series of papers (6, 7, 8, 9, 10, 11) have furnished much evidence to show that, in certain mental disorders, there is a disturbance of the respiratory regulating mechanism as evinced by a variable failure of response to CO₂ stimulation, and they endeavour to associate the consequent disturbance in acid-base equilibrium with metabolic changes and anomalous reactions to endocrine therapy. These workers suggest that in many psychotics the organism is in a state of "acidæmia" closely resembling that which obtains in normal persons during sleep, and that this condition is due to diminished excitability of the respiratory centre.

(4) Gollwitzer-Meir and Kroetz (16) have investigated the changes in the blood during sleep in a series of six normal persons with a view to throwing light on the decreased excitability of the respiratory centre in that state. Their work is mainly concerned with the ionic balance in the blood, but their results on corpuscle volume, blood chloride, and dry substance estimations are of interest in connection with this work. Their hæmatocrit readings show, in nearly

every instance, a decrease of total corpuscle volume during sleep. They find an increase in the chloride content of whole blood during sleep which is also in accordance with the author's findings, and their figures for serum dry substance estimations show a decrease in every instance. Gollwitzer-Meir and Kroetz are of the opinion that, during sleep, there is a streaming from tissues to blood of a fluid rich in chloride and poor in protein content, causing a relative hydræmia, hyperchloræmia and hypo-albuminosis. This appears to be a needlessly complicated theory. As we already know that chloride is retained by the organism during sleep there is no need, in the author's opinion, for a flow of chlorides from tissues to blood. The flow of water from tissues to blood may well be a simple osmotic effect consequent on the retention of chlorides, so that the increased dilution of the blood during sleep is caused merely by a withdrawal of water from the tissues to meet the increase of chloride in the whole blood.

Taking now the figures given in Table II we find a practically constant decrease in total corpuscle volume during sleep, but this is a noticeably greater decrease in the psychotic patients than in the normals. The explanation of this is probably as follows.

(a) In the normal person there is a dilution of the blood during sleep, but along with this there is a shift of HCl into the corpuscle which takes up water and swells slightly. Thus, although the total corpuscle volume is less owing to a relative hydræmia, the individual corpuscle is larger than during the waking state.

(b) In the psychotic there is also a dilution of the blood owing to a greater retention of chlorides during sleep, but the chloride shift is in the reverse direction, so that the corpuscle loses an HCl molecule, loses water, and shrinks slightly. Thus the total corpuscle volume is considerably decreased, since not only is the blood more dilute, but the individual corpuscle is smaller.

Turning now to the figures for corpuscle chloride content, we find that these show an increase during sleep in the two normal persons and in the two cases of depressive psychosis, while in all six cases of katatonia there is a decrease of chloride in the red cell during sleep. This can only mean, with the knowledge in our possession, that the alveolar CO_2 tension in these patients is higher during the day than when they are asleep. It would appear that in the katatonic the general metabolism in the waking state is at a low basal rate. This effect is apparent from the increased chloride load on the corpuscle owing to a failure of respiratory adjustment in that state. During sleep, however, the metabolic rate is still further decreased, and in consequence the acid load diminishes somewhat. In the normal persons there is adequate respiratory compensation

to all metabolic phases and an increase of acid load on the corpuscle can only be demonstrated when the respiratory mechanism is relatively inexcitable, *viz.*, during sleep.

In order to obtain further evidence on the metabolic processes of these patients, experiments on the effects of exercise were made with the results shown in Table III. In these experiments the normal persons, with a sensitive respiratory mechanism capable of compensating for the increased metabolism occasioned by exercise showed no change in the chloride load of the corpuscles as determined before and after their exertion. The three katatonic patients, on the other hand, all showed a well-marked decrease in the acid load, which suggests that their increased respiratory ventilation was more than enough to cover the effects of their increase in metabolic rate.

This evidence again supports the theory which has been put forward and leads on to suggest a line in therapeutics for these patients, namely, the beneficial effects of a degree of exercise sufficient to increase their pulmonary ventilation without raising their metabolic rate to such an extent that their "acidity" is increased. By this means their high alveolar CO_2 tension will be reduced and the acid load on the corpuscles consequently decreased. At a number of mental hospitals classes in physical exercises are used therapeutically with good effects in adolescent and other psychoses, but these classes are mainly used in the case of convalescent patients or for those who can cooperate and take an intelligent interest in their treatment. The very nature of katatonic dementia *præcox* prevents the patient from deriving benefit from this type of physical instruction where the subject voluntarily performs certain set exercises under the guidance of an instructor. In these cases it is necessary for the patient to receive individual attention, with one or two nurses to each patient constantly encouraging him and, if necessary, using a sufficient degree of force to make him move his limbs. For example, the exercise of running up and down stairs may be conveniently performed by having a nurse to take each of the patient's arms and run up and down with him. Needless to say the degree of exertion must be carefully graduated to avoid any signs of exhaustion in the patient and also to avoid increasing his metabolic rate to a point where the increased degree of ventilation is not sufficient to reduce the alveolar CO_2 tension. There is no advantage to be gained if the effects of increased ventilation do not preponderate over the effects of increased metabolism.

It has been suggested that some modified form of artificial respiration might be tried on these patients in order to increase their

respiratory ventilation without increasing their metabolic rate, but in all probability more benefit could be derived from graduated exercises by means of which the patient will re-educate his muscles which almost invariably show some degree of atrophy from the disease consequent on his stuporose state.

The fact that the author's cases of katatonia appeared to show some transient mental improvement after exercise is of interest, but this side of the question will require further investigation and is outside the scope of the present work.

SUMMARY.

(1) Following on the increased respiratory ventilation after waking in the morning, the normal person shows an increased output of chlorides in the urine. In the psychotic patients examined there is a varying degree of retention of chlorides over the same period associated with a varying degree of defect in respiratory regulation.

(2) In katatonic dementia præcox there appears to be a reversal of the normal shift of chloride from plasma to corpuscle during sleep. Evidence has been adduced to show that there is a heavy acid load on the corpuscles in these patients during the waking state, that their pulmonary ventilation is very inadequate, and that the decrease in metabolic rate during sleep causes a fall in alveolar CO_2 tension and a consequent decrease in the acid load of the corpuscles.

(3) In normal persons exercise appears to have no effect on the distribution of chloride between plasma and corpuscles, while in katatonic dementia præcox the same amount of exercise causes a decrease in the acid load of the corpuscles consequent on a decrease in alveolar CO_2 tension.

(4) It is suggested that a degree of exercise sufficient to cause increased respiratory ventilation will have a beneficial therapeutic effect on these patients.

In conclusion I have to thank Dr. G. Clarke, Medical Superintendent of Bexley Mental Hospital, for permission to investigate psychotic patients under his care. I must also express my indebtedness to Dr. F. Golla, Director of the Central Pathological Laboratory of the London County Mental Hospitals, for the facilities which he has granted for carrying out the practical work of this investigation at that Laboratory, and for his many helpful suggestions in the course of the work.

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SOME RECENT WORK ON THE PATHOLOGY OF SCHIZOPHRENIA.*

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INASMUCH as the following is a summary of results of investigations into the pathology of mental disorders that have been conducted at the Central Pathological Laboratory at the Maudsley Hospital during the past few years, I shall deal with the general results obtained by my co-workers in the broadest fashion, alluding only to such facts as appear to be relevant to the hypothesis I am putting before you. When the present investigations were begun we had already abundant evidence of anatomical lesions occurring in schizophrenia, worked out in this laboratory by Sir Frederick Mott (1), (2), (3), assisted by Mr. Geary. The completeness of this evidence is a matter of history and is not now seriously disputed. (A few of the slides from the collection left to the laboratory by Mott were here shown.)

The slides illustrating the nerve-cells of the cortex and the cerebellum, the testicle, the adrenal and the pituitary give evidence of a profound degenerative change.

We had, then, at the start, indisputable evidence of a generalized degenerative anatomical change in every tissue of the body, but apart from the very generally observed depression of the basal metabolism, there was no symptomatology which would accord with these lesions. The labours of Pighini (4) and others of the Italian school failed to discover any single fact in the metabolism that was directly characteristic of dementia præcox and allied psychoses. It seemed that the biochemical and neurological functions of the psychotic were very like those of the normal subject, except that there was a fairly general, but by no means universal, depression of activity. With these facts in mind we changed our methods of attack—we no longer looked for static differences between the psychotic and the normal, but concentrated on testing how a psychotic would behave when his organism was put to any stress.

One of the first pieces of evidence that the response to stimulation

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was abnormal in our patients was furnished by some simple experiments undertaken at my suggestion by Dr. I. M. Robertson (5), (6). It is well known that normally the ingestion of milk by a fasting subject is followed by a leucocytosis. In certain conditions of liver inadequacy the post-prandial leucocytosis is changed into a leucopenia, termed by Widal the "hæmoclastic crisis." The experiments on this food response were initiated primarily to test the functional activity of the liver in psychotics, though we were of course well aware of the occurrence of the hæmoclasia in various other conditions associated with a disturbance of the vegetative nervous system. For a period, nearly all the cases admitted to the Maudsley Hospital were examined—275 altogether—and on a subsequent clinical classification of the results by Dr. Petrie (7) it was found that the leucopenic reaction was obtained in 90% of twenty-five certain and probable cases of dementia præcox, and by five out of twelve doubtful cases. In another group of twenty-nine cases classified as anxiety neurosis, 76% gave the hæmoclasia reaction. One hundred normal subjects all responded with the normal reaction leucocytosis. A large number of observations by Capt. Mann (8), (9) and other workers made it appear very improbable that the response in the psychotic patients could be attributed to disturbance of the liver, and it was suggested to Dr. Robertson that she should make further experiments on the vascular responses to other simple stimuli.) The evidence obtained pointed to the conclusion that the inversion of the leucocytic response to food ingestion in psychotics was a manifestation of an inverted vasomotor response. Further, it was found that the reactions to heat and cold, as evidenced by the blood-picture, showed an inversion in those cases that exhibited the hæmoclastic response. Again, the leucocytic blood-picture corresponding to changes of posture was similarly inverted. Now when an internally conditioned reversal of a reflex of the vegetative system takes place, the physiologist at once thinks of the possibility of a shift of the calcium-potassium equilibrium. Calcium increases the excitability of the sympathetic, potassium increases the excitability of the antagonistic para-sympathetic system, and by suitable adjustments of their ratios inversion of vegetative nervous reflexes may be effected. But the ratio of un-ionized calcium in the blood is a function of the acid-base equilibrium; thus we find ourselves led to study the possibility of some such acid-base shift having taken place in the psychotic organism. The valuable studies on the abnormal response of the blood-sugar curve of the psychotic to the stimulus of sugar ingestion, undertaken by Capt. Mann, pointed in the same direction (10). A valuable piece of evidence confirming this view

was obtained by Dr. Robertson by eliciting the leucocytic response to food in a number of normal subjects as soon as they were awakened in the morning. Under these conditions the normal leucocytic response was inverted to give the hæmoclastic reaction. Now, as we shall see, the sleeping organism is definitely shifted over to the acid side during the night, and these results made us feel strongly that we were pushing our investigations in the right direction. An investigation of the urinary reaction in cases of mental disorder, conducted by a team of workers, revealed in the majority of schizophrenic cases an acidity which indicated a disturbance of the acid-base equilibrium, with a displacement to the acid side (11), (12). The urinary responses of the psychotic were next examined, and it was found that the normal morning alkaline tide was absent in rather more than 50% of the cases of schizophrenia, and in the same proportion of patients classified as melancholia (13). In other words, these psychotics tended to remain during the day in the state of an acid shift which in the normal is established during the night and promptly reversed after waking. The normal alkaline tide following a meal was absent in 70% of the psychotic cases examined.

In the normal subject the reaction of the urine denotes the tendency of the organism to correct a shift of the acid-base equilibrium to the acid or alkaline side. The constant pH of the blood is ensured by two mechanisms—the renal and the respiratory. The kidney retains or rejects base, and the lungs increase or decrease the acid (carbon dioxide) output.

Now a series of observations on the renal response to the ingestion of acid and alkali convinced us that the renal mechanism for regulation of the acid-base equilibrium of the psychotic is intact. At the same time, the urinary acid gave us clear indications that the equilibrium was disturbed by a tendency to change over to the acid side, and all the observations made on the carbohydrate metabolism, the response to drugs, the vascular responses, fitted in with this view. The other mechanism for acid-base regulation—the respiratory mechanism—would thus appear to be unable to perform its task. Normally the tendency to an increase of acid ions is met by elimination of carbon dioxide and consequent lowering of the carbon dioxide pressure in the arterial blood, as evidenced by a fall of the carbon dioxide percentage of the alveolar air.

Thus a diet rich in acid valencies, such as meat, will cause excretion of an acid urine, and a low percentage of alveolar carbon dioxide. A vegetable diet rich in alkali will cause excretion of a urine tending to alkalinity and a high percentage of alveolar

carbon dioxide. To maintain these different carbon dioxide pressures in the alveolar blood, the ventilation will be increased in the first case and diminished in the second.

It now became our problem to investigate the activity of the respiratory centre, since a diminution of its exquisite sensibility to the carbon dioxide pressure of the blood would have the effect of diminishing the ventilation and hence increasing the carbon dioxide pressure. We found it very difficult to obtain, on the part of psychotic patients, the cooperation necessary for accurate estimation of alveolar air samples; the few cases observed, however, showed a high alveolar carbon dioxide pressure. A normal subject with the highly acid urine of the psychotic would of course have shown a lowered carbon dioxide tension corresponding with his increased ventilation.

Some preliminary difficulties had to be overcome in estimating the total ventilation of our patients. No arrangement that involved any perceptible increase of resistance to ventilation could be used, for the respiratory system is exceedingly sensitive to slight differences in pressure; for this reason, to collect large volumes of expiratory air in a bag or plethysmograph would utterly upset normal ventilation. Again, the psychical effect of a mask, or even a mouth tube, is to cause the patient to over-breathe. Eventually an electrically controlled automatic plethysmograph offering no appreciable resistance was devised, and the subject breathed through soft rubber nose-tubes which were so comfortable that we found it possible to forget their existence while wearing them.

The excitability of the respiratory centre was tested by administering 2% carbon dioxide whilst the patient was breathing into the plethysmograph and the volume of each respiration was being recorded on a smoked drum. The normal subject responds by an increase of ventilation. It was found that a number of cases of dementia præcox with a highly acid urine failed to respond to the carbon dioxide stimulus. Here, then, was an objective proof of the predicted depression of the excitability of the respiratory centre (14).

Dr. Marsh took our apparatus to Claybury Mental Hospital and examined a large number of cases from the admission wards (15). Taking together the groups of cases diagnosed as schizophrenia and melancholia, 88% showed a depression of excitability of the respiratory centre. Clinicians may at once raise the question of the association of the melancholic and the schizophrenic groups. I may state frankly that at this stage we are not prepared to deal with it. I suspect that, once we have established a definite pathology of mental disorders, we shall be inclined to classify our cases

by their bodily symptoms rather than by disorders of conduct. Be this as it may, we are at present content to examine all cases of insanity as they present themselves, and to leave the question of classification in pathological terms to a later date. So far we have dealt only with cases of schizophrenia and melancholia because they present certain general symptoms that indicate a depression of nervous activity; our work is very recent, and we must leave to a later date the consideration of manic disorders. One point, however, was established by Dr. Marsh: the depression of the excitability of the respiratory centre is not merely a symptom of a catatonic stupor. Some of his patients were restless and excited, and others might have passed for normal in their conduct without a close psychiatric examination.

Having established this almost universal prevalence of a diminished excitability of the respiratory centre to carbon dioxide we inquired into the excitability to an alkaline stimulus in our patients. In the normal, as we have said, the respiratory system attempts the regulation of the acid-base equilibrium, when threatened with a swing-over to the alkaline side, by heaping up carbon dioxide while the kidneys excrete alkali. As one would expect, the immediate response to the ingestion of 10 grm. of sodium bicarbonate was the diminution of ventilation and the excretion of bicarbonate in the urine. On testing a number of psychotics who had shown a diminished excitability to 2% carbon dioxide, we found that their immediate response was identical with that of normal subjects. We thus obtained the important evidence that the psychotic's respiratory system is not excitable to acid, but is so to alkali. The normal record shows, however, that after two hours the hypo-ventilation gives place to a hyper-ventilation. That is to say, the organism has got rid of the surplus alkali by the kidneys and now has an excess of the retained carbon dioxide, there is a shift-over to the acid side and the carbon dioxide is now blown off by increased ventilation. Now the psychotic's respiratory centre cannot respond thus to carbon dioxide: his kidneys function as well as those of the normal, but when he has got rid of all his bicarbonate there is no increased ventilation to enable him to blow off the superfluous carbon dioxide. We thus arrive at the paradoxical result that if we attempted to make a psychotic more alkaline with bicarbonate, we should ultimately render him more acid. The waking condition of the psychotic appears, therefore, to resemble closely that of the normal individual during sleep. During sleep we get an increase of the alveolar carbon dioxide and an acid urine, the increase of the alveolar carbon dioxide depending on a diminished excitability of the sleeping respiratory centre; a

change of mental activity in the direction of a retreat from reality accompanies both conditions.

Dr. Armstrong's work in our laboratory (*vide* p. 644) affords a further parallel. A prepotent factor in the buffering of the blood is the acceptance by the red corpuscles of the acid chlorine ion, thus setting sodium free to combine with excess of carbon dioxide in the plasma—the Hamburger phenomenon. In sleep the acid load of the corpuscles is increased, and Dr. Armstrong has demonstrated an abnormally heavy acid load on the corpuscles of psychotic patients during the waking period. Thus the kidneys and blood are doing their duty; it is only the nervous system that fails in the sluggish respiratory centre. But a still more curious fact has been brought to light by Dr. Armstrong. Normally during sleep, owing to the inactivity of the respiratory centre, the acid load on the corpuscles is increased; in the psychotic during sleep the already heavy load is lessened. The explanation is easy: during the day the normal man has to combat the tendency of the active muscles to pour into the blood carbon dioxide and some lactic acid; he does this successfully by his respiratory regulation. When night comes he is relieved of this acid inflow from the muscles, but, inasmuch as he is able to deal with it effectually by ventilation, there has never been any occasion for the corpuscles to take up an extra acid load, and it is only when he sleeps and ventilation is diminished that the corpuscles are called upon to relieve the effects of carbon dioxide retention. The psychotic ventilates no better during the day than at night; his respiratory nervous mechanism is always sleeping; hence, during the night at all events, he benefits from the absence of the acid products of muscular activity—the load on his corpuscles diminishes.

We thus arrive at a fact that may be of therapeutic importance: a normal man can withstand practically any normal acid or alkaline stress by virtue of his respiratory adjustment; the psychotic is at the mercy of his diet and his muscular activity. Man has acquired this faculty of respiratory regulation as an omnivorous animal, devouring now an alkaline, now an acid diet. Herbivorous animals like the rabbit resemble the psychotic; they cannot regulate except by the kidney; an acid diet of oats will reverse the reactions of their vegetative nervous system from those obtaining with a green alkaline diet.

We now come to the final consideration: What is the state of the nervous system that conditions these abnormal responses? We shall do well to hesitate before we postulate that, because we have a tendency to acid accumulation, the acid-base equilibrium of the tissues will necessarily be tending to the acid side. Many of

the facts, and particularly the results of bicarbonate ingestion, lead me to think that the converse proposition is the true one. The tissues may be over-buffered, *i.e.*, suffering from an excess of the sodium anion, and the retention of carbon dioxide represents an attempt to restore their equilibrium. On the other hand many facts are against this; the vasomotor responses seem to point to a shift-over to the acid side; the same may be said of the abnormalities of the carbohydrate metabolism and the inexcitability to insulin described by Mann (10). Incomplete oxidation in the nervous system would cause an acidification due to the formation of lactic acid, and the experiments conducted in our laboratory on the oxidation of thiosulphates tend to show a depression of at any rate some of the oxidation processes in the psychotic organism. To elucidate this problem will require much more work, and I prefer to suspend judgment.

The foregoing is a non-technical summary of our results; we may now pass to a brief consideration of their general bearing.

A discussion on ætiology in terms of psychogenesis and physiogenesis is merely an attempt to resolve an unreal problem which exists only as a product of confused thinking. It is a mental confusion that has constructed an unreal antithesis between the events occurring in the environment of the organism which lies within the body and the events occurring in the external environment. It springs from the cardinal error of an unreal abstraction of a static organism from its environment which substitutes a static image for the series of events in space-time that constitute the living self.

Our problem is a physiological one. We have seen that all symptoms so far considered may be regarded as indicating a depression of the functional activities of the organism as a whole. Is this depression a failure of the nervous system, due to disturbances of the acid-base equilibrium, to deal adequately with external and internal environmental stimuli? If so, whether the ultimate disease be curable or not, there is some hope of influencing the disordered conduct by appropriate biochemical therapy. The alternative is a common cause for both mental and biochemical symptoms in the shape of a generalized depression of nervous activity. If it were possible to remain purely scientific observers and to ignore the claims of therapeutics, it might be urged that the time is not yet ripe for such a discussion to be usefully pursued; but the urgent nature of the problem from the human side impels us to entertain—and possibly to act on—any not altogether unreasonable hypothesis. It may seem that the mechanism involved is far too simple. It might be asked whether it is possible that the integrity

of cortical function could depend on nothing more complex than a shift of acid-base equilibrium due to carbon dioxide retention. Such an objection can have no weight with the biochemist. So far from being a simple or gross disturbance, a shift in the acid-base equilibrium of a nerve-cell is followed by a chain of physico-chemical events of the utmost complexity, of which only a few links are as yet even imperfectly comprehended.

Even so, it may yet be asked whether such a disturbance of acid-base equilibrium occurs in conditions unassociated with mental symptoms. The answer to this question is that, as far as we know, there is no state parallel with normal mental conditions. The disturbances of acid-base equilibrium in cardiac, pulmonary, renal or metabolic disorders, such as diabetes, are of an entirely different nature, inasmuch as there is no depression of the excitability of the respiratory centre.

Is there any evidence that the acid-base disturbances can affect nervous function? I think we may say that there is. On the one hand, the effects of continued hyperpnoea are well known; it is possible after twenty minutes of voluntary over-breathing, which produces a condition of alkalosis by forced expiration of carbon dioxide, to cause a state of profound mental confusion often combined with hallucinations. On the other side the effects of carbon dioxide administration are sufficiently well known. But these confusional states are unlike those obtaining in schizophrenia. Clinicians are familiar with the dramatic remissions that may take place, during which it is sometimes possible to learn from the patient that during the period of catatonic stupor he has retained much of his critical faculties, and can give a connected account of all that has taken place. Indeed, we are sometimes driven to the conclusion that the benign stupor represents a retreat from an intolerable reality, and if such a view be correct, it might seem that more would be required than the respiratory shift of acid-base equilibrium to account for either the retreat or the sudden return. I am far from admitting that such cases are as simple as that, but it is in the power of every one of us to produce an analogous state. The behaviour of the sleeper is not precisely the behaviour of the dementia præcox patient, though if our sleep condition lasted years instead of hours it is by no means certain that secondary changes might not supervene which would diminish the difference.

Again there is abundant physiological evidence that the excitability of the cerebral cortex may be increased by an acid environment, though the converse proposition rests on less firm evidence. What will happen, then, if we bring our pathological findings to

a therapeutic test and attempt to stimulate our patients by altering the pH of their nervous system? If the inactivity of the respiratory centre depends upon an alkaline tissue pH, there are three ways by which this can be counteracted—we might increase the acid valencies of the diet, we might increase the carbon dioxide tension of the blood, or we might diminish the oxidative processes, thus setting free in the tissues acids which are difficult to oxidize. In 1914 Cuneo (16), an Italian observer, claimed that by diminishing or increasing the protein fraction of the diet he was able to produce either a calm or an excited phase in a schizophrenic patient. It is true that he was obsessed by an hypothesis that we now know to be mistaken, that is, that the ammonia production was the cause of manic excitability, but his results really tend to show that an increase of the acid valencies of the diet can heighten cerebral excitability. Loevenhart (17), more recently, tried to diminish the oxidative process in cases of catatonic stupor by injection of sodium cyanide, and as a result found that his patients became lively for a short period, during which the injection could be carried out; in another batch of patients he administered 15 to 30% carbon dioxide in oxygen, and claimed that he obtained complete remissions lasting from two to thirty minutes in cases of catatonic dementia præcox. A patient who had not spoken for six years became talkative and rational, and the others lost their catatonia and spoke rationally and with insight into their condition. Loevenhart's experiments are founded on his physiological investigations on tissue oxidation, of the cogency of which I am sceptical, but if the therapeutic experiments which, he claims, restored inaccessible patients to a more normal condition for short periods be accepted, they would tend to support the view that displacement of an acid-base equilibrium may be a factor in causing depression of mental activity. We are at present conducting experiments on the same lines by administration of acid ammonium phosphate with increased protein diet to some of the patients in the L.C.C. mental hospitals. It is as yet, however, far too early to make any definite statement. It is, of course, only in subjects with a primary depression of the respiratory centre that such treatment could be effective. The normal subject responds to acid or alkali therapy by controlling his carbon dioxide output, so that the acid-base equilibrium is undisturbed.

So far, then, as the possibility of stimulating the depressed nervous system is concerned, pathology seems to have indicated a possible line of therapy, but we cannot give any answer as to how far such stimulation might restore normal mentality in any particular case. In old-standing cases the presumption is that it would,

even if successful, only transform a quiet patient into a noisy one. If the anatomical findings mean anything, they mean that in long-standing cases a diffuse degenerative change has occurred throughout the body, and it would be as unreasonable to expect to restore the degenerated suprarenal, testicle or ovary, as to expect to establish a normal functioning cortex. In other cases, however, we observed spontaneous remissions accompanying such changes in the internal environment as are caused by acute infections with their acidotic tendencies, or perhaps by changes in the external environment which bring relief from social stress. Where such remissions occur, there may be a possibility of a biochemical therapy. At the best such treatment will be symptomatic till we obtain a fuller knowledge of the pathogenesis of schizophrenia, but, whatever may be our views on pathogenesis, it may fairly be urged that there are already within our knowledge some facts that help us to understand the bodily disorder that forms part of the disease.

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PSYCHOLOGICAL DIFFERENCES BETWEEN THE PSYCHOSES, PSYCHONEUROSES AND CHARACTER FORMATIONS.*

By MARJORIE ELLEN FRANKLIN, M.B., B.S.Lond., D.P.M.

PSYCHO-ANALYSTS and other psychiatrists agree, I take it, that there are multiple causes for every mental breakdown. The exciting cause may not always be discoverable, but would be sought, if wanted, in the period immediately preceding the onset. Contributory causes can occur throughout life, from birth to the date of onset. It is agreed, also, that in addition there must be a predisposition (though the strength of this as a causal factor varies, roughly, in inverse proportion to the others). It is in the localization of the predisposing (and specific) factors that authorities differ. The older psychiatrists confined it to the lifetime of the ancestors; psychoanalysts accept, in general, what they have been told about ancestral responsibility, but have focused attention, as regards predisposition for subsequent breakdown, on a later period, namely the first five or six post-conceptional years. This they regard as the developmental period of the psyche, and they consider that influences at this time modify the organization in process of formation in a way that cannot occur later, but is not entirely predetermined in the germ-plasm. The difference is not merely temporal but also qualitative, for while other causes are mainly general (with perhaps some exception as regards heredity), the infantile predispositions are specific. That is, they not only partly determine liability to a breakdown under stress, but play the chief part in determining the kind of breakdown to be expected should one occur, and also the basic layers on which various character formations are built, although the superstructures may be very varied.

The organism at birth has, as a rule, completed physical development in certain respects, *e. g.*, heart and lungs. As regards psychic organization, this, according to analysts, is not so. Tendencies are inherited, but the psyche is not complete for a few years, first placed

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by Freud at five, though opinion seems likely to place it earlier rather than later. We do not know the exact physiological equivalents—cortical association tracts, endocrine habits, etc.—to this organized psyche. During the formative period the child reacts to stimuli, often received in the form of conflicts, some of which are biological and unavoidable and some of which are accidental, and by the way in which he does so, acquires certain characteristics and susceptibilities. If the psyche is weakly organized it will break down easily; if it is strong, it will withstand much. In either case the way in which it will behave if it breaks down is thought to be determined by the primitive conformation and developmental fixations, as well as the broad lines on which character peculiarities are based. An analogy might be found in a melanotic sarcoma developing, owing to irritation, from a pigmented mole. But the psychic "mole" is partly a post-natal growth. The mole does not determine malignancy, but determines that the malignant tumour will be melanotic. Perhaps the above shows that there is much agreement as well as divergence between the various schools. These primitive organizations formed before the latency period are not easily changed, but they are not immutable. Psycho-analytical therapy is a method of changing them through regression under control. This can never occur from intellectual introspection, but I wonder if in the occasional cases where after recovery from a psychosis there is better internal and external harmony than before the attack, there may not have been a process of re-living going on in the unconscious, comparable to a partial self-analysis?

Psycho-analysts would, I think, agree that our three groups are modes of combating disturbance. Without encroachments on passivity, or the power to make psychic adaptations in response (as in the low-grade idiot whose defences are confined to reflex movements repeated without change) I cannot conceive of any psychic organization occurring.

The nature of the stimuli does not determine specific differences in the eventual outcome. That is to say, not that these stimuli are identical, nor unimportant for a full knowledge of the psyche, for the prediction of future danger-points, or for the cure of disease, but that we cannot tell by knowing them what types of disorders or developments are most probable. It is knowledge of the particular mode in which the individual has reacted that helps to give us this information. Everyone has to overcome or compensate for the problems of adjustment to the environment represented by the Œdipus situation and the fear of deprivation comprised in the castration conflict. The different ways in which this is done may be partly determined by inheritance, and greatly, I think, by the

developmental stage with which the psyche is preoccupied at the time of disturbance.

Attention is directed to three parts of the mind which supply the elements of the earliest conflicts. There is the *id*, the source of primitive instincts; the *ego*, which regulates both instinct discharge and response to external stimuli, stands between the *id* and the outer world, is the storehouse of memories and is capable of feeling instinct tension and also of being modified by external environment; finally there is the *super-ego*, formed by introjection of parental characteristics from the environment.

Conflict may arise between the pleasure-principle of the *id*, the reality principle of the *ego*, and moral pressure from the *super-ego*. Within the *id* there may be conflict between hate and love and between different modes of instinct gratification, particularly the conflicting aims of pre-genital libido trends if these do not fuse harmoniously, and of the desires aroused by the development of object-relationship from the auto-erotic stage, through the narcissistic, on to the outer world.

To regard our three categories as modes of solving conflict is somewhat contrary to the ordinary social attitude. Clinically mental derangements are maladaptations, and the more pronounced the worse. But to the individual suffering from psychic conflict they are attempts to cure internal anxiety and distress, and the further advanced and stable the condition, however socially abnormal, the more complete the cure from this aspect. The psyche must be enabled to endure the environment, or the environment must be shut out. The "cure," *i.e.*, disorder, may be painful, but the unsolved conflicts are dreaded more.

To sum up: *Primitive* conflicts lead to a psychic organization which may be healthy or distorted by various degrees and types of fixation and lop-sided development. *Later* conflicts which give rise to mental abnormality do so by disturbing this organization, and causing the individual to regress psychically to an extent determined by the primitive fixations, and to put up various other defence mechanisms, such as dissociation, projection, etc. These together constitute the symptoms. The later conflicts to which the subject is most susceptible are those which are most closely associated with such primitive conflicts as have been incompletely solved.

A completely developed *normal character* I conceive, roughly, to imply internal and external adaptability, harmony between and within the three constituents of the psyche, an *ego* capable of enjoying full gratification or tolerating tension and frustration, and a fully mature libido able to give the *ego* love satisfactions in object

relationships, either direct or in sublimated form, without fixation or ambivalence. While this is the most stable solution and the one best able to adapt to new situations, character formations which cannot rightly be called pathological may include derivatives from lower stages of libido organization which have been satisfactorily sublimated.

Where the primitive organizations formed in response to early biological and environmental pressure break down, new defence mechanisms are required, and these bring about the symptoms of psychoneurosis or psychosis or the peculiarities of abnormal characters.

In differentiating, then, we have to consider the psychic organization to which infantile occurrences acting on inherited predisposition have given rise, and, in addition, the defence mechanisms used when this breaks down—such as repression, displacement, dissociation, projection, introjection, condensation, phantasies, etc.

I think the accepted psycho-analytical position might be summarized thus: As regards libido *aim*, the fixation is at a lower developmental stage in the psychoses than in the psychoneuroses, (Psychoses: first and second oral and first anal; psychoneuroses; second anal, phallic, genital. This means predominance quantitatively, and never involves every scrap of libido.) In *object-relationship dementia præcox* may regress almost to an auto-erotic stage, and in other psychoses narcissism (hyper-cathexis of the ego) is prominent as compared with the psycho-neuroses. Differences in libido aim or object do not differentiate the character groups from the others, as this category includes fixation at any of the levels. Another distinction is that the destructive impulses (whether directed against the self or the environment) are as a rule stronger in the psychoses than in the psychoneuroses. As regards localization and mechanisms, *ego* changes predominate in the psychoses, *id* changes in the psychoneuroses. This means, roughly, that in the psychoneuroses the repressed material returns in a distorted form which has made it acceptable to the ego, while in the psychoses the ego is so changed that it will either tolerate uncritically, or not recognize as arising from itself the previously repressed impulses and phantasies. There are also important *transference* differences involved in the predominating narcissism of psychotics.

In considering the subject, the question arises whether a broad distinction in psychiatry between so-called psychoses and psychoneuroses is justified, apart from clinical diagnosis. I mean, after having diagnosed a case as predominantly of the species *paranoia*, and not *dementia præcox*, *hypochondria*, *hysteria* or *obsessional*

neurosis, are we further justified in saying that the first three have psychological features which distinguish them from the last two? I think we are, though perhaps we exaggerate the distinction. But it seems rather strange that we should be, for our classification of psychoses follows in the main that of Kraepelin, based on clinical observation of end-products, while with the psychoneuroses, most follow one derived from considering psychological processes.

It says much for the genius of Kraepelin that when we seek to study deeper psychological mechanisms in psychotics, we are able to do so to such a great extent within the framework of his classification, showing that his observations, for the most part, emphasized types of behaviour that were the product of deep divergences. There will, naturally, be some changes, but to consider these would, I think, rather side-track the present discussion.

On clinical grounds alone the distinction, though useful in practice, would be difficult to maintain. We could not do so in the matter of gravity of behaviour disturbance. In all large mental hospitals, I suppose, the certified cases include some hysterics and obsessionals, and certainly in private practice we find uncertifiable cases, both early and advanced, that are genuinely psychotic. For example, mild, chronic cases of dementia præcox that drift aimlessly through life. Prognosis is also no sure ground, if we leave aside our own power impulse which seeks to modify. If we consider spontaneous recovery without specific treatment of, say, cases of simple mania, melancholia, or acute confusional as compared with anxiety hysteria or obsessional, the balance of probability as regards completeness of recovery is surely with the psychoses. (I wonder whether the appearance of normality during the intermissions in manic-depressives may be connected with a close relationship to character construction with which it fuses? This is merely a passing idea.)

Psychotics, then, have more effective mechanisms for protecting themselves from disturbers while absorbed in their psychosis (though we may learn to pierce the armour), but are not necessarily more firmly or permanently entrenched.

The terminology is admittedly unsatisfactory, and perhaps instead of calling them psychoses and psychoneuroses, Adolf Meyer's "reaction type" would meet the case, with an appropriate adjective, e.g., ego reaction types, libido, narcissistic, projection, transference, etc., depending on what basis of distinction was adopted.

Another clinically distinguishing feature is said to be *insight*, supposed to be present in psychoneurotics and absent in psychotics—and I would add, following Ferenczi, in character formations. (We may admit to having a troublesome symptom, but our

characters are just ourselves, what we are!) The distinction is only partially true. Insight is often very superficial in psychoneurotics, while most early psychotics know at least that they are mentally ill, while some, especially among manic-depressives, retain a detailed insight into the clinical processes going on (and yet some of the same species are entirely without). I remember one whose recurrent mania had necessitated confinement for many years, who retained it to a remarkable degree. In discussing, during a mild depressive phase, a homicidal outbreak in which she had attacked another patient and was only prevented from injuring her by "*force majeure*," she raised the point of her legal position had she succeeded, remarking, "I knew what I was doing and I knew that it was wrong." Surely this is insight? Moreover, sometimes it appears in curious flashes where least expected, only the patients use their own methods of telling one that they recognize the pretence. Such, I think, was the intention of the patient who remarked that it was a good thing she journeyed every night to the beautiful places she had just been describing, as otherwise she might find life in hospital very dull. Still, I admit that insight is less often present consciously in psychotics than in others. Naturally there can, by definition, be no conscious, critical insight into well-formed delusions. This absence of criticism is the result of the alterations in the ego to which I have referred, and to which I shall return again later.

I am not emphasizing diagnostic points, because I think the pigeon-holing and labelling part of psychiatry is rather a clinical than a psychological matter—a study of visible results rather than of underlying mechanisms which take so much longer to discover. In practice one switches one's mind from one to the other, and I am not sure that they are mutually helpful. Personally I have never regained the diagnostic confidence I had during my first few weeks at a psychopathic hospital at which this was stressed, when I was quite inexperienced, and was not distracted by other interests from observing the differentiating signs I had read up. However, in early cases, if we would recognize tendencies before outspoken manifestations have occurred, we must rely chiefly on psychological investigation. It is useful, too, in the matter of prognosis and in deciding whether a psychotic case is one in which psychotherapy is worth attempting. In this I think one would be inclined to attend more to the possibility of engendering some insight to work on, conscious or preconscious, than to the transference, provided that that were not too hostile or suspicious, because it is on the ego that the brunt of the disturbance falls.

Psychological considerations, also, would be used to recognize a combination of psychotic and psychoneurotic components in

the same case, as well as deciding whether this is a possibility. That is a matter about which opinions differ among psychoanalysts as well as other psychiatrists. I hold that such a combination is both possible and not uncommon, and that the same patient may at one time show a predominantly psychotic, and at another a psychoneurotic type of reaction, while sometimes the disturbing factors may be repressed or neutralized by sublimation or other phenomena of character-formation without symptoms. Mixed cases imply libido-fixation at more than one level. This is discovered by analysis in many patients, especially in their character components. It must be distinguished, however, from regressive re-cathexis (re-charging) of early developmental layers which occurs in various conditions (e.g., physical illness), and always during the progress of an analysis which is at all deep. Examples of combined types are: Manifest tic with latent paranoia, conversion hysteria in combination with various psychotic conditions, an anxiety neurosis developing from the suppression of manic outlet. True, tic has some psychological characters in common with paranoia and the last is not a good example, for anxiety does not denote any special fixation, and symptoms in general are employed to quiet it. I quote it because in the case I am thinking of the changed condition was so clear and occurred under the influence of transference.

The contrary view would, I fancy, hold that the indications of psychoneurosis in a psychotic (or *vice versa*) are apparent only—just as a hysterical paralysis may ape a peripheral nerve lesion. This is indubitably true sometimes—for example, the behaviour of a dementia præcox may look very obsessional without his having obsessional neurosis, and both use ceremonials. Moreover, when we diagnose early præcox as hysteria, it is not usually that a hysteria has changed into a præcox, but that we have made a mistake.

Admitting true combinations, they might be explained from the libido side metaphorically somewhat as follows: An early fixation involved some libido, but a certain amount escaped. This did not all reach complete development, but some got caught up at a higher stage and is producing symptoms at that level. It should be remembered that fixation points are not absolute developmental blockings, but exaggerations or "sticky places," to which the organism regresses under stress; also that libido is conceived quantitatively as well as qualitatively. We have no means of measuring it, but by long analysis we get an impression of its intensity and concentration.

Among the psychoneuroses and between character and symptom formation (in both groups) mixed cases are commoner than pure cultures, so that the same is theoretically possible between the

psychoses and neuroses. It is rarer because, possibly, of the greater amount of libido which seems to be involved in a psychotic fixation, and the more massive and relatively "all or none" mode of reacting. This might be a point worth going into.

To return to the question of insight from which I digressed, its absence from consciousness depends, I think, on a change in the critical ego, but this conscious blindness seems sometimes to be combined with preconscious or unconscious sensibility. Some paranoids possess a good deal of intuition. They often consult doctors spontaneously about their troubles, which, rightly, according to them, should concern lawyers. Some, too, seem to have insight into the psychology of others, and a power to interpret symbols and dreams of other persons which is very interesting. Psychoneurotics on the other hand, may be very blind to what goes on below the surface. Though I would not go so far as to bring forward this matter of conscious insight with preconscious lack and *vice versa* as a distinguishing feature between our classes, it does seem that the whole question of insight is more complex than at first appears.

A difference I would suggest as generally characteristic is that, in the psychotic changes in the ego permit repressed matter to be manifest for external inspection, such as symbols and other mechanisms, that in psychoneurotics are hidden, and only discoverable by the laborious method of analysis of dreams and phantasies, and thus arouse incredulity in non-analysts. It would be extremely interesting if some *verbatim* reports could be made of the contents of hallucinations and delusions to compare with dream analysis. I will quote two short examples. Freud describes the use of puns in unconscious associations. I remember a chronic melancholic who maintained that she caused the war because her name was Mrs. Germany. Moreover germs cause disease, and she was "Germ Annie."

Another woman gave me in a few short sentences a veritable epitome of Freud's theory of the regression of object libido. She was a deteriorated case who lay on a mattress and was incontinent of fæces and urine, and whom I had never before heard speak. One day she stared fixedly at me and said in tones of increasing ecstasy: "You're my husband. No you're not, you're my Master, Baden Powell. No you're not, you're Myself; I love you." She then pointed to her own eyes, nose, mouth and cleft in lip to show how alike we were. Having regressed to a vegetative, auto-erotic existence, she made, apparently, a jump forwards to an adult hetero-sexual attachment, fell back to a father-fixation, and then to a narcissistic homosexual level, at which she stayed for a bit. And all this practically in one breath!

From considering this accentuation of dissociation and projection rather than repression and distortion, I would like to bring forward and compare tentatively, for purpose of the discussion, another aspect of defence apparatus. The defence of the psychotic ego against disturbance caused by readmission of the dissociated or by intrusion from persons or things in the environment seems very strong, almost impregnable—much stronger than any single defence mechanism in a psycho-neurotic or even, though to a less degree, a character. This may be because the ego is too feeble to stand even quite mild tension and shrinks away or because the amount of libido involved at one place is so great that the subject would be overpowered by its release or from both causes together. In addition, it may be—though I suggest it only tentatively—because the mechanisms which the forces of resistance use to defend the ego from being disturbed by what is repressed and unconscious are fewer in number. Hence they must be very strong, for if one gives way, the whole psychotic structure may break down, and the ego be confronted with the original conflicts that caused the trouble without having gained any increased tolerance. (It is as if in the psychoses all the eggs were put into about half-a-dozen iron safes, and in the psycho-neuroses they were divided among more than a score of wicker hampers! I think this aspect of strength *versus* number is well worth thinking about when we study the psychology of various disorders, but it differs in degree among different types and individuals. I feel personally uncertain whether it should be regarded as a factor in our present grouping, or whether, as was suggested at the meeting, a classification on these lines might not cut across our categories. I can only say that the best examples I can think of of the "iron safe" type are among psychotics, and of the "wicker hampers" among the neurotics.)

The contrast was illustrated by two patients, both suffering from anxiety and having other superficial resemblances. Actually they were absolute contrasts. One was probably an early psychotic, and the other an anxiety hysteric who was about as far removed from psychosis as can be. Yet in the content of their mental processes there were striking points of similarity. Both had exhibitionistic tendencies (more repressed in the psychoneurotic than in the other, who had apparently sublimated successfully before his breakdown). Both had urinary phantasies and incest conflicts in the unconscious, and even used a similar phallic symbol (the nose), though in one it formed a delusion and in the other an association to a dream. The delusion always underwent hyper-cathexis after the patient had spoken of some actual sexual worry. In the psychotic these various

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themes were evident in his life. There was a gallant, lover-like relationship to his mother, business success and happiness after his father's death and a conscious guilt-feeling about the happiness. The death had occurred shortly before his first breakdown. In his dreams there were manifest, instead of disguised, representations of crude instinct activity, such as urinary exhibitionism and incest, yet in ordinary life he was refined and sensitive, although he had become somewhat careless in his habits. It would have been very difficult for this patient to have been brought to realize interpretations sufficiently gradually to avoid excessive anxiety, and I failed to hold the case. Had I done so he might eventually have made a favourable response. His attitude, however, was one of fear and hostility; he attended very irregularly and soon broke off treatment. The hysteric, on the other hand, has behaved so far almost as a model patient. His difficulties are unfolded gradually, layer by layer, with some emotion, but no very alarming disturbance. His defence mechanisms are not too strong, but they are numerous, and the transference is mainly positive, but not too exuberant.

(The therapeutic test is relative only. "Wild analysis" with too vigorous uncovering is dangerous in all cases, whereas skilful handling may deal successfully with very explosive types. It seems, however, that the margin of safety is greater in some than in others, and I would suggest greater, as a rule, in psychoneuroses than in psychoses.)

Another case, not analysed, but reported verbally to me by Ferenczi, was a paranoiac who read something about the relationship of paranoia and homosexuality, and, after a while, apprehended it personally. He was at first pleased and interested, and then suddenly regressed to acute katatonia. Such a result from a merely intellectual approach could hardly occur, I think, in a psychoneurotic. I might mention a rather more fortunate illustration. A paraphrenic, either through the treatment she was having or through the natural course of the disease, seemed to have gained some understanding of and tolerance towards her internal complexes. One day I asked her if the voices she heard were like her thoughts. The effect was dramatic. She burst out laughing and called out excitedly, "Do you mean that they don't come from there at all" (pointing outward), "but from here"? (hitting her chest) And though I expressed myself as uncertain, there was marked improvement followed rapidly by acceptance with cure or recovery.

I now come to the vexed question of *transference*—a phenomenon so common in the psychoneuroses that they have been called "transference neuroses." It is sometimes said that psychotics do not form transferences. I cannot understand this, for that they

do seems obvious. Patients in mental hospitals continually become attached to members of the staff of the same or opposite sex, write them love letters, see resemblances to persons in the past, and so on. There is a difference, however, brought out especially by psychotherapy. In the case of psychoneuroses the conflicts are, by means of transference, worked through in the analytical situation. This seems to happen much less in the psychotics. Two possible explanations occur to me which are not mutually exclusive. First, that much of the transference is in the form of a narcissistic identification, as described by the patient who said, "You are myself; I love you." This is a hindrance to treatment, for the physician is introjected into the mental world of the patient and becomes part of him. Secondly, when real object-love occurs, it may be confined to the utilization of free libido, not involved in the psychosis, and therefore the origin of the symptoms is not discovered by analysing the transference to the extent it is in psycho-neuroses. It is therefore less therapeutically important, though sufficient friendliness is necessary for the patient to discuss his symptoms and perhaps to make some alterations to please the analyst. When mentioning transference in psychotics, it should be noted that their destructive tendencies often make it hostile.

In conclusion I would say a little more about the *character formations*. I have referred to "normal" character as including both those reaching an ideally complete development and those making adequate adjustments at other levels. In addition there are abnormal personalities, perhaps suffering more distress than many with outspoken symptoms, who cannot properly be described as definitely suffering from either psycho-neurosis or psychosis. These abnormal character types are of innumerable varieties, and include, for example, cases of general inhibition or inability to carry through intentions, timorous persons without actual phobias, "difficult" people, paranoid types, cases who repeat throughout their lives the cycle of short-lived success followed by failure (*e.g.*, fortunes or friends made and lost). I do not know whether to include cyclothymia, as it differs only from manic-depressive psychosis in degree. Perhaps the latter might be classed as an extreme character abnormality?

In considering abnormal character formations, the outstanding difference from the other two groups seems to lie in the circumstance that in the latter the trouble is more circumscribed, gathered together and encapsulated as symptoms, while in character states it is diffuse. We can liken symptoms to abscess-formation and the character conditions to a general toxæmia, while multiple symptoms (such as phobias) would be represented by metastases or pyæmia.

In practice we do not find such absolute differentiation as I have imagined for descriptive purposes. No person with pronounced symptoms can have an entirely normal character psychologically, for the existence of deep disharmonies of the instinctive life prevents it, nor is it probable even from a more superficial, pragmatic point of view, nor do we find abnormal characters entirely without circumscribed symptoms. It is not uncommon, however, for a person with serious symptoms to be otherwise pragmatically well adjusted and efficient, or for a pathological character to have few and quite mild symptoms.

As types to illustrate my thesis I quote a patient who had localized her intense conflicts to such an extent that though her phobias (trains, knives, etc.) were very severe and of long standing, the main character was quite exceptionally well adjusted, though some even of the adjustments showed that they had their source in the conflicts. Had she, without resolving her conflicts, failed to segregate the trouble, it is improbable that she would have managed so satisfactorily (when she was not actually in the throes of the anxiety) for herself and others. I compare this case to one who, though she achieved much with her life, was continually up against internal difficulties, disharmonies and fears, and yet was practically without localized symptoms. Among psychotics the most striking examples of localization are seen in paranoia—the “monomaniacs” of popular conception. I compare, for instance, the typical dissatisfied, disgruntled paranoid personality with a lady I saw in a hospital abroad who, though poor and unattractive, was happy in her certainty that she was really a beautiful princess, but spoke of it as little as most people do of their private beliefs. She slept in an asylum, but had parole, and being liked by children, earned a little money by taking them for walks.

In some cases, such as chronic paraphrenias incessantly preoccupied with their delusions, or even possibly some cases of dementia præcox (though perhaps I am here trying to apply a theory more than the facts warrant), it seems not impossible that the trouble may appear more diffuse than it really is, perhaps because the symptoms are so overcharged with libido that the rest of the personality has become weak and unimportant. When some event such as physical illness alters the centre of gravity striking temporary improvement may appear. There is a further distinction that I would like to bring forward between pathological characters and psychoses, in both of which the brunt of disturbance affects the ego. The character case is in closer touch with reality (and hence more essentially “sane”), and tends to work off his conflicts by outward behaviour, in relation to real life, whether wisely or foolishly.

The psychotic, on the other hand, tends to shut out life and deal with conflict through symbols and phantasy. There are exceptions, as in characters absorbed in day-dreams or aggressive paranoiacs, but it is, I think, true in a general sense. Psychotics often attach to symbols a feeling of objective reality, as in those schizophrenics who play with words as if they were material objects.

May I, finally, draw attention to one more psychological mechanism which interests me, and whose relative importance in our grouping might be worth considering—namely what Freud calls the “Wiederholungszwang,” or *repetition compulsion*. It is related to habit and also to repetitions involving part processes such as stereotypy, but the form I am thinking of is not identical with this, nor with the artificially induced repetitions in relation to transference which occur during psycho-analytical treatment. I mean especially those mass repetitions which involve the whole personality. Such, for example, are those cases where new situations evoke the same response which was called up by previous events to which they have some, perhaps quite slight, associative resemblance, with little regard to the present usefulness of the response, although it may have been appropriate at some early time when it was first called forth. It is doubtless related to excessive activity of the simpler conditioned reflex mechanism. It may remain an impediment to cure after the early origins have been uncovered, and, according to my observation, insight into it is usually poor.

Repetition compulsion seems to be more active in abnormal states generally than in the healthy, the latter being characterized by ability to make new adjustments. Whether, beyond this, it fits as a special characteristic into either of our three groups is more doubtful. Personally I am inclined to think that, on the whole, if not actually more prevalent it is of most importance and prominence in ego abnormalities (psychoses and character formations), and particularly in character formations where, indeed, it may form the chief reason for calling the condition abnormal. However, the chief differentiating feature I would bring forward in relation to characters is diffusion and the tendency for mass reaction of the whole ego. In psychoses there is greatest mass or “all or none” reaction as regards libidinal intensity; in characters, as regards extent of personality involvement.

The discussion which followed the reading of the preceding paper raised, among other things, the question of *sublimation*, and it seems advisable to add a few remarks on this. Sublimation, in my opinion, belongs to character formation, and is in itself non-pathological. This does not preclude its being present in disordered

persons, as indeed it often is, just as other non-pathological processes may be going on. The mind is hardly ever so out of gear that every part of the psychic mechanism is involved. Individual capacity to sublimate, however, varies, and if over-taxed this may contribute to breakdown.

Clinically, sublimation is not always easy to distinguish from its opposite, reaction formation, and some confusion between them was perhaps present in the discussion. Reaction formation is closely related to all types of abnormalities, whereas sublimation is not. Sublimation means that instinctive impulses after temporary inhibition are now unrepressed, but are finding their outlet in non-sensual forms approved by the super-ego. Reaction formation implies that impulses are kept unconscious by means of repression, and that the repression is being assisted by the exaggeration in consciousness of opposite tendencies. In the "sane" enthusiasts spoken of in the discussion, the source of the enthusiasm is likely to be chiefly sublimation, and in the fanatics chiefly reaction formation. The career of social worker comprises persons illustrating both types. There are those who have sublimated their love impulses into love of humanity and desire to spread happiness. There are others who have repressed sadistic tendencies and adopted social service as a reaction formation, which yet allows some indulgence of the repressed tendencies in disguised form.

FURTHER CONTRIBUTIONS TO THE TREATMENT OF EPILEPSY.

By JOHN P. STEEL, M.D.,

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IN an earlier article (*vide* p. 107) a preliminary report was made on the treatment of epilepsy by peptone, *B. coli* and papaverine sulphate; in the intervening months extended opportunity has arisen for comparing the various methods of treatment and endeavouring to form some opinion of their efficacy.

Before quoting any records it is opportune to say that practically every case has been treated extensively with the ordinary medicines, and that nearly every one has had long courses of luminal. Latterly we have been using the equivalent product gardenal.

A further point to mention is that elimination has been carefully watched, and toxic foci have been remedied as far as possible. From time to time the ketogenic diet has been tried on patients not included in the present series; others have been treated with gardenal alone; and, where there was any indication, isolated cases have been treated with endocrines. An endeavour has been made to have as large a number of "controls" as possible, although it is a truism to say that no two epileptics are alike.

Wherever possible, our plan has been to cut down the amount of luminal administered, and to treat first by peptone; if no real benefit has been derived, then *B. coli* is injected; and only in the most intractable cases is papaverine sulphate given.

PEPTONE TREATMENT.

"Armour's No. 2" 5% peptone has been used, and the course has been made to last a month by weekly subcuticular injections. The dosage for the first series of injection has been the same for both males and females, commencing with $\text{m}\nu$, and increasing by this amount for the following three doses. At least a month's rest has been allowed before a second course has been started, and this has a commencing dose of $\text{m}\times$, and three further doses of $\text{m}\times\text{x}$. Any subsequent course has consisted of four injections of $\text{m}\times\text{x}$.

No reaction in temperature has ever been found, and skin reactions are rare, and by no means difficult to deal with.

As stated, at least one month's rest is given after each series of injections; one has taken as an indication for a further course the increase of fits up to the lowest level that was normal prior to peptone treatment.

During the whole of the treatment by peptone, gardenal (or luminal) has been continued, but in much decreased dosage.

Results are shown in the following table :

Sex.	Number of patients.	Decrease in fits per month.					Increase in fits per month.					No change.
		1.	2.	3.	4.	5.	1.	2.	3.	4.	5.	
Male	14	..	3	..	I	2	I	I	I	..	..	3
Female	20	6	3	2	I	..	I	2	I	..	2	I
	34	6	6	2	2	2	2	3	2	..	2	4
<p>In addition, two males have shown decreased fit-incidence of more than 5, and one female has shown an increase of more than 5.</p>												

Some explanation of the table seems essential. In the first place the fit-incidence has been averaged over the longest possible period of time prior to the peptone treatment, and the average has been taken at a low figure; it is not suggested that the results should be better; they are given as a true comparison.

There have been no cures; only two epileptics have been discharged, and both had a low fit-incidence. Neither was treated with gardenal, but they had a course of peptone. Recent reports suggest they are doing fairly well, in spite of the discontinuance of treatment by peptone. It is reported that their fit-incidence continues below the previous normal level.

It is impossible to say definitely which cases have reacted well to peptone; if one were to generalize, it might be safe to say that the younger case had shown a slightly better result. In fact, only one case over 40 years of age has shown a decrease under peptone, and she, prior to fits, always exhibited an urticarial rash around the base of the neck.

There has been a slight tendency for the fit to change from the major to the minor type in several cases, but there is no suggestion (apart from the two cases discharged) that the peptone treatment has in any way lessened the mental impairment so prominent in the insane epileptic.

Whilst figures are the basis on which one must assess demonstrable results, another factor has to be considered; with each succeeding year of exhausting seizures the epileptic tends to drift into dementia which may be accompanied by an increasing fit-incidence, or by a pre-epileptic irritability, which causes difficulty from the hospital point of view. From this aspect, the peptone treatment has seemed to have some real success; the "manageability" of the patients so treated has very markedly increased, and disagreements between them have become exceptional.

B. coli TREATMENT.

Where patients have not reacted to peptone, or where its effect has not been sustained, intravenous injections of *B. coli* have been tried. The same routine in regard to the length of course has been carried out; a reaction has been sought, but in few cases has it been obtained, and a detoxicated strain has always been used. Somewhat large doses have been given, the first series ranging from 25 to 100 thousand millions, with an increase for following courses.

No ill-effects have followed the treatment.

Sex.	Number of patients.	Decrease in fits per month.				Increase in fits per month.				No change.
		1.	2.	3.	Over 3.	1.	2.	3.	Over 3.	
Male	8	1	1	1	2	..	..	1	1	1
Female	4	..	1	..	1	..	..	1	..	1
	12	1	2	1	3	..	..	2	1	2
<p>Of the patients showing a decreased number of fits, two showed an increase in fits under peptone, whilst one reacted fairly well to peptone, but more satisfactorily to <i>B. coli</i>.</p>										

Only twelve cases have been treated by *B. coli* for a sufficient time to quote results. Unless there are special indications, the usual way of treatment is to try peptone first, and to go on to *B. coli* if there is not a real improvement after a trial extending over five or six months.

Certain patients probably derive benefit from peptone, but become immune to the non-specific protein desensitization induced; and it would seem that the injection of the detoxicated strain of *B. coli* carries out a further desensitization. Other cases show definite evidence of toxæmia, acneiform eruptions being most commonly met with, and the ordinary methods of intestinal disinfection

do not seem to have much control over the *B. coli* content of the fæces. In such patient there is a marked improvement in the health of the skin and alimentary canal under *B. coli*, together with a decrease of fit-incidence. One such patient has had his fit-incidence cut in half, and is now up and about most days, instead of spending more than half his time in bed in a stuporose condition. From this point of view at least the extra trouble of the treatment has been well worth while.

PAPAVERINE SULPHATE TREATMENT.

Where no benefit has been derived either from peptone or *B. coli*, or where the patient will not suffer injection methods, a solution of papaverine sulphate (gr. 1 to $\frac{1}{2}$ oz.) is given. No gardenal is given with it, and the patient has to be watched for the onset of a mild stupor. The action of the drug seems somewhat remote, and cumulative. It is said to act on hyper-excitable nerve-endings; it is only given to such cases as do not react to luminal, peptone or *B. coli*, and is sometimes used to take the place of the standard bromide and borax mixture.

Two demented female epileptics have shown quite a good tolerance, with a decreased fit-incidence, but neither was able to stand any dose of luminal, and both were too violent for either peptone or *B. coli* treatment. Under papaverine they are more tranquil, have fewer fits, and show less tendency to relapse into stupor. In each case, the pre-epileptic period is less troublesome.

CONCLUSIONS.

Unfortunately, none of the methods of treatment have suggested a cure for epilepsy; from that point of view they are a disappointment. They entail a considerable amount of additional work, which is recompensed by the greater well-being of the patient, and a slightly diminished number of fits. As shown, only two cases have been discharged, and in each case epilepsy was the physical basis of the insanity, rather than the immediate cause of certification.

It is, perhaps, a fair summary to say that the patients treated are those who did not react sufficiently to any treatment; some are well on the way to dementia and are never likely to be able to resume normal lives. Syphilis has been definitely negated in all and they can be classified as true epileptics. One feels that, as a result of more than a year's experience of the various methods, some improvement has been found in health and behaviour, making hospital routine easier, and delaying the onset of the last stages of dementia.

It is hardly fair to pick mental hospital patients as representative epileptics; peptone has been used by one or two outside physicians in cases of mild epilepsy, and they say that they have seen some definite benefit in certain cases. They, also, are unable to say in what class of case such treatment may be expected to be of use.

One can say with safety that despite the reduction of the amount of gardenal exhibited, patients treated by peptone or *B. coli* are, on the whole, more tranquil and less liable to the irritable states which either replace or precede the true epileptic attack.

I am again indebted to the Medical Superintendent, Dr. H. G. Drake-Brockman for permission to quote work done in the hospital.

ON CORPER'S NEW CULTURE METHOD FOR THE TUBERCLE BACILLUS.

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THE recent articles by Corper on a new method for the cultivation of the tubercle bacillus have stimulated interest in what has always been a difficult and tedious performance. Since cultural methods hitherto have not been much more delicate in the detection of tuberculosis than the microscopic examination of smear preparations of sputum and tissues, the latter has remained the popular choice, especially in ordinary hospitals. The guinea-pig inoculation method is unhandy and too expensive, and in any case detection of the bacilli in the inoculated animal has to be done by a microscopic smear preparation. The examination of smears of sputum and tissues seldom gives positive results in those cases where doubt exists. A negative result from a microscopic examination of a smear cannot be relied upon.

A new method, therefore, that is delicate and inexpensive and bears favourable comparison with the guinea-pig inoculation is of the greatest service. In mental hospitals the need for an accurate diagnostic method for tuberculosis has long been felt. Many patients either refuse or cannot give an account of their illness, neither can they cooperate in ordinary examinations. These are often the very patients who contract tuberculosis, so that a means of culturing the tubercle bacillus is of utmost importance.

For the past six months we have used Corper's method in this hospital with the greatest success. We have not once failed to cultivate the tubercle bacillus in a sputum that was known to be positive, while we have been successful in cases that were returned negative by the direct smear. The method(1) is as follows :

"The sulphuric-acid potato method for isolating or detecting tubercle bacilli consists essentially in taking a 1 c.c. specimen (whether sputum, urine or tissue), beating it to a homogeneous pulp and introducing it into a sterile 15 c.c. centrifuge tube with 1 c.c. of 6% sulphuric acid (prepared by cautiously adding 17 c.c. of 95-96% sulphuric acid, specific gravity 1.84, to distilled water

of 500 c.c. final volume). After thorough mixing, the tube, stoppered with a sterile cork, is incubated at 37° C. for thirty minutes, being shaken frequently during this time, after which the contents are diluted with about 10 c.c. of sterile 0.9% NaCl solution, well mixed and centrifuged. The supernatant fluid is decanted and the residue seeded on the surface of the crystal violet potato medium, the culture-tube being capped with tinfoil after the cotton plug has been impregnated lightly with hot paraffin. The medium is prepared by cutting large clean peeled potatoes, free from surface defects, into cylinders about 3 in. long and $\frac{5}{8}$ in. diameter. The cylinders are halved longitudinally and immediately soaked in 1% sodium carbonate solution containing 1 : 75,000 or .0013% crystal violet (the dye and sodium carbonate should be mixed just prior to use to prevent decolorizing) for from one to two hours. After this the cylinders are gently wiped off with a clean towel, and are introduced into a sterile culture tube (6 in. by $\frac{3}{4}$ in. in size), containing 1.5 c.c. of 5% glycerol broth, cotton plugged and sterilized in an autoclave at 15 lb. pressure for at least thirty minutes. Excessive or prolonged heating is to be avoided. After incubation on this medium for from two to six weeks a luxuriant elevated growth of tubercle bacilli becomes visible when positive."

A great advantage this method has over Petroff's is the short time taken for the tubercle bacillus to appear. In none of my cases has it been longer than three weeks; in some it has been as short as ten days. This is much in advance even of the guinea-pig inoculation method. Some of the tubes show a luxuriant growth, and for purposes of photography and museum specimens we have secured sub-cultures that are even more luxuriant.

We have also been successful in cultivating from infected supra-clavicular glands, from which carefully prepared smear preparations gave no positive results after long searching. Both tubes inoculated became positive on the twenty-first day. Never before have we detected the tubercle bacillus in such glands. The pus from a discharging hip sinus has also yielded positive results.

Mental hospital patients often refuse to use a sputum cup and swallow all the sputum coughed up. In these cases one must rely on methods devised for the detection of the bacillus in fæces. In this hospital we have used the direct smear method and the ligroin method for twelve months with excellent results. This latter method is used in pulmonary cases who are passing normal stools, and not only in those with diarrhœa of tubercular enteritis. Corper makes no mention of employing his medium for fæces, but we have tried it here with varying results. We recovered the tubercle bacillus from a specimen of fæces which had been mixed with a little

of a tubercular culture. In fæces, however, the contaminating organisms are multitudinous, so that the specimens require much longer treatment with the sulphuric acid. We have not yet had a tube that showed no contaminating organisms, although on a number of occasions isolated colonies of the tubercle bacillus have appeared on the potato. It is certain that slight modifications of the Corper method will give satisfactory results, and at present we are experimenting on these lines.

I am indebted to Dr. Clark, under whose supervision this work has taken place, for permission to publish the results.

Reference.—(1) Corper, H. J., "The Certified Diagnosis of Tuberculosis. Practical Evolution of a New Method for Cultivating Tubercle Bacilli for Diagnostic Purposes," *Journ. Amer. Med. Assoc.*, 1928, xci, No. 6.

ON SEX VARIATIONS IN EXCITATION PROCESS COMPOSITION.

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PHYSIOLOGISTS, when experimenting with the frog, customarily make selection of one sex. This, being done to ensure constancy of experimental conditions, presumes the possible existence of a sexual modification of results—a presumption I find justified, for, having over many years simply selected the frog of largest size, which one day was male and another female, I can record the following variations of results according to sex.

First I would describe certain sexual differences in the reactivity of the spinal cord which I found in the course of experiments on fatigue (1). The preparation used consisted of the two hind legs in full nervous connection with the spinal cord, enough of the "back" being preserved to make possible easy fixation of the preparation to the usual cork block. The operative steps germane to the present description were: (1) decapitation and evisceration; (2) pinning of preparation to cork block; (3) insertion of cannula into the aorta; (4) making a "window" in the skin over the Achilles tendon and thereby exposing it.

The experiments were begun in June, and a couple of pins at the head of the spinal column then gave adequate fixation, and remained adequate up to the end of November. Then, one morning when using a male frog, making the "window" was followed by a strong tetanic spasm of the whole preparation. The back "arched" so strongly that the fixing pins were pulled out and the cannula smashed. The broken cannula having ruined the aorta, another frog was taken, again a male. Window-making being succeeded by another broken cannula, a third trial had to be made, this time with a female frog, and successfully.

I soon found that male frogs broke cannulæ and females did not, so long as I kept the two-pin fixation, so I simply fixed male frogs firmly enough to prevent the back from "arching." Spasm production through window-making in male frogs persisted through the winter to the end of the breeding season, after which both sexes behaved alike.

No investigation was made into the cause of this difference,

though I would suggest it was probably due to an earlier recovery of the male from spinal shock. The time taken to reach window-making was probably fairly regular, and it possibly just happened that this was long enough for the cords of males to recover from shock, but not quite long enough for those of females.

Sex differences in the physical properties of the aorta were also found during these experiments. Compared with that of the female, the aorta of the male is brittle. To insert a cannula, for example, one first makes a small "window" in the aorta, and then, holding the vessel slightly taut with forceps, pushes the cannula through the "window." When the frog was male one had to be very careful about the amount of tension exerted through the forceps, or else the aorta snapped. Also one had to be very careful in pushing the cannula through the window, or else the aorta was ploughed up.

The next sex difference to be described was found in the heart. For more than a year the first experiment of the day done on perfused hearts was to send through them a Ringer, of which the KCl content was increased to 0.2%, the normal being 0.03%. This solution, thus enriched in KCl, normally arrested the hearts in diastole. Beating re-started after washing out this solution with ordinary Ringer, and thereafter the hearts were used for other experiments.

But just before and during the breeding season the Ringer with extra KCl produced a contraction, of the type termed by me tonic(2), in the hearts of male frogs only, those of female frogs being arrested, as usual, in diastole. I found also that the blood of male frogs clotted more rapidly than normal, as shown by the formation of clot in the perfusion cannula, at the season the KCl-enriched Ringer produced contraction.

I next found it possible to produce a contraction, by means of this Ringer with extra KCl, in any heart at any time. The necessary condition was to previously perfuse the heart with a Ringer enriched in Ca, and then to perfuse the Ringer with extra KCl directly after. Now, the perfusion of the Ringer with added Ca must have temporarily enriched the tissues in Ca, and accordingly the hearts of male frogs at the breeding season must be richer in Ca than those of females. A similar reason for the earlier recovery from shock, in accord with the theory of the nature of shock previously given,(3) as well as the increased rate of blood coagulation, can be submitted.

I draw from these experiments the conclusion that sexuality exists in all organs, and that maleness implies a greater degree of calcification than does femaleness. In animals with a breeding-season, such as the frog, preparation for that season includes for

males a calcification, and probably for females a decalcification. On the other hand, in the human race the differences are probably always present.

Reverting now to previous work on the composition of excitation processes, it can be appreciated that we are here provided with evidence that male and female excitation processes differ in composition, those of males containing more Ca, or ions, than do those of females. That is to say, in the fundamental equations—

$$x + y = \frac{C}{2}, \text{ and}$$

$$h + l = T, \quad (3),$$

maleness implies a shift of balance to the ionic side, or a greater normal proportion of x or h , whereas femaleness implies a shift to the colloidal aggregation side, or a greater proportion of y or l .

This result may now be briefly applied to a consideration of sex behaviour. We will assume that a male and a female, having framed cerebral excitation processes of equal size, meet conditions of stress. To weather that stress, the excitation processes in action at the start must be able to continue in action. The stress, however, is a force tending to deflect the machine from the course set by its excitation processes, and my work with drugs shows that a machine with excitation processes of female quality would be more readily deflected from a set course than would a machine with excitation processes of male quality (3). The male can win through where the female fails because his excitation processes make him a stubborn brute.

Next, it may be noted, female excitation processes having more feeling than male, the female lives, as it were, nearer to the subconscious. When, for example, both frame judgments, the male will have less feeling of the thing to be judged, but will judge better what he has felt—possibly an important point in deciding reliability of testimony. The result here is possibly another method of inferring that men judge logically, and women by intuition.

As regards control of behaviour, it should be observed that Ca antagonizes the development of colloidal change. The male, therefore, should possess more capacity to control his emotions than the female.

The deduction of other differences of sex psychic life from differences in the composition of excitation processes can be left to the reader. I would point out, however, that a consideration of sex differences of behaviour would have led to the conclusion that there existed a sex difference in the composition of excitation processes. But since I had at my disposal the evidence that sex difference of behaviour existed in blood, heart, and brain, and the evidence

in the case of the heart, that the difference depended on excitation process composition, it seemed better to argue forward than back.

In conclusion, I would draw attention to the saving clause above—"of equal size." It indicates the possibility that a female could frame excitation processes which, while remaining essentially feminine in quality, could be more masculine, or reliable, from its very size than an essentially masculine, but smaller, process. Such cases, however, are probably exceptional. It seems more likely that male processes, in general, possess greater size as well as a different composition.

SUMMARY.

The evidence is presented that sexuality is probably a quality of all tissues, and that it implies differences in excitation process composition.

The differences found in excitation process composition are then applied in explanation of divers sex differences of psychic life.

ADDENDUM.

It is, perhaps, worth while to draw attention to the fact that the factor y in our equation includes the quantity and quality of adsorbed K salts, quality being a matter of chloride and phosphate balance. It may be prejudice on my part, but, having often experimented with hearts after ensuring chloride over-balance, I have always regarded their behaviour as feminine because one never knew what they were going to do next. One could rectify this behaviour through Ca, or phosphates; also, one never got this waywardness of behaviour after phosphates. It seems possible that some day we may also find a sex difference of chloride and phosphate balance.

References.—(1) Burrige, *Journ. of Physiol.*, 1910, xli, p. 285.—(2) *Idem*, *Quart. Journ. Exper. Physiol.*, 1912, v, p. 347.—(3) *Idem*, *Journ. Ment. Sci.*, July, 1929, lxxv, p. 375.

ON THE EXCITATION PROCESSES OF LOVE, FANATICISM, ETC.

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In the present communication I propose to consider the nature of the excitation processes mediating the thoughts of people, met with in all walks of life, who are distinguished from others by their enthusiasm for certain things, or ideas. For example, the person in love is distinguished from others by his, or her, enthusiasm for a particular individual of the opposite sex. The process of developing that enthusiasm, or of falling in love, I take to be a perfectly natural process to which everyone is susceptible, but, love being blind, it becomes of interest to consider how that blindness is brought about.

We turn first to our fundamental equations—

$$x + y = \frac{C}{2}, \text{ and}$$

$$h + l = T$$

where x , or h , represents ions, and y , or l , represents the state of colloidal aggregation, and note that these equations indicate that a response of a particular size: T , say, can be built up from any one of an infinite series of excitation processes, differing only in the proportions of these two constituents (1).

Love, as an emotion, is chiefly mediated by colloidal change (1), and accordingly any psychic activity associated with it must be based on excitation processes in which colloidal aggregation change plays a greater part than normal. That is to say, when A loves B, A's cerebral excitation processes mediating the idea of B will be founded on a greater degree of colloidal change than normal. It seems also reasonable to assume that the more A loves B the greater will be the colloidal element in A's excitation processes mediating the idea of B. But, in accord with previous work (1, 2), so long as the sum-total of these excitation processes keeps within normal limits, there must come a time when increase on the colloidal side must be balanced by a decrease on the ionic side. This ionic part, however, mediates judgment capacity, or reasoning power (1), so that the greater the love the blinder it becomes. At the same time,

if there be great and small minds, as is indicated by the value T , it should be possible for the possessor of the great mind to love as intently as the possessor of the small mind and yet remain relatively reasonable.

The consummated marriage stands for love, I take it, in the same relation as Jung's abreaction stands to an expelled memory (2). Both types of emotional disturbance become more "ionized" with their consummation (2), this "ionization" serving to restore an expelled memory to consciousness, and to permit of reason being applied to the emotion. The "disillusions" of marriage thus emerge as dependent on alterations in the quality of excitation processes.

The fond parent's affection for the child, it is to be suggested, must similarly decrease judgment capacity.

The fanatic, I next suggest, whether political or religious, frames excitation processes similar in quality to those of the lover to mediate the idea of the object of fanaticism. To the fanatic the beauty, truth, etc., of his particular fancy is something above reason, simply because, in the excitation processes mediating the idea, there is not enough scope for that part of excitation processes which mediates reason. The excitation processes are so constituted as to leave him only with a perception of a feeling. He "feels" that this idea must be true. Given next an individual framing excitation processes of this abnormal quality about a religious idea, but yet framing processes of normal quality about more mundane things, it is not to be wondered at that, finding himself able to exercise the faculty of reason on mundane affairs, but not in the realm of religion, he is led to believe that his religious idea is a revelation.

These ideas are, of course, in the region of the subconscious, so that training, or continued practice, may well account for the transformation of such ideas from the reasoning conscious to the feeling, or subconscious (1). At the same time one has to consider the probable existence of great and small minds, indicated by T having a value, and realize that equal amounts of training given to a small and a great mind respectively would transform the small mind into the fanatic, and leave the great mind still reasonable.

Now, the religious enthusiast and the lover are people that cannot argue nor listen to reason. They have a feeling which tells them you are wrong whenever you disagree with them. They are, in fact, optimists incapable of applying reason, or enough ions, to the subject of their optimism. Accordingly, I have to suggest that unreasonable exalted people probably possess excitation processes

of the quality just indicated. Pessimists, however, probably belong to a different class.

Compulsion neuroses, being dependent on a "feeling" without reason, are also probably mediated by excitation processes similar in quality to those described above, the extra aggregation change being probably derived from cells with expelled memories (2).

For final consideration here, we can take up the possibility that chronic sepsis can heighten colloidal aggregation change (2). In the early stages the individual will probably be sufficiently reasonable to appreciate that something is wrong, but, not appreciating that he himself is ill, will project the "wrong" into the surrounding world. If he then take up the study of what is wrong with that world he will probably emerge as a religious or social fanatic, provided, of course, the septic process has not gone too far. For study is training, and training takes ideas towards the subconscious. The study and the disease thus work towards a common end. On the other hand, if the septic process has gone too far, the victim gets a chance of coming under treatment. But here again we have to consider the possible existence of small and great minds, and so realize that equal septic processes could make the one a keen reformer, and send the other for treatment. In one way or another, whenever one considers those who fail mentally, one appreciates the possibility that the failure may be primarily due to inherent defects in the machine.

References.—(1) Burridge, *Journ. Ment. Sci.*, July, 1929, lxxv, p. 371. (2) *Idem*, *ibid.*, p. 401.

Clinical Notes and Cases.

Malarial and Tryparsamide Treatment of Five Cases of General Paralysis of the Insane and one of Neuro-syphilis. By JOHN PETER, M.B., Ch.B., Assistant Medical Officer, Renfrew District Mental Hospital, Dykebar.

Since the introduction of the treatment into the hospital, five cases of general paralysis and one case of neuro-syphilis have been subjected to a course at the earliest possible moment. Two other cases admitted during this period were considered unsuitable to undergo treatment, one on account of marked cardiac debility with valvular disease, and the other on account of extreme weakness and wasting. The last-mentioned case died within six weeks of admission.

Inoculation.—Three of the cases were inoculated direct by malaria-infected mosquitoes. In one of these the inoculation did not take, and the patient was at a later date inoculated with malaria-infected blood. The remaining three cases were inoculated with malarial blood. This was found to be the most satisfactory method of inducing the fever, as the incubation period—7 to 8 days—was much shorter than in those cases inoculated by mosquitoes, where the incubation was not less than 21 days—a point of importance, since in acute cases time is a factor of moment. In each case the organism was demonstrated microscopically in the blood after the second rigor, and at intervals during the febrile period.

Rigors.—The number of rigors allowed varied, and depended on the physical state after each rigor, particular attention being paid to the condition of the heart. One case had 7 rigors, one had 10, and the remaining three had 8 rigors. The malaria was then checked by the administration of quinine sulphate gr. xx four-hourly during the day, the dose being gradually reduced till the seventh day, when the temperature had been normal or subnormal for 3 days. The quinine having been stopped, the first tryparsamide injection was given on the eighth day, and thereafter at weekly intervals. The course consisted of fourteen intravenous injections commencing with .25 grm., and the dose being increased weekly by .25 grm. up to 3 grm. Two further injections of 3 grm. completed the course. At no time did the tryparsamide give rise to any untoward symptom,

and no intra-ocular changes were noted on ophthalmoscopic examination. In one case there was slight local pain followed by tissue necrosis at the seat of the puncture, due to some of the solution having leaked round the vein. This complication, however, is common with all arsenical preparations given intravenously.

CASE 1.—Male, æt. 48, admitted in a state of acute, noisy excitement, with marked exaltation of manner and speech; extremely grandiose in his ideas and imbued with a sense of well-being. Habits and conduct soon after admission began to deteriorate.

Physical state.—Patient was emaciated, with flabby, wasted musculature and smoothed-out facial appearance. Examination of nervous system revealed inequality and irregularity of pupils, with retained reaction to light and accommodation; tremor of tongue, exaggeration of knee-jerks and slight Rombergism. Gait was slightly ataxic.

Examination of blood and cerebro-spinal fluid.—Blood Wassermann found to be strongly positive and cerebro-spinal fluid found positive also, with increased cell-count (7 cells per c.mm.) and protein content. Colloidal gold curve was paretic in type—55433210000.

Treatment.—To improve his general condition and on account of the presence of a large dilatory carbuncle on the back of the neck he was given potassium iodide, gr. xv *t.i.d.*, for fourteen days, followed by four intra-venous injections of iodine given every fourth day. The carbuncle healed rapidly and patient's general condition was greatly improved.

He was inoculated intramuscularly with benign tertian malarial blood on May 22, 1928. The first rigor occurred on the 29th, and after eight rigors malaria was checked by the administration of quinine. Tryparsamide injections were then begun at weekly intervals. The result in this case has been gratifying from the physical point of view. There is some improvement in his mental state, but he remains rather exalted, grandiose and foolish in his behaviour. Appetite and sleep are good, and he is able to attend to his personal needs and do a little work.

Examination of blood some months after treatment showed Wassermann to be negative. The cerebro-spinal fluid also showed considerable change. The cells were still increased at 5 per c.mm., with increased protein content, while the paretic colloidal gold curve had disappeared (0012100000).

His weight prior to treatment, 7 st. 7 lb., now remains practically constant at 8 st. 10 lb.

CASE 2.—Male, æt. 46, was first admitted on May 23, 1927, in a state of acute excitement and restlessness, and labouring under auditory and visual hallucinations. In conversation he became voluble and incoherent, and his habits, at times, very faulty.

Physical state was fair as regards nourishment and general muscular tone. Weight 9 st. 2 lb. History of syphilis contracted ten years ago. For a year prior to admission he had gradually become more and more incompetent at work and peculiar in his conduct and behaviour. He showed irregularity and inequality of pupils, with tremor of the tongue and sluggish knee-jerks.

Examination of blood and cerebro-spinal fluid.—Blood Wassermann at this time was ++. He was given four courses of neosalvarsan, and improved so much that he was discharged recovered and referred to a dispensary for further treatment, having apparently undergone a remission.

He was re-admitted six months later, on July 12, 1928, obviously suffering from general paralysis, exalted, restless, grandiose in his ideas, interfering and faulty in his habits, and considerably emaciated. He was a typical text-book picture of a general paralytic.

Blood Wassermann was still strongly positive, and cerebro-spinal fluid showed positive Wassermann reaction with increased number of cells (7 per c.mm.) and protein content. Colloidal gold curve was paretic—5543321000.

Treatment.—Inoculated with malaria by mosquito on December 13, 1928, the first rigor did not occur until three weeks later. Patient had eight rigors, when the fever was stopped owing to general weakness and distress, with slight cardiac embarrassment due to a superimposed influenzal infection at the beginning of this

year. The tryparsamide course was started on the eighth day from the commencement of the administration of quinine.

After treatment blood still remains strongly positive. Cerebro-spinal fluid, however, shows cell-count decreased to 2·6 per c.mm. Pandy +, Ross Jones ++ while the colloidal gold curve has altered from paretic to luetic, 0113221000., Wassermann reaction remains +++.

The result in this case has been very satisfactory from both a mental and physical point of view. In conversation he is lucid and no longer exalted or peculiar in his behaviour. Habits, appetite and sleep are normal, and he is an excellent worker. Prior to treatment his weight was 9 st. 2 lb. It is now steady at 10 st. 3 lb.

CASE 3.—Male, æt. 41. Admitted July 13, 1928, in a very poor state of bodily health, and suffering from a syphilitic psoriasiform rash and a discharging sore on the glans penis. He was emaciated and his musculature was flabby. Mentally he was restless, delusional, noisy and troublesome, with grandiose ideas about his athletic prowess. His previous history was that of a gradual deterioration in conduct and behaviour and an outbreak of mania one year prior to admission. He became unfitted for his work and was dismissed. At home he became indecent and careless in dress, used to wander about at all hours of the day and night, and ran up accounts.

Physical state.—Pupils were pin-point and exhibited the Argyll-Robertson phenomenon. Knee-jerks were absent. There was tremor of the tongue and unsteadiness of gait with marked muscular incoordination.

Examination of blood and cerebro-spinal fluid.—Wassermann reaction in blood was negative, while cerebro-spinal fluid showed positive Wassermann with increased protein content and cell-count (6 per c.mm.) and a paretic colloidal gold curve (5543321000).

Treatment.—Prior to inoculation with malaria he had to be catheterized at regular intervals and frequently required sedatives.

Inoculated on December 13, 1928, by mosquito. Eight rigors were allowed, and during this febrile period he was very distressed, confused and stupid, and became even more emaciated. With the abatement of fever by quinine, patient began to improve in a very evident manner. He put on weight, and showed steady and rapid improvement in his mental state. At the end of fourteen days, except for a certain amount of facility, he was rational in his manner, conduct and conversation. He has now completely recovered mentally, and is an interested and useful worker in the wards. His physical improvement has kept pace with his mental improvement and he is now well and fit, although the psoriasiform rash still remains and varies from time to time.

After treatment blood showed a strong positive Wassermann reaction. The cerebro-spinal fluid showed no improvement; cells further increased to 8·6 per c.mm. Pandy ++, Ross-Jones +, Wassermann reaction + + + +, and paretic colloidal gold curve is even more pronounced (555553210).

CASE 4.—Male, æt. 38. Admitted October 1, 1928, after an attempt at suicide by drowning. He had been under treatment for a "nervous breakdown" in another hospital for six months, but did not improve. At this time he was definitely delusional and variable in his conduct; was discharged and admitted here three months later in a fair state of bodily health.

Mentally he was very deluded about himself, and had the look of a person in a state of abject misery. Emotional control was poor, and he had the ideas that he had no sense of taste or smell and had only five minutes' sleep in the past nine months. Up to the time of his inoculation with malaria these delusions persisted, while his manner changed to one of exaltation and well-being, with bouts of weeping and despair lasting for an hour at a time.

Physical state.—There was a smoothed-out appearance of the face. Pupils were pin-point and reacted sluggishly and slightly to light and on accommodation. There was tremor of the tongue. Knee-jerks sluggish, with absence of plantar reflexes.

Examination of blood and cerebro-spinal fluid.—Blood, on three occasions, showed negative Wassermann reaction, and on one occasion was doubtfully negative. Cerebro-spinal fluid, however, showed Wassermann + + with increased cell-count and protein content, and a definite paretic colloidal gold curve (5555532000).

Treatment.—Malarial inoculation by mosquito on December 13, 1928, was unsuccessful, so blood inoculation was carried out on March 1 of this year. Patient had

seven rigors, followed by tryparsamide injections a week after subsidence of the fever.

Result.—He showed marked improvement during the treatment and is now in excellent physical condition. Emotional control is now stable; he eats and sleeps well, is rational in manner, conduct and conversation and is an excellent worker.

After treatment blood Wassermann was still positive. The cerebro-spinal fluid showed cell-count of 4.3 per c.mm. Pandy +, Ross-Jones +. Wassermann reaction remains + + + +, but the colloidal gold curve shows some improvement at 5322210000.

CASE 5.—Male, æt. 30. Admitted February 5, 1929, with a year's history of gradual deterioration in work, concentration and ability, with increasingly restless excitement and sleeplessness.

Mental condition on admission was one of restless excitement and exaltation of manner, and the speech became incoherent when patient had been speaking for a short time. He voiced grandiose delusions about his abilities, and laboured under visceral hallucinations, which were so prominent at times as to make him refuse food. His habits were faulty on two occasions.

Physical state.—On admission he was emaciated, with flabby muscles and unsteady, ataxic gait, requiring support when walking. Vessels for a man of his age were unduly sclerosed. He showed inequality and irregularity of the pupils, with alteration of light reflex; slight lateral nystagmus of both eyes and tremor of the tongue. Knee-jerks were absent, and plantar reflexes variable. Romberg's sign was well marked. There was disturbance of sensation for touch and pain on the inner side of both legs. Bladder was distended, but emptied on application of hot fomentations. Right eye showed optic neuritis, while left disc was paler than normal.

Examination of blood and cerebro-spinal fluid.—On admission blood showed a strong positive Wassermann reaction + +, and cerebro-spinal fluid showed Wassermann reaction + + + + with cells 21 per c.mm., and Pandy + +, Ross-Jones + +. Colloidal gold curve showed a strong paretic reaction (5555543000).

Treatment.—During the febrile period of treatment his mental state showed a gradual improvement. Speech became coherent and delusions and hallucinations gradually receded, and he is now rational. His bodily weight on admission was 9 st. 6 lb., and fell during the fever to 9 st. To-day his weight is 11 st. 6 lb., his gait is normal and steady, muscles are firm, and he is able to do quite hard manual work in polishing floors. There is still slight Rombergism.

After treatment blood remains positive; cerebro-spinal fluid shows decreased cell-count to 9.3 per c.mm. Pandy + +, Ross-Jones + +. Wassermann reaction remains strongly positive, + + + +, while the gold curve shows improvement at 5554410000.

CASE 6.—Male, æt. 54. The sixth and last is a case of neuro-syphilis. No previous history is available except that he threw up a good situation and disappeared several years ago.

Mentally he was facile, mildly demented, with some exaltation of manner and speech when in conversation, in contrast to his apathy when left alone. He was subject to recurrent outbursts of noisy, vituperative excitement, when he laboured under hallucinations and expressed delusions. He frequently complained of severe headaches.

Physical state.—He was fairly nourished, having been resident three weeks in a poor house, with several weeks under observation in another hospital. Features were rather expressionless from smoothing of facial furrows. Examination showed pupils to be equal and regular, but reacting sluggishly to light and accommodation, but after three weeks' residence the pupils were noticed to be pin-point contracted and fixed to light. In addition there was tremor of the tongue, with sluggish knee-jerks and plantar reflexes extensor in type.

Examination of blood and cerebro-spinal fluid.—Blood Wassermann + +. Cerebro-spinal fluid: Increased cell-count to 16 per c.mm.; Wassermann + + and increased globulin content. Pandy +; Ross-Jones faint ring. Colloidal gold curve was 001220000.

Treatment.—Inoculated with malarial blood on January 15 of this year, he was allowed to have eight rigors before the administration of quinine.

In this case improvement has been less dramatic and much slower, but he is definitely improved. He is no longer subject to headaches, and the attacks of

mania with delusions and hallucinations have ceased. In conversation he is rational and pleasant. When working he shows energy and application. He remains, however, somewhat facile.

After treatment blood still shows a positive Wassermann reaction, though the cerebro-spinal fluid shows considerable improvement. Cells are still increased, 12·3 per c.mm. Pandy +. Wassermann reaction is negative, while the colloidal gold curve is 0001110000.

SUMMARY.

In this small series of cases, Nos. 2, 3, 4 and 5 showed definite clinical and mental improvement—sufficiently so to admit of their discharge from hospital.

From both the mental and physical points of view the results are excellent, although in each case deviations from the normal are still to be found on examination of the nervous system.

In Case 3, in whom the disease was in a very acute form, a degree of facility remains, but this should not prevent him taking his place in the outside world again.

Cases 2, 4 and 5 show the best results. They are very well mentally and physically, all good workers, and quite capable of resuming a normal life.

From a serological point of view, the changes in blood and cerebro-spinal fluid have not shown parallel improvement to that noted in the clinical pictures, although in 5 cases there has been some slight amelioration. It is possible that without further treatment there may be a more convincing serological result in the course of a few months. For example, Case 1, some months after cessation of treatment, has shown considerable alteration in blood and cerebro-spinal fluid, not noted shortly after treatment was stopped. In addition there has been slight but progressive mental improvement.

Considering the short period these patients have been under care and treatment, it is impossible to say how long they will remain well. With the assistance of the relatives and of the patients themselves it is hoped to follow their further progress.

An Instance of Familial Scaphocephaly. By HY. DUGUID, M.D.
Aberd., D.P.H., Barrister-at-Law, Assistant School Medical
Officer, Manchester.

IN a Manchester elementary school I have recently examined four boys, all brothers, who exhibit the condition known as scaphocephaly. Their crania are narrow and prolonged, with a longitudinal ridge over the sagittal suture, thus resembling an overturned boat; the abnormality is sufficiently marked to be obvious

to anyone, so that I have heard children calling names, *e.g.*, "barrel-head" at them when they were present in the clinic. The only other child in the family, the eldest, is also a boy, and although not scaphocephalic, has a distinctly long and rather narrow head—dolichocephalic. The father is slightly scaphocephalic and markedly dolichocephalic. The mother's head is not abnormal. The table shows in inches the head measurements of the family. It will be seen that the circumference of all of them is greater than normal. Owing, however, to the lateral contraction of the vault their cranial capacity is on the small side. I have taken contour tracings of the three middle boys (P., J. and F.) by moulding strips of lead to the head and checking the diameters with callipers, as done by Dr. Lapage. By multiplying the length, the bitragal breadth and the mid-perpendicular height of the bitragal arc in centimetres, an approximate idea of the cranial capacity is obtained, and the figures are rather small, namely P. H—, 2,810 c.c., J. H—, 2,772 c.c.; F. H—, 2,726 c.c.

	Father. Mr. H—.	Eldest. A. H—.	2nd. P. H—.	3rd. J. H—.	4th. F. H—.	5th. M. H—.
Age	39	14½	10¾	8	6¾	4¾
Circumference	23½	23	22	21¾	21¾	22
Nasion to basion arc	16	16½	16	16	16½	16½
Bitragal arc	11½	12½	11½	11½	11	11
Antero-posterior diameter	8½	8	8	8	7½	8
Bilateral diameter	5	5½	5	4¾	4¾	5
Cephalic index	59	69	62	59	55	62

The first three measurements are taken by tape measure and the diameters by callipers. (The average length of the normal adult skull is 7 in., average breadth 5½ in., average circumference 22 in., and the average cephalic index from 75 to 80.)

In the case of the father and the youngest four boys there is deficient development of the occipital region of the skull, their maximum occipital arcs measuring 1 in. less than their maximum frontal arcs; in the case of the eldest boy the arcs are equal.

The father is a short (5 ft. 4 in. height), thick-set man, and was a fireman in a cotton waste factory until three months ago, when he was thrown out of employment owing to the closing down of the works. Unfortunately his family history is obscure and practically valueless. He states that he had no brothers nor sisters, that his only known relatives were his father and mother, who died aged 70 and 74, and that there was nothing unusual about the shape of their heads. Owing to the poor circumstances of his parents he was

brought up in an orphanage. He can read and write fairly well and has about the average intelligence of his social class, but is a poor type mentally considering he was at school till the age of 16.

The eldest son (not scaphocephalic) is a sensible and stable type of boy and his teacher states he is above the average in intelligence and attainments, having gained scholarships when 12 and 13 years old. He is now employed in a mill.

P. H—, the second boy, is not so good mentally. He lacks concentration and self-confidence, is easily confused, shy, and sensitive about his peculiarly-shaped head. His intelligence quotient is 84; his teacher states that he is dull and backward at school work.

J. H—, the third boy, has fairly good concentration. He is not shy, nor sensitive about his head, probably on account of his age. His intelligence quotient is 83.

F. H—, the fourth boy, is much under normal mentally. He has been to school for 16 months, knows the letters, but cannot read two-letter words. His intelligence quotient is 68.

M. H—, the youngest, *æt.* 4 years 10 months, is very indistinct at speaking and also backward generally, having an intelligence quotient of 75.

Terman's intelligence tests have been used in obtaining these quotients.

The family lives in a very poor neighbourhood, but they are all fairly healthy and show no sign of rickets. None of them shows any other stigma of degeneration. Both the father and the mother state that the deformities in the boys' heads were noticeable at or very soon after birth.

Scaphocephaly is generally considered to be a stigma, and to be associated with mental instability and backwardness or deficiency; the examination of this family appears to lend support to this belief.

Reference.—Lapage, C. P., 'Feeble-mindedness in Children of School Age.'

Medico-Legal Notes.

POST-EPILEPTIC AUTOMATISM AS A DEFENCE IN A CASE OF MURDER.

(Additional Notes in the Case of Rex v. Bagguley)*

By A. R. GRANT, M.D. Aberd.,
Deputy Medical Superintendent; and

S. M. ALLAN, M.B., Ch.B. Glas.,
Assistant Medical Officer, Lancashire County Mental Hospital, Whittingham.

THE accused, Harry Bagguley, was employed as a gardener and chauffeur at Accrington. His wife and daughter were not living with him, the former having obtained an order against him. By the terms of this order Bagguley had been granted access to his infant daughter on not more than one day each week. It was the custom of the daughter, whose age was 12, to pay her father a weekly visit, and it appears that at times she had been reprimanded by her mother for staying too long. In August, 1928, Bagguley wrote to his wife and asked her to return and live with him. She refused to do so, and according to his own statement he became very depressed. On the afternoon of Monday, August 27, he appears to have taken a service revolver and ammunition from a cupboard of his employer. He made his way to Preston, a distance of about fourteen miles, and at about 10 p.m. called at the house of one of his wife's relatives, R. S. W—. He aroused the occupant and asked him to come downstairs and talk with him. R. S. W— declined to do so, but asked him what he wanted. Bagguley then asked to see his wife, and was told she was not there, whereupon he called R. S. W— a liar. R. S. W— then told Bagguley that his wife was at her home in New Longton, some four miles from Preston. Bagguley then went there, arriving at about 10.40 p.m. He was informed by his wife's foster-sister that Mrs. Bagguley was not in the house, but was spending the evening with a neighbour. While this conversation was going on Mrs. Bagguley returned; she did not speak to her husband, but walked past him and entered the house. Bagguley then succeeded in forcing his way into the house, although the two women tried to shut him out. Mrs. Bagguley's sister evidently got frightened and

* *Vide* p. 129.

ran out of the house for help. She then heard a shot and saw Mrs. Bagguley running out of the house calling for assistance. Two more shots were fired close together. By this time she had reached a neighbour's house, followed by Mrs. Bagguley, who fell into her arms. Another shot was fired as they were being admitted to the house. Bagguley then came up quite close to the door and fired yet another shot at his wife, saying, "I have done you this time, haven't I?" Several people had by now collected at the scene of the murder, who were afterwards called as witnesses for the prosecution. A 'bus driver, H. I—, stated that Bagguley said to him, "She will die; now you can take the gun now I have done what I wanted." A witness, H. T—, said he saw Bagguley fire into the back of the deceased and heard him say, "That's done it; it's all over; you can fetch the police." A witness, A. H. R—, stated she heard Bagguley say to a constable, "There is nothing to be afraid of; I have done it and am ready to take my punishment; the only thing I am sorry about is my little girl."

Bagguley was committed for trial on a charge of murdering his wife, whose death was certified as being due to hæmorrhage from bullet-wounds in the stomach and liver.

We were asked by the accused's solicitors to examine him and report on his mental condition.

The accused's history proved to be of the greatest interest and importance. He was a man of 50 years of age; his father was dead, but his mother was still living. He had four brothers, all living. Of his sisters three were living, and two had died of heart disease. There was no record of any case of insanity in his family. He stated that when 10 years old he had had an accident in a hayfield, when one of the men ran a pitchfork into his left ear. As a result of this he was kept away from school for five or six weeks. After this accident, according to his own statement, he would sometimes leave his home to go to school, and wander about until he was brought home by relatives. At the age of fourteen he was apprenticed to a cabinet-maker in Carnforth. On one occasion, after he had been employed for about two years, he left his work and wandered about for ten days. He was unable subsequently to give any reason why he had done so. He returned home, but did not resume work at Carnforth; he obtained work with a builder and joiner, with whom he remained for two and a half years. He then left his employment suddenly and for no reason, and found himself ten days later in Manchester. He joined the Army in 1897, and remained with the Colours until 1912. During his army service his physical health appears to have been good, except that he contracted sunstroke and malaria. In 1899, when stationed at Gibraltar, he is stated to

have run amok and assaulted several of the inhabitants. Afterwards he had no recollection of having done so. In 1906 at Cairo he got hold of a native barber and demanded to have his head shaved in the Mohammedan fashion, threatening to cut the barber's throat if he refused. In 1909 in Dublin he attempted to shoot himself. He discharged the rifle but did not hurt himself. He was found in a state of collapse. For this offence he was reduced to the ranks and did 42 days' imprisonment. He left the Army in 1912 because his comrades often made reference to his attempted suicide. He then obtained work as a nurse in a mental hospital, but held the position for a short time only. Afterwards he obtained a post as a car conductor with the Preston Corporation. On one occasion he allowed every passenger to ride free. When the car arrived at the terminus some of the passengers went into the office and reported the incident. On being asked by the inspector what he had done, Bagguley replied that he did not know, handed over his bag and resigned his post.

When the Great War commenced he rejoined his old regiment and was given the rank of sergeant. He was wounded in the elbow in July, 1915. In 1916 he gained a commission, and the same year was blown up by a shell and was sent to England suffering from shell-shock. When on sick-leave at New Longton, Lancashire, he lost his memory and wandered away. Five weeks afterwards he came to himself and found he was in Southampton. He had been living in an hotel and his behaviour had excited no comment. On realizing his position he at once returned to his depot at Bury, Lancashire, where he gave his explanation and was placed under medical observation for five weeks. He appeared before a medical board, the members of which recommended him for a month's extra leave, but at his own request he returned to France. He was wounded in the knee in June, 1917, and returned to England.

Financial matters worried him, and as a result he was allowed to resign his commission. He was in civil employment for some time, but in 1918 he enlisted in the Royal Air Force, being placed in the Reserve in April, 1919. In June he re-enlisted in the Lancashire Fusiliers and went to India. On his return from India he was stationed at Bury. In 1921 he disappeared with some of the funds of the Sergeants' Mess. When he came to himself he was at Poole, in Dorset. He gave himself up to the police. The money was intact. He was sent back to his depot at Bury.

As a result of this a medical board was assembled, and on that occasion the statement referring to Bagguley was as follows: " He complains of attacks of severe frontal headache, occasionally

followed by a fit lasting a few seconds or a minute ; he states that on several occasions after such a fit he has lost himself for periods as long as three weeks, and on one occasion found himself in Southampton, having walked from Hull, and on another in Dorsetshire from Bolton ; he states that these periods are absolute blanks to him. His last attack was about two months ago ; he states that he had sunstroke in India ; he attributes his fits to shell-shock in France in 1916." The Board found that Bagguley "suffers from recurrent attacks of '*petit mal*' with loss of memory," and was of the opinion that he was unfit for service. He was accordingly discharged in May, 1922. In 1922 he again wandered away and was lost for a week. In 1928 he held the post of head waiter at an hotel. On one occasion, as lunch was being carried in he fell down in a fit, and on recovering he entered the dining-room and created a scene.

The trial took place at the Lancaster Assizes on October 26, 1928, before Mr. Justice Humphreys.

The facts were not disputed, and the defence was that of epileptic automatism.

A certificate from Dr. W. H. Pimblett, surgeon at H.M. Prison, Preston, stated that Bagguley had not shown any signs of insanity whilst in the prison, and was fit to plead.

After the police evidence and evidence of witnesses, Dr. A. Lowndes, of Longton, gave evidence for the prosecution. He stated that when seen on the night of the affair Bagguley seemed to understand what had happened and appeared quite normal. Dr. Lowndes on cross-examination said that epilepsy might produce a condition of automatism with loss of memory. When asked by the Judge how long such a condition lasted Dr. Lowndes said a few seconds ; he had never met a case in which it lasted for hours.

Bagguley gave evidence to the effect that his mind was a blank, that he had no recollection of going about in search of his wife, or of having shot her, and only a vague recollection of having a talk with the police and other witnesses.

Major O. D. Jarvis, R.A.M.C., who sat on the Board which found accused suffering from *petit mal*, gave evidence to that effect. He pointed out that Bagguley on the occasion of that medical board gave very much the same evidence as he had just given.

One of us (A. R. G.) said he considered it possible for Bagguley to have acted as he did while in the condition described, and still know nothing of what had happened. He cited the case of a man who threw his baby into the sea at Blackpool in the presence of many witnesses. This man appeared to take no interest in the attempts of the onlookers to save the child, but when the policeman

arrived he went up to him and said, "I have thrown my baby over the pier." This man was found to be suffering from post-epileptic automatism, and was found to be insane at the time he committed the act.

The Judge, in his summing-up, said there could be no doubt that Bagguley was an epileptic. It might be difficult to understand how a man in that condition gave rational answers to questions, but if the jury could reconcile Bagguley's conduct with the theory of post-epileptic automatism, they must return a verdict of "Guilty but insane."

The jury found the accused guilty but insane, and the usual order for his detention was made.

COMMENTS.

Although epilepsy cannot be diagnosed with certainty in the absence of fits, certain signs and symptoms attain a great importance when the condition is under question. Bagguley had a hesitant speech, especially when excited, the thoughts were clear, but the speech laboured and difficult. The accused informed us that he had often passed urine in bed. Taken unawares a man is hardly likely to give false evidence about that. When seen by us, Bagguley was a man of considerable intelligence and obviously capable of fine feeling. Nothing in the history was of greater importance than the extraordinary sudden lapses into criminal conduct of a man who repeatedly gained the confidence and approval of his superior officers. Another significant point is that on no occasion did this man commit criminal actions which were of benefit to himself.

When a man is on trial for his life on a charge of murder the plea of insanity is frequently brought forward as a defence when the facts are not disputed. Many of those who are charged with murder are poor men, and it seems only right that they should be in a position to command similar legal assistance and expert medical evidence to that which the Crown is so easily able to obtain. It seems to us that in common fairness a full investigation of the accused's family history and past history should be undertaken by those most competent to do so. We are in complete agreement with the observation made in the *Journal of Mental Science*, vol. lxxv, p. 124, in the Medico-Legal Notes on *Rex v. Clifford Hulme*. It would seem to us that Hulme's past history, especially during his war service, should have been more fully gone into. Is it not possible that the "turns" he was subject to, and the wandering away into the bush, might have been epileptic equivalents? In the Bagguley case our task was made much easier by the very full

history of the accused's life which his solicitors put in front of us, and the detailed information we had about his army career. From the point of view of the defence it was very fortunate that Major Jarvis happened to be in this country. He was able to state that Bagguley's history of his past life given at this trial did not differ to any appreciable extent from the one he gave at the Medical Board some years before. It was also fortunate that a record of the accused's medical history had been kept and commented on by the Army authorities. Bagguley was an epileptic, and in our opinion murdered his wife in a state of post-epileptic automatism. Such being the case he would not be aware of the nature and quality of his act. It is stated that during this stage the memory of past events remains, and that people whom the sufferer dislikes may be attacked or killed apparently deliberately. The result of this, as of similar trials, proves that the Judge and jury are prepared to acquit a prisoner who it is believed has suffered from epileptic automatism, but it is very much doubted whether they would take the same view in the case of an epileptic who committed a murder in what they would describe as a fit of temper or passion, but many medical men might describe as an epileptic equivalent. Norwood East(1) suggests that this may be because automatism, if accepted, completely satisfies the requirements of the criminal law as regards irresponsibility, whereas other epileptic states maybe more difficult to bring within the strict McNaghton ruling. Is this just? Is not epileptic automatism only one of several epileptic equivalents? Why should a distinction be made? In the previous notes on the case in this Journal (p. 130) the following observation is made: "The newspaper report is unfortunately not at all clear as to whether the accused actually remembered what he had done (a sufficiently rare occurrence after post-epileptic automatism) or had only realized what he had done when the facts were placed before him." Bagguley's own statement was that he remembered nothing from the morning of August 27, 1928, the date of the murder, until someone hit him on the face and he came to his senses. There is no evidence that anyone hit him on the face; the sensation may have been similar to the "crack in the head" referred to by Stoddart.(2) He had a faint recollection of a man saying "You have shot her," or words to that effect. He remembered saying something about the police, and he remembered saying to a policeman, "I believe I have shot my wife," or words to that effect. Against that we have the evidence of witnesses who heard Bagguley make such remarks as—"Here, take that"; "She will die now"; "You can take the gun now; I have done what I wanted"; "That will do for you"; "That's done; it's all over; you can fetch the police."

Here the main evidence of the existence of "insanity at the time of the act" rests upon an alleged amnesia, and in this connection the fact that Bagguley had on two occasions during his army service been acquitted of the charges brought against him might have suggested to him that a similar defence might avail on this occasion.

It will be conceded, we think, that it is possible for such appropriate remarks as "Here, take that" to accompany the act of shooting; in fact, patients who are in an epileptic furor and are attacking other patients or nurses not infrequently accompany their acts with appropriate words, although afterwards they may have no recollection of either act or word. Again, although in some cases of epileptic automatism the person seems to come to himself suddenly, in other cases there may be a more gradual return to the normal. If this be the case, then the question of deciding whether a person is to be held responsible on account of what he said during the interval between the abnormal and normal becomes one of great difficulty. In this connection Maudsley observes: "A remarkable circumstance which has occasionally been observed in connection with these incomplete attacks is that after the individual appears completely restored to himself and speaks and acts as if he were so, the attack recurs, and when it has passed off and he is really himself he remembers nothing of what he said and did in the interval of seeming lucidity." Norwood East states: "But epileptic automatism is sometimes alleged in cases in which it is clear from the evidence that the accused had some recollection of the events connected with the crime, and medical evidence is sometimes brought forward in support of this view. My own experience is that the automatic acts are not remembered." In many of these we suggest that great care is to be exercised in distinguishing between events recollected immediately after the crime and events not recollected during the automatism. We hold that it is possible for a man to recover partially, make statements, and then relapse again into the automatic state. The decision arrived at in these cases will always depend upon the outlook of the medical witness.

References.—(1) East, Norwood, *Journ. Ment. Sci.*, lxxii, No. 299.—(2) Stoddart, *Mind and its Disorders*, 4th edition, p. 363.

Occasional Notes.

GENERAL PARALYSIS AND ITS TREATMENT BY INDUCED MALARIA.*

Report by Surgeon Rear-Admiral E. T. MEAGHER, R.N.(retd.).

THIS long-expected report is prefaced by an interesting historical survey of the disease, written by Sir Hubert Bond. Observations by various physicians and pathologists are traced from 1822 to 1922. Though the disease has long been recognized as an entity, it was not till 1884 that its syphilitic origin was hinted at by W. Julius Mickle. The untiring pathological and histological researches of Mott, the discovery of the spirochæte by Schaudinn, the advent of the Wassermann reaction were the final events in the elucidation of the actual causation of dementia paralytica. It only needed the discovery in 1913 by Noguchi and Moore of the living spirochæte in the brain "to silence many conjectures and arguments." Yet, while admitting the syphilitic origin, it is well to bear in mind the influence of other factors, *e.g.*, drink, stress, toxic conditions, which might be justifiably considered as being capable of lighting up or accelerating the progress of the disease.

In Admiral Meagher's report the investigation is limited to patients certified as insane, and consequently many of the cases were of some months' duration at the time of their admission to mental hospitals. The prime object of the report was to ascertain, in cases of general paralysis treated by induced malaria, to what extent (*a*) life is prolonged, (*b*) improvement, mental and physical, takes place.

The first inquiries were directed to those hospitals where malarial treatment was not practised (apparently in some 55 county and borough mental hospitals). It was decided to review the fate of those untreated cases. Lists were compiled with the utmost care of all patients suffering from G.P.I. who were admitted to those hospitals in the years 1923 and 1924. The returns were received in August, 1927; deaths were verified, transfers to other hospitals

* H.M. Stationery Office, 1929. Price 2/- net.

traced, readmissions were noted, and those who remained alive were visited in hospitals and those discharged personally followed up outside.

The results ascertained towards the end of 1927 for the year 1923 can be shown :

Admissions	624.
Deaths	560 = 90%
In hospital	52 = 8%
Discharged	12 = 2%

Of those still in hospital it is noted that they have reached the last stage of the disease, with the exception of two, who are described as typical chronic general paralytics.

The discharged cases are dealt with individually; all were mentally abnormal; "unable to do any work, bedridden, demented, wet and dirty, need more care than a child," describes their condition.

Similar investigations were made for the year 1924.

Exactly the same procedure was adopted for those cases *treated with malaria* in 1923 and 1924. Malaria therapy, however, was first commenced in this country in July, 1922, by Dr. Clark, of Whittingham.

The figures from 11 mental hospitals in 1923 are :

Treated	152
Now dead (1927)	71 = 45%
In hospital	45 = 30%
Discharged	36 = 25%

The figures from 22 mental hospitals in 1924 are :

Treated	286
Now dead	120 = 42%
In hospital	94 = 32%
Discharged	72 = 26%

Of the discharges, the report for the year 1924 may be quoted :

"Of the 67 about whom definite information has been gained, it was found that 39 were at work as wage-earners, 5 others were temporarily 'unemployed,' 10 were engaged in their ordinary household duties, 4 do part-time work, and 4 others do no work on account of physical disability or other cause unconnected with general paralysis. There are 5 who show progressive mental and physical degeneration, and whose working capacity need not be considered."

The general condition of the treated cases still in hospital is undoubtedly better than that of the untreated cases; roughly one-third showed mental and physical improvement, a like proportion remained in the same mental state, though physically improved,

while a slightly smaller proportion had degenerated both mentally and physically.

By comparing the "treated" with the "untreated" figures it is seen that the difference in the survival rate is very striking, namely, 56% compared with 10%; moreover the discharged patients who had malaria therapy formed 25% of the total treated, and the majority were capable of earning wages.

In spite of these convincing figures the author raises the possibility of fallacies—the question of diagnosis and the selection of cases for treatment.

Regarding spontaneous remissions, he says: "Remissions met with in untreated cases denote a transitory, illusory and imperfect improvement, and complete remission of a year's duration is extremely rarely met with. Remission such as to justify the discharge of a patient may occur in 2 to 3% of cases. No case came under notice in which a complete recovery from general paralysis was satisfactorily established, and their number must be extremely small."

A detailed account of the discharged cases is given, describing their various occupations and other social factors. Indulgence in alcohol is deprecated. Reviews of cases treated in 1925, 1926 and the first half of 1927 follow.

In five years nearly 1,600 cases received malarial therapy. Allusion is also made to the possible advantages of malaria induced by mosquitoes. At Horton a treatment centre was established in 1925, and by arrangement between the London County Council, the Board of Control and the Ministry of Health a supply of infective mosquitoes with a pure strain of benign tertian malaria is maintained, to meet the demands of mental and general hospitals throughout England and Wales.

Mention is made of the need for reinforcing the malaria by some supplemental treatment, such as tryparsamide. After-care and the following-up of discharged cases is advocated. Stress is laid on the importance of treating cases in the earliest stages of the disease.

In analysing the causes of death little doubt is left that malaria itself is a potent factor, as the death-rate is exceptionally high in the first and second months—40% of the total deaths took place in the two months succeeding inoculation. The treatment demands extreme care, though in view of the results obtained risks must be run. If possible, microscopic examination of blood should be undertaken during fever; much benefit may accrue from the temporary abortion of fever, which can be checked for a week or 10 days by a single dose of 5 gr. of quinine.

In an appendix to the report is given an account of the work of various continental clinics. At Vienna Prof. Wagner-Jauregg says that deaths from malaria have ceased to occur, on account of careful cardiac treatment and quinine control.

In all continental centres visited it was found that supplemental treatment was being given.

One great advance is worthy of record, and that is the ease with which the early cases are dealt with abroad. Delay in treatment in this country because of the legal requirements of a certifiable disorder is to be deplored. On the Continent every facility is given for early treatment. In Austria "cases may be received in the clinic and remain there for malarial treatment without restriction; or they may be received there and detained when sent either by the police or with two doctors' certificates, if, on examination, detention is found necessary." In France the law permits that cases may be detained for treatment. In Germany treatment is largely employed, but may only be given in certain centres approved by the Board of Health, thus ensuring expert supervision. In Holland cases may be received for treatment voluntarily or on an order for detention, and those who do not recover are drafted to the mental hospitals.

Admiral Meagher is to be congratulated on an exhaustive inquiry, which is characterized by an unflinching endeavour to arrive at the truth, while observing the strictest accuracy and care in compiling statistics. From an examination of the report one cannot fail to be impressed with the great advance made in the treatment of general paralysis by the use of malaria, which at present must surely be accepted as the treatment *par excellence*.

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Part II.—Reviews.

Aspects of Age, Life and Disease. By Sir HUMPHRY ROLLESTON, K.C.B., M.D., Hon.D.Sc., D.C.L., LL.D. London: Kegan Paul, Trench, Trübner & Co., Ltd. Demy 8vo. Pp. 304. Price 10s. 6d.

This is one of those pleasant books which succeed in presenting the fruits of much learning and literary research in as readable a fashion as one could wish. Sir Humphry Rolleston has the knack of putting together in a nicely cursive way all sorts of facts bearing upon a given topic, so that the joints have a look of organic and not merely of mechanical continuity. His style of writing is full of interesting surprises. It is like going to the theatre. You wonder by what possible ingenuity the playwright can make everything come conveniently together in the last act. So it is with many of Sir Humphry's sentences. They often meander in such a fashion that it seems they can never be brought to an end; but with a phrase and a few commas, the trick is done.

The papers of which the volume is composed are on widely various subjects, but of singularly sustained interest. He writes on old age, holidays, tobacco, success, careers (orthodox and quack), physic and literature (poetry and prose), diseases in medical men, and famous people who suffered from diseases which may have changed the course of history. We learn how piles lost Waterloo, and how the vesical calculus of another Napoleon prevented a *coup d'état*.

It is one of those books which can be picked up at any time, opened at any page, and read with amusement and profit, so full is it of interesting things. Sir Humphry has a nice eye for a good quotation. Here is Dr. Johnson's remark to a valetudinarian clergyman: "Do not be like the spider, man, and spin conversation incessantly out of thine own bowels."

It is a book for the bedside; and we can recommend it even for a holiday week-end.

R. D. GILLESPIE.

Anatomical, Phylogenetic and Clinical Studies on the Central Nervous System. By B. B. BROUWER. Baltimore: The Williams & Wilkins Co., 1927 [Baillièrè, Tindall & Cox]. Demy 8vo. Pp. xii + 67. 16 Figures. Price 11s. 6d.

This little book contains the three Herter Lectures, given by Brouwer at the Johns Hopkins University in 1926. To a great extent based on the eminent author's own observations, they are all of the greatest interest—particularly the first one.

This first lecture deals with "The Projection of the Retina in the Brain." First the two rival theories—that of Henschens and that of von Monakow—are briefly reviewed. Then investigations are reported bearing on the relation between the retina and the external geniculate body in various animals, including monkeys (which in respect of their visual paths, as in other respects, resemble man more than do other animals).

The findings may be summarized thus: At the ventral border of each external geniculate body there is a small part for monocular vision; the greater part of the geniculate body serves binocular vision, the upper halves of the retina corresponding to the medial halves of the geniculate body, the lower retinal halves to the external halves. The macular fibres are sharply defined and occupy a comparatively large area in the centre (the figure given shows a somewhat different localization, viz. superior and lateral to the peripheral fibres, cf. Fig. 5). Within the macular fibres, too, there is a distinct localization, the superior macular halves corresponding to the medial geniculate fibres, the inferior macular halves to the lateral geniculate area. The interesting technique of the investigations is clearly set forth.

Finally the author advances the opinion that the visual area in the cortex ought to be divided into binocular and monocular areas, and that the macular region must have a very extensive representation in the cortex.

The second lecture deals with the "Pathology of Sensibility." It gives a survey of current ideas regarding the pathways of different kinds of sensibility. The author has investigated the trigeminal nucleus in a large number of animals, the spinal trigeminal root being considered the homologue of the posterior grey horns of the spinal cord, the frontal trigeminal root the homologue of the nuclei of Goll and of Burdach. From these investigations he is led to formulate the following conclusions: Fishes have only the *vital* form for sensibility ("palæo" type). As soon as life on land begins, new demands on sensibility are made; the *gnostic* sensibility is developed, and new pathways serving this are formed (neo-sensibility.)

The author also deals with errors in diagnosis of the level of spinal cord tumours (one misses any mention of Elsberg's interesting communications on this important topic), and with the practical value of Sicard's lipiodol-X-ray examination.

The third lecture is entitled "Significance of Phylogenetic Studies." First a review is given of the two modes of dividing the cerebellum, viz., the older one of Edinger (vermis=palæo-cerebellum, and hemispheres=neo-cerebellum) and the more recent one of Bolk. Anatomico-clinical and myelogenetic observations in favour of Edinger's mode of division are recorded. The author suggests a similar division of the inferior olives into an older (palæo-) and a newer (neo-) part.

Finally the author deals with the important and interesting question of different vulnerability of the different paths, adducing many interesting observations from the pathology of disseminated

sclerosis. Affirming the view that the latest developed paths are the first to suffer, the author believes that he can in some measure account for that regularity in symptomatology which we find in the majority of cases in spite of the irregularity in the distribution of the lesions in this disease.

On this point I thoroughly agree with the author, and have for many years in my clinical teaching expressed similar views. Only I believe that besides a *structural* or anatomical vulnerability (corresponding to O. Vogt's "pathoclise") one has also to deal with a "*functional vulnerability*," for I have several times seen cases where a transverse lesion of the spinal cord histologically presented the same intensity in all the parts of the cord, and yet the functions of the different paths had suffered to a very different degree.*

In one detail I am compelled to make a reservation: When (quoting Cattaneo and Bychowski) the author states that the abdominal reflexes do not appear till some months after birth, this is too sweeping a statement. The abdominal reflexes are inconstant and sometimes asymmetrical in very young infants; but I have myself in a series of 28 cases under seventeen days old elicited abdominal reflexes in 9 cases (as recorded in table on pp. 48-49 in my monograph on the abdominal reflexes, 1918). In a few other minor points one may not entirely agree with the author, but these are of little importance, and altogether this book is to be strongly recommended both to the beginner as very clear and instructive, and to the older neurologist as very interesting, giving, as it does, in a very readable form the results of many of the investigations of one of the most prominent research-workers in neurology of to-day.

G. H. MONRAD-KROHN.

Understanding Human Nature. By ALFRED ADLER. Translated by WALTER BÉRAN WOLFE. London: George Allen & Unwin, Ltd., 1929. Demy 8vo. Pp. 286. Price 12s. 6d.

This is a more complete exposition of Dr. Adler's theory of individual psychology than his first work published fifteen years ago. In seeking to establish his theory that the important factor determining behaviour is not infantile sexuality (Freud), but the "will to power," which, as the masculine side of human nature, is in continual conflict with the passive or feminine side, Adler has much to say that is interesting and valuable. His theory is valid up to a point, and is elucidated and confirmed by the description of the cases of difficulty in life he has selected. But as the critical student proceeds beyond the first three chapters he will feel that Adler's conception of the mind, or soul as it is called, is exceedingly limited. Differentiation of human beings into two types, "those who know more concerning their unconscious life than the average, and those who know less," is little more helpful than it is reasonable.

* In my *Clinical Examination of the Nervous System* I have briefly indicated the order of "functional vulnerability" of the different pathways of the spinal cord (cf. p. 180 in the fourth edition).

Ignoring both the intuitive and feeling faculties is one of Adler's limitations. Some readers will feel he undervalues the influence of heredity. The treatment of sex will fail to satisfy not only the Freudian, but many other thoughtful people, some of whom will not be convinced by the mere statement that "of all the institutions which have been developed to better the relationship between the sexes co-education is the most important." When we read in the Appendix that "a happy nursery enables a child to find his way into the world with a certain facility," and remember the unfortunate results recorded of an unfavourable early environment, we cannot help wondering that the author has not made an insistent demand for child guidance as the most valuable agent, especially considering the good work he has done on these lines himself. Many will find this treatise a useful preliminary to the study of other psychological theories. Unfortunately the book has no index, and the translation from the German is not always felicitous.

W. A. POTTS.

Introduction Biologique a l'Étude de la Neurologie et de la Psychopathologie. Intégration et Désintégration de la Fonction. By C. v. MONAKOW et R. MOURGUE. Paris: Libraire Felix Alcan. Pp. xi + 416. Price 80 francs.

This impressive work is the happy outcome of the collaboration of two distinguished savants. Less known in this country than Prof. v. Monakow, Dr. R. Mourgue is an erudite French psychiatrist with a wide philosophic outlook, who has interested himself particularly in the significance of Bergson's teaching in relation to the practical problems of neurology and psychiatry. It is the aim of the writers to elaborate a general pathology of the nervous system based upon a biological conception of its functioning. It is felt that there is a serious need for a formulation of this kind at the present time, when, in spite of the incontestable progress in technique, there is a tendency for those engaged in research to lose sight of the exact position of the problems which these technical methods are designed to solve. Briefly, there is a need for the statement of fundamental principles.

Basing their views upon the facts of human embryology, anatomy, physiology, clinical data, pathological anatomy and the malformations of the nervous system, the authors study in the first part of this volume the integration of function, making instinct in man, with its different levels of integration, the central point of their discussion. In the development of their theme the authors find themselves under the necessity of creating a certain number of neologisms, these being intended to replace the expressions utilized from the psychology of every-day life, which are shown to be inadequate to cover the facts of pathology. In the course of the study of each instinct two aspects are particularly emphasized: Each level of integration considered is shown to coincide with different *moments of time*, and with a change from one order of

biological values to another. Thus the writers develop throughout their work a thoroughly dynamic point of view. They take the view that evolution is essentially *creative* (Bergson), in the particular sense that it takes place, at each step, by an enrichment of life in preparation for a perfection to come.

It is pointed out that it is only by the notion of *value* that the pathology of instincts, which constitutes in man the domain of the psychoneuroses and psychoses, becomes comprehensive. This is seen, for instance, in the sexual instinct—primitively having for the individual an end in itself, and later passing to a stage when the care for the welfare of generations to come predominates. In the second part are described and discussed the phenomena of disintegration as manifested in disease. It is the aim of the authors throughout to deal with their subject-matter in a manner which will serve as a guide to young neurologists, psychiatrists and criminologists who wish to pursue their studies on a wide biological basis. In this section are passed in review the disintegration of movements, the problems of apraxia, of agnosia, and especially that of aphasia (with a critical examination of the conceptions of Head), together with that of senility, and the psychoneuroses. On account of its importance a special chapter is devoted to the problem of disintegration in the psychoses.

This interesting monograph has both originality and depth. It well repays careful study, and, indeed, demands it, for a cursory survey of its contents will be found inadequate. H. D.

Encéphalite Épidémique. Par RENÉ CRUCHET, Professeur à la Faculté de Médecine de Bordeaux. Paris: Gaston Doin et Cie, 1928. Demy 8vo. Pp. 136. Figs. 8. Price 15 fr.

This book has been written not so much with a view to adding to our knowledge of epidemic encephalitis, as to substantiate the claim of the author to have been the first to recognize this disease, and to publish a description of it. This claim is widely recognized in France, where the term "maladie de Cruchet" is now in use to designate epidemic encephalitis.

The book consists of a description of 64 cases which came under the care of Dr. Cruchet in 1915-1917. It includes those cases which led to his publication on April 27, 1917, of "Une note sur 40 cas d'Encéphalomyélite Subaiguë" (*Bull. et Mém. de la Soc. M.-d. des Hôp. de Paris*) in conjunction with F. Montier and A. Calmettes. This was a few days prior to Von Economo's well-known first publication, which gave to the disease the name of "encephalitis lethargica."

Von Economo's description was such as to leave very little doubt that he was describing a clinical entity, whereas the French contribution gives the impression of a confusion of various diseases. Cruchet now maintains that time has proved his description to have been more correct, in that Von Economo was merely describing

the lethargic type of the disease, whereas his description is less concise, because he describes the disease in its protean manifestations.

Cruchet's first seven cases came under his notice while he was at Commercy and Verdun; and from his description of them it is difficult to see why he should have considered he was dealing with a "new disease." He encountered them during a period of active warfare, and knew that at least four of them were syphilitic, and even in the light of our present knowledge his description of them does not suggest epidemic encephalitis. It is only by a stressing of the power of encephalitis to appear in protean forms that the majority of the cases described throughout the book can pretend to be examples of this disease.

The book provides most interesting reading, and no praise is too high for the powers of clinical observation of the author; but while there is no doubt that Cruchet must have recognized the appearance of a "new" disease in 1916, it is also certain that he did not succeed in delimitating it in the masterly manner of Von Economo; and there seems no justification for the designation "maladie de Cruchet," and little chance of its use outside French literature.

P. K. McCOWAN.

Part III.—Epitome of Current Literature.

i. Neurology.

The Innervation of the Thymus. (*Journ. of Nerv. and Ment. Dis.*, April, 1929.) Pines, L., and Majman, R.

The authors conclude that the thymus is supplied with a thoroughly differentiated nerve apparatus. There are vascular nerves as well as a sympathetic parenchymatous glandular nerve apparatus, closely related to the secretory function of the gland. The innervating apparatus of the thymus is partly of sympathetic, partly of cerebro-spinal origin.

G. W. T. H. FLEMING.

The Hoffman Reflex—A Simple Way of Reinforcing it and other Reflexes. (*Journ. of Nerv. and Ment. Dis.*, March, 1929.) Pitfield, R. L.

The author regards the Hoffman reflex as not always due to organic destructive lesions of the pyramidal tract. At times a more or less functional derangement of the pyramidal tract is responsible for its appearance. It is a common sign in high blood-pressure cases. The reflex can be reinforced by encircling the upper arm with the cuff of a blood-pressure apparatus and blowing it up to 300 mm. In functional nervous cases such as neurasthenia it is rare unless another factor such as hyperpiesis exists.

G. W. T. H. FLEMING.

Effect of Alcohol on the Patellar Tendon Reflex Time. (*Arch. of Neur. and Psychiat.*, March, 1929.) Travis, L. E., and Dorsey, J. M.

The authors studied the effect of alcohol on five men. Records were taken just preceding, during and succeeding partial stupor resulting from alcoholic intoxication. As stupor advanced, the reflex time progressively and irregularly decreased, to increase in the same manner as the stupor cleared up. As stupor advanced, action current duration progressively and irregularly increased, to decrease in the same manner as the stupor cleared up. There would appear to be an inverse relationship between variation in reflex time and action current duration.

G. W. T. H. FLEMING.

Organic Nervous Disease in Identical Twins. (*Arch. of Neur. and Psychiat.*, March, 1929.) Wilson, S. A. K., and Wolfsohn, J. M.

After discussing the various theories of the formation of identical twins and the occurrence in them of nervous and mental disease,

the authors present four examples of homologous twins. One pair had congenital nuclear ophthalmoplegia and feeble-mindedness, the second cerebral diplegia and feeble-mindedness, the third epilepsy, and the fourth diabetes and acute epilepsy. The authors conclude that when organic nervous disease occurs in homologous twins it is always present in both twins, and is most probably the result of inherent defects.

G. W. T. H. FLEMING.

The Nervous Diseases of the Chinese. (*Arch. of Neur. and Psychiat.*, March, 1929.) Woods, A. H.

The author gives an interesting and detailed account of the nervous diseases observed at the Union Medical College Hospital. Most of the diseases mentioned call for little comment. Woods is careful to correct the prevalent opinion that paresis is rare in China, its apparent rarity being due entirely to faulty examination and lack of skill in diagnosis. Neurosyphilis is common.

G. W. T. H. FLEMING.

The Epileptic Seizure: Its Relation to Normal Thought and Normal Action. (*Arch. of Neur. and Psychiat.*, April, 1929.) Rosett, J.

The author points out that intra-ocular and subarachnoid hæmorrhages in the new-born are commoner than is generally supposed. Of 400 infants examined by Sicherer 16% showed intra-ocular hæmorrhage. Other observers have found greater percentages. He thinks that it is difficult to decide whether in epilepsy there is an inheritance of a defective brain, or rather an inheritance consisting of a metabolic defect which acts on the brain. Rosett regards epilepsy as a form of the tetanic state having its origin in that normal inhibition of the sensory system which results in a release of muscular activity. The sensory and muscular manifestations of the epileptic seizure are not essentially different from the processes of normal thought and normal action. There is, however, an increased facility and a greater degree of nerve inhibition. If the wave of inhibition extends only a short distance along the sensory pathway and recedes before completely extinguishing the function of the association systems, then such a minor seizure is devoid of muscular manifestations. The mechanisms of posture may be observed in the epileptic seizure to manifest their function before those of movement. The author took cinematograph pictures of the seizures of his patients, and as a result of these pictures concludes that when the postures and movements are viewed as if the patient were in the upright position, they are seen to be unmistakably normal patterns of muscular coordination. Frequently they possess considerable beauty and grace. The various integrated movements of the epileptic convulsion have no reference to any coordinated acts which the person may have learned to execute in his conscious state, and often cannot be repeated on request. The more profound the inhibition of the sensory system, the greater is the strength of the muscular contractions. Records of hysterical, hysteroid and tetanic movements

indicate the same relation of the sensory state to the degree of strength of muscular contractions. The amount of afferent nerve function remaining in the unconscious epileptic patient during a convulsion is less than in the animal decerebrated at the highest level of the midbrain. The proprioceptive system is, during the convulsion, engaged in carrying out the details of acts presided over by a higher nervous system.

Experiments on animals have shown that a tolerance for the tetanic state can be acquired by training even when there is so definite a defect as a want of parathyroid influence. The author showed that an increased tolerance for the tetanic state can be acquired in human beings by a certain course of training. The method employed is, on account of its great difficulty, impractical as a treatment for epilepsy, but it is nevertheless suggestive of certain lines of education.

G. W. T. H. FLEMING.

Studies in Epilepsy. VI. Factors affecting Convulsions induced in Rabbits. (*Arch. of Neur. and Psychiat.*, March, 1929.) Lennox, W. G., Nelson, R., and Beetham, W. P.

The authors made injections of thujone or homocamfin into the blood-stream of 87 rabbits. Reactions were more severe and more frequent after intracardiac than after intravenous injection. When the convulsing dose was repeated within an hour, the resulting convulsion was less frequent and severe than the first. Preliminary medication with luminal sodium caused reduction in convulsions only when the dose, based on weight, far exceeded that used clinically. Reduction in severity was more marked than reduction in incidence. The severity of the convulsions was not related to the concentration of bicarbonate in the blood. When amounts of lactic acid were injected sufficient to produce a great reduction in bicarbonate, the animals did not have convulsions. The authors conclude that the use of a convulsant drug is not a suitable means for studying the factors which may affect the occurrence of seizures in patients.

G. W. T. H. FLEMING.

Cerebral Calcification Epilepsy. (*Arch. of Neur. and Psychiat.*, May, 1929.) Geyclin, H. R., and Penfield, W.

The authors describe an instance of epilepsy in one family, including the father and all four children. The convulsions in the father did not begin until he was 48 years old, although he had always suffered from migraine. In the four children, the epilepsy appeared during the first six months of life. All four showed pupillary changes of marked degree associated with the attacks. Severe convulsive attacks were induced in all by such intercurrent disturbances as diarrhoea, tonsillitis and dentition. In the 4 cases in which roentgenograms were obtained, patches of calcification were found scattered through the brain, situated in general near the convexity of the cerebrum. These patches were umbilicated or in the form of tumours. This was apparently due to the

fact that the calcification tended to take place at the junction of the grey and white matter about a cortical fissure. In the only case in which the calcification was localized, operative excision resulted in great improvement. Microscopic examination showed the process to be vascular. The glia changes were focused about the smallest blood-vessels, and the deposit of calcium had taken place in and about the walls of these small vessels. There were no areas of softening. The authors think that the calcification was undoubtedly secondary to the localized chronic destruction of tissue due to closure of the small vessels. Periarterial sympathectomy of the carotid and vertebral arteries of one side resulted in the conversion of bilateral into unilateral convulsions. The disease might be named "cerebral calcification epilepsy," and the actual pathological process is an endarteritis calcificans cerebri.

G. W. T. H. FLEMING.

Tumours of the Brain with Acute Onset and Rapidly Progressive Course. (*Arch. of Neur. and Psychiat.*, May, 1929.) *Elsberg, C. A., and Globus, J. H.*

The authors describe a group of cases with acute onset and rapid clinical course in patients, mostly men, between the ages of 40 and 60. The tumours were usually large spongioblastomas and were most often located in or near the temporal lobe. The differential diagnosis from acute encephalitis or a vascular lesion was often difficult at first. Some of the cases presented a clinical picture like that of metastatic malignant disease. Treatment, surgical or otherwise, gave poor results, but life was most prolonged by partial or complete removal of the tumour.

G. W. T. H. FLEMING.

Tumours in the Region of the Third Ventricle; Their Diagnosis and Relation to Pathological Sleep. (*Journ. of Nerv. and Ment. Dis.*, January, February and March, 1929.) *Fulton, J. F., and Bailey, P.*

The authors describe five cases of tumours in the region of the third ventricle and then proceed to analyse the symptomatology. Hypersomnia of periodic type the authors consider is due to a lesion near the anterior extremity of the aqueduct of Sylvius. Polyuria they consider is due to a circumscribed lesion in the tuber cinereum. Acromegaly they think is due to lesions of the hypophysis, not of the hypothalamus. Patients with tumours of the third ventricle often exhibit a curious emotional negativism. After some discussion of the views of various writers the authors conclude that there is no syndrome of the third ventricle *per se*, but tumours immediately affecting this cavity may cause characteristic symptoms by pressure upon its walls and their contained nuclei and tracts. Among the well-recognized syndromes due to lesions of these structures the authors mention (1) the infundibular syndrome (polyuria and adiposity), (2) the syndrome of the central grey matter, around the

posterior end of the third ventricle and aqueduct of Sylvius (hyper-somnia), (3) the thalamic syndrome (central pain, hyperæsthesia), (4) the extra-pyramidal syndrome (bradykinesia, rigidity), (5) the decerebrate syndrome (hypertonicity, Magnus-de-Kleijn reflexes), (6) the syndrome of Parinaud (paralysis of conjugate vertical movements of the eyeballs), (7) the syndrome of the body of Luys (hemichorea), (8) the hypopituitary syndrome (infantilism, hypotrichosis, lowered metabolism), (9) the uncinate syndrome (olfactory and gustatory symptoms), etc.

These syndromes are of localizing value more particularly when they occur prior to the onset of pressure symptoms.

G. W. T. H. FLEMING.

Dangers of Diagnostic Lumbar Puncture in Increased Intracranial Pressure due to Tumour of the Brain. (Arch. of Neur. and Psychiat., May, 1929.) Masson, C. B.

In 94 cases of verified intracranial tumours, in all of which well-marked signs of increased intracranial pressure were noted, and in 62 of which the growths were supratentorial, the removal of a small amount of fluid by lumbar puncture did not give rise to any serious symptoms. Of the patients who had verified or suspected infratentorial new growths, and in whom lumbar puncture was performed before the diagnosis of expanding disease in the posterior cranial fossa had been made or suspected, not one developed any untoward symptoms after the puncture. The author concludes that in cases of increased intracranial pressure there is no danger from diagnostic lumbar puncture if it is carried out with the patient in a horizontal position and with a needle of small calibre, and if no more than 5 c.c. of fluid is removed.

G. W. T. H. FLEMING.

Disorders of Sensation produced by Cortical Lesions. (Brain, October, 1927.) Holmes, G.

The author records the results of his examination of sensation in large numbers of men with gunshot wounds of the head both during and after the war and in other instances. The qualities of cortical sensation are: (1) The appreciation of relationships in space, (2) the faculty of reacting appropriately to tactile stimuli of different intensity, and (3) the recognition of similarity and difference of test objects of various weights and sizes. Pain and thermal sensibility and the vibration sense are not affected by disease of the cortex. The distribution of cortical sensory disturbance is always limited to the opposite side of the body. It is, as a rule, more pronounced in the distal than in the proximal parts of the limbs. The disturbance of sensation is often apparently confined to or at least more pronounced on one side of a limb. Numerous observations indicate a topographical representation of the fingers in the sensory cortex, similar to the motor representation in the precentral gyrus. The sensory sphere of the cerebral cortex,

according to Collier, is to be found entirely behind the central fissure, the precentral gyrus having no sensory functions. The area extends posteriorly over the whole of the post-central gyrus, over most of the superior parietal lobule and probably to the anterior limit of the supramarginal gyrus. There is in the post-central gyrus focal representation of the head, fingers, arm, trunk, leg and foot from below upwards. Special sensory functions are separately represented in the cortex. The recognition of form, the discrimination of compass points and possibly the comparison of weights are more widely represented in the cortex than tactile sensibility or the appreciation of position or movement. When the post-central gyrus is involved the sense of position suffers chiefly, more complex faculties having a wider distribution, and loss of tactile localization is found for the most part when the lesion lies immediately behind the central fissure.

J. R. LORD.

Remarks on the Ætiology of Encephalitis after Vaccination. (Acta Psychiat. Neur., vol. iv, fasc. 1, 1929.) Wiersma, D.

Dr. Wiersma comes to the following conclusions :

The clinical aspect, the histo-pathology and the epidemiology of post-vaccinal encephalitis, and of other kinds of encephalitis related to vaccination, make it highly improbable that the toxicity of the vaccine, or the bacteria or albumen contained in it, should be of importance in the ætiology of any of these encephalitides.

Many arguments can be adduced to support the hypothesis that the vaccine activates another virus already present in the body, which causes the encephalitis. The clinical peculiarities and the histological changes prove that this virus cannot be that of encephalitis lethargica. It is very likely, however, that pasteurællæ take a part in the ætiology of post-vaccinal encephalitis. A constitutional change may be of importance for its development.

J. R. LORD.

2. Psychology.

Instinct, Intelligence and Appetite. (Brit. Journ. Med. Psych., February, 1929.) Garnett, A. C.

The author rejects the view that animal instinct is perfect, rigid, unintelligent and automatic. He says that some of the innately conditioned actions are mere responses of a part of the organism to some specific stimulus, and are rigidly conditioned or unintelligent; here he probably refers to reflex actions. Tropisms also are excluded. But we do not have to rise very high in the scale of animal life, says the author, before we come to creatures whose responses to certain aspects of their environment, while undoubtedly innately conditioned, show unmistakable marks of

intelligence; *i.e.*, cognition plays a part both in the reception of the stimulus and in the subsequent process of response. The author proposes to limit the term "instinct" to these cases, and to define instinctive behaviour briefly as "an innately determined response to the cognition of a meaningful situation." Now this presentation of the problem is, at least so it appears to me, wrong. It minimizes the progress psychology has already achieved in the elucidation of instinct and instinctive behaviour. An instinct is a tendency to react in a definite way to a given stimulus, either environmental or somatic. It is conditioned by ancestral experience; it is racial memory, or, to use Richard Semon's term, "the Mneme of the race," and manifests itself in consciousness as a striving, or yearning, or longing, that is, as conation. The instinct, then, is this neuronically disposition, some kind of inherited association, which is not psychic. On the presentation of an appropriate stimulus this disposition realizes itself as conation, which tends to work itself out as an instinctive response. A conation is, by definition, a conscious process, but it does not in itself constitute cognition. In most human beings, but not in all, and in most circumstances, but not always, it is accompanied by a cognitive process: I know that I long for this or that. But this cognitive process is not the conative one that gave rise to it and must not be confounded with it, though both may exist together. That instinctive behaviour, that is, the response to an appropriate stimulus, is modified by experience, is too trite a subject now to deserve further discussion.

The falsity of Garnett's definition is best shown by his own illustration: "The man, says he, who writes a story to earn money to buy food is not, strictly speaking, acting less instinctively than the ox that crops the grass; he is acting more intelligently; that is all." This may, with some stretch of imagination, perhaps be said of the man in Grub Street who, when feeling hungry, goes to his cupboard and, finding it empty, sits down to write a story, but not, for example, of Mr. H. G. Wells.

The impression one gathers from the first part of the paper is that Garnett adjusts his definitions to suit his purpose, and this becomes fairly evident from the second part, where he discusses "The Function of Relations in Instinct Process: The Theory of Configuration or 'Gestalt'." In the third part "The Distinction of Appetitive from Non-appetitive Instinct Processes" is discussed. We are told: "An appetite is a tendency to certain behaviour which is due to the stimulative effect of certain cumulative or recurring processes of the living organism." I cannot discover any advantage in the making of this distinction, and in my definition of instinct above I stated that the stimulus may be environmental or somatic. The fourth and last part of this interesting paper discusses "The Distinction Between Instinctive Tendencies and General Mental Energy" and touches upon the psychology of play.

Whether one agrees with the author or not, it must be admitted that the paper is well written, very interesting and stimulating.

A. WOHLGEMUTH.

Internationale Zeitschrift für Individual-Psychologie, January-February, 1929.

This number contains the following articles:

A Psychological Consideration of Urticaria [Eine psychologische Betrachtung der Urticaria]. Cole, E. M.

A short account of a case of urticaria produced by the partaking of cheese, which is claimed to have been cured by psycho-analysis.

The Psychology of Suicide [Zur Psychologie des Selbstmordes]. Schletter, E.

An interpretation of a suicide's character from the view-point of Adler's individual-psychology.

The Individual and the Community in the Animal Kingdom [Individuum und Gemeinschaft im Tierreich]. Oeser, R.

The most elementary consciousness or subconsciousness that may be assumed in the animal kingdom, even lower than the vertebrates, is that of the "consciousness of size." The instinct of self-preservation is a fiction. It is of importance to the individual to appear big and powerful in order to maintain his place in the sun, and therefore the individual, as a member of a community, feels himself the bigger the bigger the community.

On the Value of Individual-Psychological Conformity in the Animal Kingdom [Über die Geltung individualpsychologischer Gesetzmässigkeit in der Tierwelt]. Menzel, R., and Menzel, R.

The doctrines of individual-psychology have been derived from observations on human psychical life, but they have been found to obtain also in the animal kingdom. The young animal is influenced as much by its surroundings as is the young human being. Apparent character deficiencies in animals, which, as a matter of fact, are based on social maladaptations, may be remedied by suitable psychotherapeutic means (generally change of surroundings).

Romantics and Classics [Romantiker und Klassiker]. Bloch, E.

An attempt to bring Wilhelm Ostwald's classification of "great men" as "romantics and classics" into line with Jung's "introverts and extraverts" and Adler's "pessimists and optimists." Sir Humphry Davy, Baron Liebig, Lord Kelvin, Ernst Haeckel and Victor Meyer are considered as romantics, whilst among the classics we find Berzelius, Michael Faraday, Charles Darwin, Hermann Helmholtz, Georg Mendel and Ernst Mach.

Modern Marriage as a Neurotic Symptom [Die moderne Ehe als neurotisches Symptom]. Neuer, A.

The marriage of to-day is only one of many neurotic symptoms. The war and post-war conditions have only rendered manifest what was dormant in pre-war days.

Psychological Reflections on the Coué Method [*Psychologische Betrachtungen zur Methode Coué*]. Klingholz, E.

If we do not believe in our "unconscious" that we shall conquer, we shall fail. There is only one path from the "will" to all unconscious functions of the body and the soul, which is so short that with some practice it can be traversed in twenty to twenty-five seconds—in twenty to twenty-five seconds, therefore, any bodily or mental pain can be completely banished.

The Educational Task of Pianoforte Teaching [*Die Erziehungsaufgabe des Klavierunterrichts*]. Deutsch, L.

The re-valuation of personal values in the light of those of the community revolutionizes science, making each science a daughter science of individual psychology. In the teaching of music, especially the pianoforte, the teleological outlook is essential; technique ought not to be the end aimed at, but the training of musical appreciation.

Dreams of an Abstainer [*Träume eines Abstinenten*]. Klatt, G.

In his dreams the author is drinking alcohol. According to individual psychology, the purpose of the dreams is to support or strengthen him in his abstention.

Marcel Proust as Data for Psychology. Anonymous.

This paper is written in English, and discusses an incident of Proust's childhood, his exceptional memory and his ideas of love.

A. WOHLGEMUTH.

Mind, vol. xxxviii, No. 150, April, 1929.

This number of *Mind* contains papers of philosophical interest :

Relations and Universals. R. Ainscough.

The Field of Æsthetics. A. C. A. Rainer.

The Experimental Method and Religious Beliefs. H. D. Roelofs.

The author comes to the conclusion that it is not applicable.

Consonance of Welfare and Pleasure. C. Lloyd Morgan.

This is a rejoinder to Wm. McDougall on the subject.

The Pleasure-quality and the Pain-quality Analysable, not Ultimate. Miller, Dickinson S.

"Why Pleasure and Welfare are Conjoined" is a sub-title suggested by the author to this paper, and the answer he gives is that the peculiar problem vanishes when we analyse pleasure and pain. It is, however, impossible to follow the argument, because the author, evidently not fully acquainted with the literature of the subject, uses the old nomenclature Pleasure-Pain, instead of Pleasure-Unpleasure, and, as a consequence, confounds the sensation of pain (which, let it be stated again, may have a pleasant feeling-tone) with the feeling-tone unpleasure. "Pleasure, we are

told, is a name given to the primary sensation itself and not to the attendant feelings of reaction" (*sic*). It is futile to try and follow the argument.
A. WOHLGEMUTH.

Psyche, No. 35, January, 1929, contains the following papers :

The Universal Language. Editorial.

An advocacy of English in a modified form, "Panoptic English," as a universal language.

Bentham on Division. Wisdom, J.

A paper of purely logical interest.

The Interpretation of Mental Tests. Hamilton. E. R.

This is a thoughtful and very readable paper questioning the validity of mental tests, especially intelligence tests, now so much in the forefront of psychological investigation, and applied psychology. It ought to receive the consideration of everyone interested in the subject.

The "Complete Scheme" of Proportions. Shen, E.

A paper of purely logical interest, criticizing the Aristotelian propositions, four in number, and advocating Dr. Ladd-Franklin's increase to eight.

Educational Hypnotism. Orton, J. L.

This paper is by a professional teacher of voice-production who dabbles in hypnotism. During many years of "study" or "investigation," he attempted to rid hypnotism of everything that could be regarded as extraneous, and to discover what was common to all sets of hypnotic procedures. He concluded that this was *Placidity*. Hypnotism he defines as "the art and science concerned with the systematic (as contrasted with the haphazard) training, development and utilization of attention"; and hypnosis as "an artificially induced contemplative mood." It is difficult to understand how this paper found its way into *Psyche*.

An Hypothesis. Rice, C. H.

"Evolution put God into the mind of man, and when science puts God into evolution, then, and only then, will there be no conflict between science and religion." The author discusses Samuel Butler's suggestion in his *God: Known and Unknown*, to look upon the universe as a vast organism of which everything forms part, rejects it, and thinks that organic evolution is analogous to the plan by which Nature creates each living thing. "Therefore to call the earth an egg that contains a developing embryo at once suggests design and plan" that account for many phenomena.

A. WOHLGEMUTH.

Psychological Monographs, xxxix, No. 2—No. 178, 1928.

University of Iowa Studies in Psychology, No. xii.

This is a Seashore commemorative number. It contains a complete annotated bibliography of Prof. Seashore's writing and a review of ten volumes of *Iowa Studies in Psychology*. There are also contributed the following papers :

A Comparative Study of the Performances of Stutterers and Normal Speakers in Mirror-Writing. Travis, L. E.

Right-handed stutterers are more facile with the left than with the right hand in mirror-tracing, while right-handed normal speakers are more facile with the right hand. Normal speakers are distinctly superior to stutterers in mirror-tracing with the right hand.

Stanford Motor Skills Unit. Seashore, R. H.

A description of a battery of motor tests for use outside a laboratory is given, followed by that of the tests.

The Sense of Direction in Mental Imagery. Erickson, C. I.

When a speaker desires to secure for his audience a clear conception of what he describes, he should, if possible, refrain from gesture of the demonstrative type and allow his listeners to create their own spatial patterns.

The Iowa State College Reasoning Test. Vance, T. F.

Vestibular Sensitivity to Intermittent Passive Rotation of the Body. Travis, R. C.

The following are the principal results recorded : The percentage of right responses varies directly with the average acceleration of the canals when the interval between recurring stimuli and duration of each are constant. Vestibular sensitivity to rotation to the right is greater than that to the left. The percentage of right responses varies inversely as the interval between recurring stimuli and duration of each, when the average acceleration is constant, and also as the interval between recurring stimuli of the same duration with the average acceleration of each constant. A more intense stimulus completely inhibits a later less intense stimulus of the vestibular system, while the less intense has no effect on the more intense.

After some papers on "Psychology and College Instruction" there follows a section entitled "Psychology and the Artistic" which contains the following papers :

What is Voice Vibrato? Metfessel, M.

Seashore Measures of Musical Talent. Stanton, H. M.

Five Studies of the Music Tests. Gaw, E. A.

Correlation between Intelligence and Musical Talent among University Students. Fracker, G. C., and Howard, V. M.

The Aesthetic Attitude in Music. Meier, N. C.

The First Vocal Vibration in the Attack in Singing. Stevens, F. A., and Miles, W. R.

A. WOHLGEMUTH.

Sex Difference in the Association of Ideas. (*Amer. Journ. of Psych.*, April, 1929.) Miles, C. M., and Terman, L. M.

After discussion of the psychological problem of the association of ideas and of word-association technique, the authors attempt a classification of word-association data based on sex difference. This classification may be tabulated as follows:

- I. In terms of the subject.
 - A. Response type (level of intensity of attentive consciousness or degree of integration reached). (1) Superficial; (2) cooperative or meaningful; (3) guarded complex region, personal emotional level.
 - B. Personality type (emotional colouring of any level or degree of integration). (1) Objective, logical, cold; (2) subjective, predicate, or value type.
 - C. Interest type (racial, national, social, occupational, educational, age and other influences). (1) Extent of interest; (2) character of interest; (3) value of interest; (4) normality or abnormality of interest.
 - D. Form type. (1) verbal; (2) logical.
- II. In terms of the stimulus.
 - A. Modal forms of presentation.
 - B. Verbal forms of presentation.
 - C. Free and controlled associations.
 - D. Influence of recording methods.
 - „ of high-tension words.
 - „ of experimenter.

The results of this extensive investigation are rather meagre. It was found, for instance, that there were no significant sex differences where the groups compared were of approximately similar training and experience, but there were considerable differences between the respective fields of interest. The sex of the experimenter appeared to have some influence. Most of the other differences found were admittedly small. A. WOHLGEMUTH.

The Range of Attention. (*Amer. Journ. of Psych.*, April, 1929.) Glanville, A. D., and Dallenbach, K. M.

The authors hold, quite rightly, that the traditional problem of the "range of attention" is one that is more concerned with apprehension than with attention. A point which is, however, apparently not appreciated by the authors is that attention is essentially a conative process, the conative aspect of an apperceptive or of a thought process, etc. If this were fully realized it would make the whole problem much easier.

The object of the investigation was, as stated by the authors, "to repeat Gill and Dallenbach's work, adding introspections and extending the range of the stimulus-values," and, further, "to demonstrate that the constant of the traditional 'range of attention' experiment is dependent upon the degree of cognition involved in the report, and that the range of attention—if it be possible to

formulate such a problem—can be properly investigated only when the cognitive factor is eliminated."

There were three psychologically-trained observers. Five series of tachistoscopic experiments were performed, the observers being differently instructed in every series. In the first series it was sought to escape the cognitive complications of the traditional experiments by reporting, not upon the stimulus object, but upon the distribution of the attentivity (clearness, vividness) of their impressions during the moment of exposure. In the remaining four series the cognitive complications involved in report were taken into account. Different levels or degrees of cognition were aimed at by different instructions to the observers, and it was noted how the "range" of the reports was affected.

The results of this investigation lead the authors to conclude that range is not a proper question to set to attention. The attentive consciousness is an integrated whole, and as such the range is always "one." Questions concerning the number of contents or part contents that may be simultaneously experienced are questions, since cognition is inherent in report, that concern cognition and not attention.

A. WOHLGEMUTH.

Attention-Automatization: An Investigation of the Transitional Nature of Mind. (*Amer. Journ. of Psych.*, January, 1929.) Ford, A.

In a previous work on *attention* the author made the criticism that the fact of *automatization* of the task during the investigation has generally been overlooked, and also that when attention was measured by the resistance to distraction the fact of habituation was similarly neglected.

The material with which the author worked consisted of rows of small or capital letters interposed with figures at irregular intervals. These had to be added by the subject. Various noises were made at intervals. The following are some of the conclusions derived from the data obtained: The initial reaction is always longer than any other reaction of the period having constant environmental stimulus patterns. New integrations of behaviour are accompanied by evidences of general motor tonus which, as time passes, exhibits signs of a gradient. Vaso-motor concomitants likewise show initial effects, which go through gradient changes as the same type of work continues under constant environmental stimuli. Shortness of reaction-time apparently becomes a measurement of automatization.

A. WOHLGEMUTH.

A Simple Series of Abilities. (*Amer. Journ. of Psych.*, January, 1929.) Robinson, E. S., and Richardson-Robinson, F.

The authors say that "nothing could be more certain than the value of the tests for general intelligence," but what they really do measure is uncertain. In order to investigate this problem they set themselves the task, not to examine the ability to measure lines, but to examine the ability to measure lines of certain lengths. They worked with 81 observers and with standard lines of 10

different lengths; these differed by 3 cm. from one another, the shortest being 6 cm. and the longest 33 cm. Each line had to be reproduced 40 times, and the average of these was taken. The table of correlations which is given is very interesting, for the coefficients decrease with the difference in the lengths of the lines whilst the reliability coefficients are as high as 0.98. In the light of these results the authors discuss two fundamental issues of differential psychology, *viz.*, (1) the meaning of factors, or causes, of correlation, and (2) the nature of the grouping of simple abilities into larger classes.

A. WOHLGEMUTH.

The Law of Affective Equilibrium. (*Amer. Journ. of Psych., January, 1929.*) Beebe-Center, J. G.

In the realm of cognitive and conative experiences "Gestalt" psychological laws have been formulated of late. The author has attempted to investigate whether such laws obtain in the affective field. He experimented with three trained observers and a set of twenty-one olfactory stimuli, which were arranged in order from most pleasant to most unpleasant. It was found that after unpleasant determination the percentages of pleasantness were greater than after pleasant determination. The following law is then formulated: "The affective value of the experimental correlate of a stimulus varies conversely with the sum of the affective values of those experiences preceding this correlate which constitute with it a unitary temporal group." The investigation was not well planned, the facts of fatigue, relief, contrast, etc., are not sufficiently considered, and this "Gestaltgesetz" will hardly appear acceptable even to those who may be otherwise favourably inclined towards "Gestalt" psychology.

A. WOHLGEMUTH.

Improvement in Memory Span. (*Amer. Journ. of Psych., January, 1929.*) Martin, P. R., and Fernberger, S. W.

Memory span improves up to the end of the second decade and then remains stationary; it has therefore been looked upon as a congenital ability. The authors investigated the auditory vocal memory span upon two intelligent students as subjects by giving them series of digits from five upwards until they broke down. Two series were given each day for each number of digits, and the score for each day was the highest single series reproduced correctly. Both subjects showed distinct improvements as time went on, but from the introspective record it is evident that practice in grouping the digits was of paramount importance. So the authors rightly say, "It is obvious that no unqualified statement can be made with regard to improvement in memory span."

A. WOHLGEMUTH.

A New Classification of the Red-Green Colour-Blind. (*Amer. Journ. of Psych., April, 1929.*) Terman, S. W.

The colour sphere rather than the spectrum should be used as a basis for tests of colour-blindness, since differences in saturation

and lightness are for the colour-blind differences in hue. An individual's colour vision may be described in terms of the four-stage classification of colour-vision. Each hue is given a rating of 1, 2, 3 or 4. A rating of 1 indicates perfect vision and one of 4 that the hue is seen as grey; 2 and 3 are for intermediate stages. The many different types of confusions made by different colour-blind individuals are explained by this classification, for only colours which are seen alike are confused.

A. WOHLGEMUTH.

Grey and the Colour Pyramid. (*Amer. Journ. of Psych., April, 1929.*) Dimmick, F. L., and Holt, C. H.

The authors found that the necessary and sufficient colour categories, or unique colours, are red, yellow, green, blue, black, white, and grey; and consider that grey ought to be treated as a unique colour.

A. WOHLGEMUTH.

Energy, Engines and the Engineer: A Critique of C. Spearman. (*Amer. Journ. of Psych., April, 1929.*) Washburn, M. F.

After paying merited tribute to Prof. Spearman's *The Abilities of Men*, the author gives an outline of Spearman's theory of general and specific factors, and then advances his objections to the vitalistic assumption of an engineer and to the assumption of a mental energy with laws that do not harmonize with those of nervous energy. The latter, he thinks, arises from the mystical tendency that assumes the control of an engineer. Prof. Washburn prefers to think that each of us inherits a central engine, the brain cortex, with peculiarities of structure that determine intellectual ability by determining what portion of the energy derived from metabolism can be used for thought. Neither innate quantity of mental energy, nor the power of a superphysical engineer, but innate differences in the structure of the engine, seem to him the most probable basis for differences in the abilities of men.

A. WOHLGEMUTH.

Unconditioned Salivary Response in Man. (*Amer. Journ. of Psych., April, 1929.*) Winsor, A. L., and Bayne, T. L., jr.

Secretion from the parotid gland appears to be the result of highly integrated nervous action. The nature of this reaction at any time might be the result of direct or indirect excitation or inhibition, whether conditioned or unconditioned. The data in this report point to the possibility of direct proprioceptive stimulation of these glands from the muscles of mastication and swallowing. In addition to the functional evidence presented, attention is called to the fact that recent neurological research has presented conclusive evidence that there are nerve-fibres ascending from these muscles to the salivary centres.

A. WOHLGEMUTH.

Preliminary Note on After-images from Stimuli of Low Saturation and Short Duration. (*Amer. Journ. of Psych., April, 1929.*) Frehafer, M. K.

With graded stimuli less than 70 ml. in brightness, of short duration and low saturation, the following results were obtained:

(1) White stimuli 5,300–5,460° K. usually produce blue or purple Purkinjė images, rarely white.

(2) Blue stimuli 6040° K. usually produce blue Purkinjė images, yellow to only a few.

(3) Yellow stimuli 4100° K. seem invariably to produce blue Purkinjė images of rather high saturation.

(4) This image is not strictly complementary to the stimulus.

(5) Red-haired observers report red (purple, pink, lavender, etc.) in nearly all after-images; brown-haired observers rarely report this hue.

(6) The Purkinjė image fails to appear in the fovea centralis, but appears in the parafoveal region. A. WOHLGEMUTH.

The Influence of Degree of Learning upon Retro-active Inhibition.
(*Amer. Journ. of Psych.*, April, 1929.) McGeogh, J. A.

The problem investigated was to find the influence of the degree of learning upon the amount of retro-active inhibition. The memory material consisted of nonsense syllables. Nine-syllable lists were learned by the anticipation method with a 2-second exposure to 6, 11, 16, 21 and 26 repetitions. At each number of repetitions a rest condition was compared with a work condition in which a 9-syllable list was learned similarly to 11 repetitions. The relative amount of retro-active inhibition when retention is measured by recall or by the saving method varies inversely as the number of learning presentations. A. WOHLGEMUTH.

Reliability of the Galvanic Reflex. (*Amer. Journ. of Psych.*, 1929.)
Lauer, A. R.

Before the validity of a test can be established the reliability of such measurement must be determined. If the test will not measure twice the same way, that is, if the reliability is low, then the use is not warranted. In this investigation the author set himself the task to determine the reliability of the galvanic reflex under experimental conditions. Although he finds that "the reliability of the galvanic reflex is quite high and apparently higher than that of pencil and paper emotional tests now on the market," the validity must first be thoroughly established in order to make the galvanometer an asset to psychological or physiological method. A. WOHLGEMUTH.

3. Clinical Psychiatry.

Protopathic-instinctive Phenomena in Normal and Pathological Malay Life. (*Brit. Journ. Med. Psych.*, February, 1929.)
van Loon, F. H. G.

Amuk and *Latah*, two forms of insanity among the Malay, and are racial, like the colour of the skin or the shape of the skull. In their

manner of occurrence the author likens them to the protopathic stage of sensibility and the mass-reflex. A. WOHLGEMUTH.

Parergastic Reactions and Reaction Types; Schizophrenia. (Arch. of Neur. and Psychiat., May, 1929.) Hohman, L. B.

The author traces the gradual development of the idea of schizophrenia from the Kraepelinian concept through the theories of Bleuler and of Adolf Meyer. He thinks that the word "parergastic," which may be translated paradoxical activity, may very well be substituted for the word "schizophrenia." This was originally the suggestion of Adolf Meyer. The parergastic reaction is a type of reaction arising from poorly developed habits of adjusting to other people and to new circumstances, with a tendency to retire from situations rather than meet them by decision; it is seen as arising further from an under-development and undertraining of adequate affective responses to situations and people. It is characterized by an absence of moods, unless the situation is acute, when there are outbursts of rage; by a tendency to seek compensatory satisfaction in ruminating and day-dreaming; a tendency to avoid concrete activity; a willingness to live in an imaginary world without any translation of wishes and desires into realized ambition, and the development of a sexuality divorced from other people. The primary principle of the parergastic reaction is an attitude of passivity. Affective admixtures argue for benignity; an acute onset is prognostically better than an insidious one. A shut-in personality is more unfavourable than an out-going personality.

G. W. T. H. FLEMING.

Personality Changes in Children following Cerebral Trauma. (Journ. of Nerv. and Ment. Dis., April, 1929.) Kasanin, F.

The author found that 10% of his cases originally diagnosed as psychopathic personalities had had serious brain injury during childhood or adolescence. The conduct disorder in many respects resembled that following epidemic encephalitis. All these cases were treated first as functional cases with extensive psychotherapy, exploration and change of environment, and it was only after repeated failure of the treatment that it was felt that the cases were of definite organic ætiology. The author thinks that in these cases there is a tendency towards adjustment on a somewhat lower level. He aptly points out that we do not know what effect difficult labour with the application of high forceps may have upon a child. Inability to stand heat and shut-in places are considered to be diagnostic of post-traumatic states. Encephalography is a very important procedure for demonstrating cerebral atrophy. From the point of view of treatment, the author points out that special training in correctional institutions under intelligent supervision is useful in developing conduct. Soon after the accident the child should be removed to the country away from all excitement and stimulation.

G. W. T. H. FLEMING.

Hypochondria: Its Definition, Nosology and Psychopathology.
(*Guy's Hosp. Repts.*, October, 1928.) Gillespie, R. D.

Hypochondria is defined as a persistent preoccupation with one's bodily health, out of proportion to any existing physical justification, and with a conviction of disease. No other effect than the belief involved in conviction need be apparent; but there may be some accompanying depression, not out of proportion to what would reasonably be expected to accompany the knowledge of the existence of bodily (or mental) disease. The conviction (like all convictions) defies direct attack.

This concept gives the basis for the nosological isolation of hypochondria as a clinical reaction type in its own right. For a clinical description there are added observational data regarding the course, which is chronic but not (over a long period) deteriorative intellectually or emotionally, the age and sex of the person involved, and the response to therapy. They are nearly always men, so far as the present series goes. This preponderance of the male sex is in accord with the traditional description of hypochondria. It is perhaps explicable on a psycho-pathological basis. The ages in the series described extended from 19 to 60. Inaccessibility to therapy is the clinical aspect of the firmness of the conviction. This also is illuminated by the psycho-pathological analysis. Exact nosological definition enables a distinction to be made from what can now be called pseudo-hypochondriasis—hysterias and anxiety-states. It also enables us to speak of a hypochondriacal development of an abnormal personality, such as the schizophrenic. It is still hypochondria, and it is not correct to consider the hypochondriacal ideas in such instances as part of a larger syndrome. It is more accurate to speak of hypochondria in a schizoid personality, the additions to the pure hypochondriacal picture depending not on a new concurrent development but on pre-existing oddities of personality. On the other hand developments concurrent with the appearance of the hypochondriacal ideas may make it necessary to consider the hypochondriasis simply as part of a schizophrenic syndrome.

The consideration, in certain hypochondriacs, of the possible unconscious trends involved helps to explain not only the fixity of the hypochondriacal beliefs, but their nature (damage to the bodily health), and, in some instances, the actual localization of the physical complaints. A contribution is suggested to the theories of the aetiology of peri-anal pruritus, which appears in some instances to be an anal erotic masturbation.

An investigation of the personal characteristics that existed before the outbreak of symptoms in certain cases showed a number of abnormal traits, some of which resembled those described by Freud and Ferenczi as depending on anal erotism; but there is not sufficient evidence in these cases to connect the actual symptoms definitely and directly with any particular traits, although some interesting associations suggest themselves. On the whole, the impression is of the very considerable endogenous factor in all such

cases, and of the slight importance of environmental stresses (bodily or external).

The differences in the response to treatment in the series of cases discussed are of interest and importance.

J. R. LORD.

The Mental Aspects of Encephalitis. (*Med. Journ. Australia*, July 21, 1928.) Dawson, W. S.

This is an interesting summary, illustrated by the clinical records of a number of cases. The author's views may be stated as follows:

In acute encephalitis the mental symptoms are in no way specific, but are those seen in a variety of conditions in which the functions of the cerebrum are impaired through toxic or mechanical causes. Bearing in mind the Jacksonian conception of the dissolution of functions, both mental and physical symptoms may be considered as inhibition and release phenomena following the temporary or permanent suspension of activity at the highest level. The outstanding mental feature in acute encephalitis is lethargy or stupor.

Lethargy may be associated with delirium and restlessness. The delirium may assume an "occupational" type.

Some patients display a peculiar loquacity, mostly incoherent, and lacking the emotional display and appreciation of the relation to environment which characterize the utterances of those suffering from true mania. Profound depression with suicidal impulses has been noted in the acute stage in a few patients.

Since the mental symptoms of the acute stage may not present any distinguishing features, one must depend upon the physical examination for an understanding of the case. Stupor may cause some difficulty owing to its resemblance to hysterical dissociations and the katatonic form of dementia præcox. Stupor, however, in encephalitis is rare without the physical signs of the latter, but cases have been recorded without neurological signs in persons whose brains showed the characteristic findings at the autopsy.

In 30 patients to whose records the author has recently had access, and in 15 seen by himself in the past eight years, the outstanding mental states were as follows: lethargy, 26; lethargy with delirium, 6; delirium (including 2 with the occupational type and 3 with crises of anxiety or fear), 9; no definite mental change, 4; total 45.

The Korsakov syndrome with confabulation and illusions of recognition is an unusual occurrence in encephalitis. It is yet to be learned how many so far unexplained states of excitement and confusion have a toxic or infective basis, such as occurs in epidemic encephalitis.

In Parkinsonian patients treated *in the wards* of the Royal Prince Alfred Hospital and at Broughton Hall there was a distinct mental change in 50% of cases. The same applied to 85% of those referred to a psychiatric clinic. The same patient may pass through a number of stages, from the neurasthenic to the depressed and perhaps to the permanent stage of emotional dullness with more or less intellectual impairment.

All attempts to regard any single mental symptom as a fixed

reaction type are likely to be misleading, unless the patient is observed over a long period of time.

There is surprisingly little evidence of psychopathy previous to the encephalitis.

A history of acute illness, influenzal in type, with delirium, somnolence, diplopia, hiccup or some other accompaniment suggestive of encephalitis is obtained in nearly 95% of cases.

As regards development of chronic symptoms, the first to occur are neurasthenic (fatigue, weakness), then depression, increasing slowness, stiffness and tremors.

The diagnosis may be difficult in the early stages of Parkinsonianism owing to a resemblance to neurasthenia or melancholia.

Many cases can be diagnosed only after prolonged observation. In melancholia furrowing and wrinkling rather than the fixed and smooth features of the Parkinsonian mask are displayed, nor are the eyes so staring and prominent. Salivation is absent. Rigidity may be present in the melancholic, but is then not so much passive as resistive and active, and the emotional tone and ideation are definitely depressive. The Parkinsonian, on the other hand, nearly always presents physical signs of a type not found in melancholia. Nevertheless, it is possible that some patients classed as chronic melancholics in mental hospitals may be found to have mild signs of encephalitis.

Katatonias are associated with a number of quite distinctive mental symptoms and with bizarre utterances and conduct, and is a disorder of personality.

The Parkinsonian syndrome may develop through a phase in which unusual fatigue and sense of weariness, often with impaired concentration, constitute the main symptoms. These symptoms usually persist after the physical signs have become definite; or they may persist with considerable intensity, while physical signs fail either to develop or to reach a severe degree—the so-called asthenic syndrome. The resemblance to neurasthenia of mental origin is so close that much time may be spent in searching for possible psychological factors. Careful and repeated examination should be made for defective pupillary reactions and impaired conjugate movements of the eyeballs and for slight facial palsies and for tremors. In the great majority of cases the onset of the Parkinsonian syndrome is insidious, and is rarely ascribed by the patient to any special circumstance.

It is remarkable that in very few individuals is the disorder of conduct which may follow encephalitis sufficiently severe to lead to certification. Transitory phases of depression occur in Parkinsonians, but the patients rarely express any deep sense of hopelessness or declare that they would be better dead.

As Prof. Wimmer and others have pointed out, ocular spasms are liable to occur when the patient is under the influence of strong emotion. But in the author's experience the ocular spasms and the emotional crises have often occurred simultaneously. The causes must therefore be looked for within the vegetative nervous apparatus.

The acute stage in children presents no special features. The plastic and still developing nervous system is relatively more affected than in the case of the adult, hence the greater liability to mental arrest or impairment and anti-social behaviour. The Parkinsonian syndrome is rarely seen before the age of ten.

The most striking sequel in children is the change in disposition involving a weakening of the moral sense. Wanton destructiveness, stealing and sexual misconduct are some of the more serious developments.

J. R. LORD.

Mental Deficiency and Maladjustment. (*Brit. Journ. Med. Psychol.*, vol. viii, pt. 4, 1928.) Harris, Henry.

The author's summary of this comprehensive paper may be abbreviated thus :

Mental deficiency is a maladjustment due primarily to biological defect causing mental subnormality secondary to psychological or social factors or both. Where adult intelligence does not exceed a Terman age of six or seven, the primary biological factors in themselves constitute mental deficiency. Where the Terman age lies between seven and eight or nine, secondary factors determine whether an individual will be legally defective or merely subnormal.

The primary biological factors determining subnormal intelligence are manifold ; mental defect is not a unitary condition. Of the five groups of biological factors—hereditary, blastophoric, congenital, natal and acquired—the second and third are especially worthy of further investigation. Hereditary factors will demand a eugenic solution, blastophoric and somatic factors a euthenic solution. It seems wiser to consider both, with the emphasis perhaps on the latter. An adequate case does not seem to have been made out for sterilization.

Because of its manifold organic causation, mental defect is most practically considered in terms of intelligence and social behaviour. The nature of intelligence not being completely understood, the relevancy of mental testing is not definitely established. For practical purposes it has some validity. Large-scale testing has shown that a maximum mental age of twelve includes too much of the population and is impracticable. Provisionally eight or nine seems a suitable delimiting mental age, above which no one should be regarded as defective, at and below which we have a reservoir of subnormality on which ferments of psychopathy and social suggestion act to produce the actual incidence of mental defect. Social behaviour in the young is conveniently considered in educational terms, in the adult in economic and industrial terms.

The psychological factors complicating subnormality consist principally of anomalies of temperament and character, and to a lesser extent, of psychotic and psychoneurotic reactions. Psychologists and psychiatrists have yet to devise a comparable, and, if possible, a quantitative method of rating temperament. The most practical method is an evaluation of emotional traits selected on a purely

situational basis. Anomalies of temperament and character are, then, the exaggeration of individual emotional traits or of a disharmony between them, and are the result of social factors in the environment acting on the increased suggestibility of the subnormal. Failing prevention by general social and educational measures, such anomalies will require individual corrective treatment by parent, teacher, probation officer, or in the last resort by the psychiatrist aided by his social workers.

The social factors complicating subnormality are either of omission or commission, or—as an extension of the latter—due to the social demands made on the individual. The cardinal sin of omission is failure to give the subnormal a differential training in the home, the school, or in special vocational centres; to make the most of whatever intelligence there is, and to avoid a sense of failure with its risks of consequent psychopathy. Sins of commission are those exposing the subnormal to cause environmental conditions that tend to exaggerate individual traits or a disharmony between them. Sex and domicile may modify social demands sufficiently to determine whether the subnormal will adapt himself or not.

Social methods of treating and controlling mental deficiency have the following aims: The biological determinants of subnormal intelligence must be kept in check by positive and negative eugenic and euthenic measures. The subnormal must be socialized to the full extent his intelligence allows: by habit-training in the home, by differential training in the schools, and by a special vocational preparation. Child guidance and educational clinics may here reinforce and direct the work of the parent and teacher. A further aim is to modify the environment, to avoid that which tends to induce character anomalies or precipitate antisocial reactions, and a suitable place must be found for those who can be trusted; here the vocational bureaux will be of increasing value. Social demands must be regulated, and some degree of permanent supervision may be necessary. Custodial and antisocial types must be segregated and socialized, by establishing a systematic, continuous, progressive chain of contacts with the outside world—institution, colony, parole—and then discharge, with permanent supervision, if necessary.

Psychological treatment of subnormality is mainly corrective; social treatment is preventive of maladjustment; the ultimate solution rests on the social control of the primary biological factors.

The study of mental deficiency, of the psychoses and the psychoneuroses are the three legs of the psychiatric tripod. The psychiatrist is hardly competent to deal with one of these aspects of maladjustment, unless he thoroughly understands the other two.

It is still imperfectly realized how much the study of mental deficiency is capable of contributing to our knowledge of maladjustment.

On the biological level it draws our attention to genetic values; and to the relationship between biological make-up and subsequent psychotic and psychoneurotic reactions.

On the psychological level, the study of intelligence problems is revealing how much maladjustment is due to discrepancy between amount and type of capacity and attempted achievement, and is revealing the rôle of general and special abilities and disabilities in such problems. The study of temperament in the sphere of mental deficiency must ultimately reveal interesting and important relationships between innate emotional traits and acquired psychoses and psychoneuroses superimposed on them.

On the social level the task of educating defective children has elicited important educational principles which will enable us to exploit more fully the capacity of both normal and supernormal children. The theory and practice of vocational diagnosis and training being built up as a direct result of the needs of defectives must ultimately be of fundamental importance to the process of rehabilitation of the maladjusted; vocational treatment will follow psychotherapy as stages in the same process.

The treatment of mental defectives has emphasized the need for social workers with psychiatric training, whose functions will be partly corrective and controlled by the psychiatrist, and partly preventive with power to act on their own initiative.

J. R. LORD.

4. Pathology.

Calcifications in the Choroid Plexus with Consideration of Their Significance. (*Arch. of Neur. and Psychiat.*, March, 1929.)
Sachs, E., and Whitney, C.

The authors describe the case of a microcephalic idiot of 18 whose skull, on radiography, showed well-marked calcification of the choroid plexus in both lateral ventricles and in the third ventricle. They consider that the calcifications are formed about substances which the choroid has retained and which have been prevented from getting into the cerebro-spinal fluid.

G. W. T. H. FLEMING.

Alzheimer's Disease. (*Arch. of Neur. and Psychiat.*, April, 1929.)
Malamud, W., and Lowenberg, K.

The authors describe two cases of Alzheimer's disease, one aged 65, the other 15. The latter case showed advanced changes in the choroid plexus. This condition does not appear to have been mentioned by other authors. Possibly there is some relation between the changes in the choroid plexus and the formation of plaques, etc., so characteristic of Alzheimer's disease.

G. W. T. H. FLEMING.

Endarteritis of the Small Cortical Vessels in Severe Infections and Toxæmias. (*Arch. of Neur. and Psychiat.*, April, 1929.)
Winkelman, N. W., and Eckel, J. L.

The authors describe seven cases of changes in the brain in severe infections and toxæmias. The conditions comprised typhoid fever,

acute rheumatic fever, toxæmia of pregnancy, erysipelas, Hodgkin's disease, chronic tuberculosis and an undetermined toxic condition. Clinically the cases resembled meningismus rather than a real meningitis. Pathologically the chief change was in the small cortical vessels, with resultant secondary manifestations in the brain-substance. The lining cells of the small vessels showed swelling and proliferation, along with formation of new vessels. Scattered throughout the cortex were small microscopic areas of partial or complete softening resulting from cutting off the blood-supply by the swollen endothelial cells. Cloudy swelling in the ganglion cells was a universal observation. Reactive glial formation occurred. There was no sign of inflammation, *i.e.*, the process was not an encephalitis. In the chronic stages the endothelial cells of the vessels become shrunken and atrophic, the media becomes swollen and hyalinized, and the adventitia fibrous. Organization takes place in the areas deprived of their blood-supply.

G. W. T. H. FLEMING.

The Relation Between the Total Brain Weight and that of Some of Its Component Parts in Epileptic Patients. (*Arch of Neur. and Psychiat.*, March, 1929.) Patterson, H. A., and Weingrow, S. M.

The authors found that the average total brain weight falls below the normal for both sexes. The average weight of the cerebellum falls below normal, while the average weight of the brain-stem is slightly above normal. The cerebro-cerebellar quotient, determined according to Reichardt, falls within normal limits in both sexes. In the authors' series the average total brain-weight in both sexes falls below that reported for dementia and amentia except in instances of microcephaly, cerebellar atrophy and dementia senilis and paralysis. The average weight of the cerebellum also falls below that reported for the psychoses, except in some cases of atrophy and senile dementia. In the majority of instances the ratio of the weight of the cerebellum to the total brain-weight is higher in other nervous and mental abnormalities than in epilepsy. This is also true of the cerebro-cerebellar quotient of Reichardt.

G. W. T. H. FLEMING.

Basal Metabolism in Schizophrenia. (*Arch. of Neur. and Psychiat.*, April, 1929.) Hoskins, R. G., and Sleeper, F. H.

The authors determined the basal metabolic rate in 80 cases of schizophrenia. The extreme range was from 71 to 106%, with a mean value of 89%. In 56% of the cases the range fell below the conventional lower limit of normality. The pulse-rate ranged from 42-86, with a mean value of 61. Of the total 286 cases in the literature (including the authors') 48% showed a basal metabolic rate below 90%. The authors conclude that the basal metabolic rate in persons with dementia præcox averages more than 10% below normal.

G. W. T. H. FLEMING.

The Fat, Lipin and Cholesterol Constituents of Adrenals and Gonads in Cases of Mental Disease. (Biochem. Journ., vol. xxii, No. 4, 1928.) Woodhouse, D. L.

This is an account of an important research suggested by the late Sir Frederick Mott, and conducted by the author at the Research Laboratories, Hollymoor Mental Hospital, Birmingham.

Sir Frederick believed that the fat, cholesterol and lipin substances of the nervous system and gonads were possibly manufactured in the cortex of the suprarenal gland.

The author has carried out an analysis of the total alcohol-ether soluble extractives of the adrenals and gonads in 38 patients in mental hospitals, with the object of showing the relationships between the fatty constituents of these glands, and their relative proportions in cases of mental disorder.

The percentages of total fatty acid, lecithin, sphingomyelin, free and ester cholesterol and free fatty acid were determined and the average results for various mental states and age-groups ascertained. The percentage amount of fatty extractives from the gonads was found to show much less variation than that from the adrenals. The lowest adrenal content was found in dementia præcox and the highest in senile dementia.

Low values of phosphatide were obtained in the adrenals of the confusional group, and high figures were found in the adrenals of epileptics.

The relative proportions of the total cholesterol to the total phosphatide varied greatly in the cases examined, and the ratio of these proportions in the pairs of glands differed from unity in a marked degree, so that the evidence from quantitative chemical analysis of the fatty constituents did not support the view that the lipoids of the gonads are elaborated by and transported directly to these glands from the adrenal cortex.

J. R. LORD.

5. Treatment.

Malarial Therapy of Syphilis of the Nervous System [*Terapia malarica della lue nervosa*]. (Il Cervello, Anno viii, No. 4, August 15, 1929 [vii].) Marino, Benvenuti.

The author describes the treatment by malarial therapy at the Pisa University Clinic for Nervous and Mental Diseases, under the direction of Prof. G. B. Pellizzi, of cases of lues of the nervous system occurring in the years 1927-29.

The malarial parasite, the benign tertian (*Plasmodium vivax*), was obtained from a patient at the Clinic of St. Salvi, Florence; 5 c.c. of this patient's blood was injected in the subcutaneous tissues between the scapula and vertebral column in 34 cases, and all responded except 4 (tabo-paresis 1, general paralysis 3); in these repeated attempts failed to carry the infection.

The diagnosis was apparently based on clinical evidence only, no mention being made of laboratory tests. On the observations recorded it was, however, in each case, fully justified.

The cases are first presented in tabular form, in which full details are given of each, the symptomatology being described before, during and after malarial infection. The cases as a whole are then discussed at length from every aspect, including professional and social capacity and legal responsibility of remitted cases.

From the table and the subsequent text are gathered *inter alia* the following facts:

Results of Treatment (Wagner-Fauregg's Classification).

Remissions, complete	9 = 30%.
" incomplete of high grade	5 = 16.66%.
" " of moderate grade	3 = 10%.
No change	8 = 26.66%.
Died	5 = 16.66%.

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30

The total of the first two groups indicates a good result in 46.66% of cases.

The incubation period of the malaria was from 3 to 43 days—usually 7–12 days. The highest number of febrile attacks in any one case was 23. Cessation of febrile attacks was spontaneous in 14 cases. The fever was either quotidian from the first, or assumed that form later, in 90% of cases.

Relation of the Results to Specific Treatment.

	Number of cases.	Remissions complete.	High grade.	Moderate grade.	Un-changed.	Died.
Intramuscular injection of bismuth (salbiolo)	4	1	1	1	1	..
Intramuscular injection of bismuth (salbiolo) alternating with mercurial inunction	4	2	..	0	2	..
Intramuscular injection of bismuth (salbiolo) alternating with myo-salvarsan	6	1	3	1	1	..
Myo-salvarsan	4	3	..	..	..	1
Myo-salvarsan alternating with mercurial inunction	6	2	1	..	3	..
No specific treatment	6	..	..	1	1	4
	—	—	—	—	—	—
	30	9	5	3	8	5

Duration prior to Malarial Treatment in Successful Cases.

General paralysis	{	Remissions complete	14 days (1), 3 months (1), 4 months (4) 6 months (1), 7 months (1), 2½ years (1).
		Remissions incomplete,	5 months (1), 8 months (1), 9 months (1), 1 year (1), 3 years (1).

Relationship of Mental State to Results of Treatment.

		Number of cases.	Remis- sions complete.	High grade.	Moderate grade.	Un- changed.	Died.
General paralysis	Demented	16	2	4	2	4	4
	Euphoric	5	4	..	..	1	..
	Depressed	4	2	1	..	1	..
	Asthenic	1	1	..	..	..	..
Tabo- paresis	Demented	1	..	..	..	..	1
	Euphoric	1	..	..	..	1	..
	Paranoid	1*	..	..	1	..	..
Tabes	Psycho-neurotic	1	..	..	..	1	..
		30	9	5	3	8	5†

* This was the only case which had previously shown spontaneous remission.

† In all cases the treatment aggravated the symptoms and precipitated the fatal result.

Thus the best results were obtained in the emotionally disturbed cases of general paralysis and the worst in the tabo-paretic cases.

J. R. LORD.

The Use of Tryparsamide in Paresis and Tabo-Paresis. (Can. Med. Assoc. Journ., March, 1929.) Menzies, E. C.

The author reviews forty-one cases of cerebro-spinal syphilis, chiefly general paralysis, which were treated with tryparsamide from May, 1923, to May, 1925. At the time of writing, four years, at least, after cessation of treatment, 10 patients had been discharged, 14 were still living, but with advanced dementia, and 17 had died.

Periodic laboratory tests showed a serum reaction in 10 cases, but there was a definite and permanent improvement in this respect in every instance. The tryparsamide was given in weekly doses of 3 grm., with 0.06 grm. of mercury salicylate. In another series of cases bismuth gave better results. Duration of treatment was well over a year and improvement in the mental state always secondary to physical improvement. This was mainly due to the tonic action of the arsenic, and not to any spirochaeticidal effect. Exacerbation of symptoms frequently occurred after the first two or three injections. In tabes the results were disappointing and pain was not relieved. Malarial treatment gave better results. Tryparsamide is better than salvarsan in cerebro-spinal syphilis.

J. R. LORD.

The Bromide Treatment for Epilepsy in the Dispensary. (Arch. of Neur. and Psychiat., March, 1929.) Diethelm, O.

The author starts treatment with slowly increasing doses of bromide, luminal being administered at the same time in amount sufficient to control the attacks. After having established a sufficient storage of bromide in the body, the aim is to maintain a constant bromide-chloride equilibrium. A diet low in salt increases the influence of bromide. Observing the effect of the bromide and noting improvement, one may decrease the luminal gradually and eliminate it entirely or continue it only in small amounts.

G. W. T. H. FLEMING.

Part IV.—Notes and News.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE EIGHTY-EIGHTH ANNUAL GENERAL MEETING of the Association was held on Wednesday, Thursday and Friday, July 10, 11 and 12, 1929; Wednesday at the Westminster City Hall, Charing Cross Road, London, W.C. 2, and Thursday and Friday at the British Medical Association House, 19B, Tavistock Square, London, W.C. 1, under the Presidency, in the earlier proceedings, of Prof. J. Shaw Bolton, D.Sc., M.D., and later of Nathan Raw, C.M.G., M.D., J.P.

On the previous day, Tuesday, July 9, the Council and Committees met at the British Medical Association House as under:

Educational Committee	10 a.m.
Parliamentary Committee	11 a.m.
Revision of Journal Committee }	11.30 a.m.
Mott Memorial Committee }	
Library Committee	12 noon.
Research and Clinical Committee	12.30 p.m.
Mental Nursing Advisory Committee }	2 p.m.
State Registration Committee }	
Council Meeting	3 p.m.

MORNING SESSION.—WEDNESDAY, JULY 10.

At the Westminster City Hall.

Prof. J. Shaw Bolton, the retiring President, in the Chair.

1.† MINUTES.

The PRESIDENT said that the minutes of the last Annual meeting had been published in full in the *Journal of Mental Science*. He therefore proposed that they should be taken as read and be confirmed. [Agreed.]

OBITUARY.

Dr. J. R. LORD said he had been asked by the President to say a few words respecting two members of the Association who had recently died.

Dr. Robert Welsh Branthwaite.

His reference, in the first place, was to Dr. Branthwaite, who, it would be remembered, retired from the Board of Control (England and Wales) in 1926. He took up mental deficiency work at Stoke Park, Stapleton, Bristol, and, as members of the South-Western Division knew from the visit they paid there recently, he did it very efficiently. His decease came as a great shock to many. The facts of his career were known to members present, and were dealt with briefly in the *Journal of Mental Science* for January, 1927, in a note of appreciation on his retirement. He, Dr. Lord, knew Dr. Branthwaite very well, and he was a man for whom he had always had the profoundest admiration. The value of Dr. Branthwaite's work during his long life both as a Civil Servant and as a disciple of medicine was greater than fell to the lot of ordinary men, and they were much in his debt. He was particularly interested, as those present well knew, in the stamping out of infectious disease in mental hospitals, and he wrote that famous

† Numbers refer to items on the Agenda.

report on the subject which was studied by all the local authorities in England and Wales, and had a very great effect in stimulating them to make mental hospitals no longer places of danger, but safe places in this respect for both patients and staff. Dr. Branthwaite had a charming personality, possessed a fund of humour, and always had nice things to say about people if it were at all possible. In disclosing exactly what was in his mind seldom, indeed, did one hear from him a pungent or over-critical remark. He was built on those lines which in their aggregation are creative of "the best of men." On his retirement after twenty-seven years of public service he was greatly missed by the Board he so faithfully served and by the medical superintendents of mental institutions, where he was a welcome visitor at all times. He was greatly loved in the sphere to which he retired, where his loss was keenly felt.

Dr. David Bower.

Dr. LORD said he had now to refer to the death of one who perhaps had been better, certainly longer, known to members than Dr. Branthwaite, namely, Dr. David Bower. He had known him since he, the speaker, was a young medical officer at Hanwell. What he appreciated in those days was that Dr. Bower always knew him, had a pleasant greeting, a kind word, sometimes a "Well done." That was something he could not say about many senior members. Medico-Psychological meetings in those days were lonely places for juniors.

Dr. Bower's attitude to the speaker was not dissimilar to that he adopted towards all juniors of any promise, to whom he was always a real source of stimulation and encouragement.

Members greatly respected Dr. Bower for the good work he did for the Association, especially as a member and for a time Secretary, and later Chairman, of its Parliamentary Committee. His vivacious, humorous and straightforward utterances were both refreshing and illuminating. He was also a prominent figure in public life in his district and county. In private life a kinder and more genuine man never existed.

Wherever Dr. Bower was known, he, for sure, would be sadly missed, but nowhere more than in this Association.

Only recently the South-Eastern Division elected him as its first Chairman, a position he did not live to occupy, but the members would be more than glad that they had had this opportunity of doing honour to the most loved and respected man in the Division.

A letter had been sent to Dr. Bower's son and other relatives, deploring his death.

Members paid their tribute of respect to the departed by rising in their places.

ELECTION OF OFFICERS OF THE ASSOCIATION FOR 1929-30.

The following resolution was put from the Chair :

2. (a) That the Officers of the Association for 1929-30 be :

President.—Nathan Raw, C.M.G., M.D., J.P.

President-Elect.—Thomas Saxty Good, O.B.E., M.A., M.R.C.S., L.R.C.P.

Ex-President.—J. Shaw Bolton, D.Sc., M.D., F.R.C.P.

Treasurer.—James Chambers, M.A., M.D.

General Secretary.—R. Worth, O.B.E., M.B.

Registrar.—Daniel F. Rambaut, M.A., M.D.

Editors of Journal.—

J. R. Lord, C.B.E., M.D., F.R.C.P.E.

Douglas McRae, M.D., F.R.C.P.E.

Thomas Beaton, O.B.E., M.D., F.R.C.P.

Librarian.—J. R. Whitwell, M.B.

[Agreed.]

NOMINATED MEMBERS OF THE COUNCIL.

The following motion was put from the Chair :

2. (b) That the nominated Members of the Council for 1929-30 be :

Sir Hubert Bond, Drs. J. Brander, G. W. T. H. Fleming, D. K. Henderson,
G. A. Lilly, M. J. Nolan and Sir Frederick Willis.

APPOINTMENT OF STANDING AND SPECIAL COMMITTEES.

The following motions were put from the Chair :

2. (c) That the Parliamentary Committee, as revised by the Council (Bye-law 79), be re-appointed.

Added : Dr. H. Dove Cormac.

Dr. R. WORTH proposed the addition of the name of Dr. H. G. L. Haynes.

Dr. LORD seconded.

2. (d) That the Educational Committee be re-appointed. [Agreed.]
 2. (e) That the Library Committee be re-appointed. [Agreed.]
 2. (f) That the Research and Clinical Committee (nominated section) be re-appointed. [Agreed.]
 2. (g) That the Journal Committee be not re-appointed (see later). [Agreed.]
 2. (h) That the Mental Nursing Advisory Committee (Official Members) be re-appointed as follows :
- For England and Wales.*—Drs. H. Dove Cormac, T. Beaton, D. F. Rambaut, F. R. P. Taylor and H. Yellowlees (temporary for General Secretary).
For Scotland.—Drs. W. M. Buchanan, John Keay, T. C. MacKenzie, Douglas McRae and Prof. G. M. Robertson.
For Northern Ireland.—Drs. W. R. Dawson, N. B. Graham, M. J. Nolan, W. S. Smyth and J. Watson.
For Irish Free State.—Drs. J. O'Connor Donelan, L. Gavin, D. L. Kelly, R. R. Leeper, O. F. McCarthy. [Agreed.]
2. (i) That G. F. Barham, M.A., M.D., and C. W. Bowers, L.M.S.S.A., be appointed Honorary Auditors. [Agreed.]
 2. (j) That the Maudsley Lecturer for 1930 be :
 The Hon. Sir Henry Alfred McCardie, Judge of the High Court of Justice (England and Wales), King's Bench Division. [Agreed.]

3. (a) REPORT OF THE COUNCIL.

THE number of members—ordinary, honorary and corresponding—as shown in the list of names published in the *Journal of Mental Science* for January, 1929, was 782, as compared with 754 in 1928.

1927.				
45	Number of new members elected in 1928	.	.	60
754	Number of members registered in 1928	.	.	782
7	Removed according to Bye-law 17	.	.	13
19	Number of members resigned in 1928	.	.	15
10	Number of deaths in 1928	.	.	11

Members :

	1919	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.
Ordinary	626	640	631	676	710	694	703	700	706	727
Honorary	26	24	25	27	30	29	29	30	31	33
Corresponding	9	9	10	13	14	16	16	15	17	22
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	661	673	666	716	754	739	748	745	754	782

The above figures show the growth with fluctuations of the Association since 1919—an increase of 101 ordinary members. They compare very favourably with the corresponding figures 1910–19, which show a decrease from 680 to 626.

Revision of the Bye-laws.

An Order, dated October 29, 1928, by the Lords of the Privy Council allowed the revoking and altering of the Bye-laws which were in accordance with the Resolution of the last Annual Meeting (Wakefield).

One important result of the operation of these revised bye-laws is the election of five Divisional Chairmen who are *ex-officio* Vice-Presidents of the Association.

As these are the first to hold this office it is desirable that their names should be recorded here and reported to the General Meeting :

DAVID BOWER, M.D. (South-Eastern Division) (since deceased).

J. GREIG SOUTAR, M.B. (South-Western Division).

J. R. GILMOUR, M.B. (Northern and Midland Division).

R. B. CAMPBELL, M.D. (Scottish Division).

R. R. LEEPER, F.R.C.S.I. (Irish Division). 77

The Council hope to consider a further report from Dr. Lord on the Bye-laws during the coming year.

The Gaskell Gold Medal and Prize.

The panel of members appointed to inquire into the cost of legal proceedings necessary to alter the terms of the Bequest to permit of this medal and prize being awarded for research alone gave an adverse report, in which the Council concurred.

No further action was considered advisable, and the conditions of the award have reverted to those which existed prior to their revision in 1924.

The Advancement of Research and Clinical Psychiatry.

The activities of the Research and Clinical Committee during the year have been largely those of its Sub-Committees. The Study Tour, etc., Sub-Committee has justified its appointment by organizing two study tours, both of which were thoroughly successful. An account of the Dutch Tour (October 17-25, 1928) has appeared in the Journal, and can now be had as a separate publication. The "Greetings" sent by the Chairman which appear in the latter as a "foreword" have been the subject of an article by Dr. Ariens Kappers in a Dutch journal devoted to psychiatry and neurology. A return visit of Dutch psychiatrists is being arranged to take place this autumn. The Council feels sure that the Association will give them a hearty welcome. These distinguished visitors will be in the particular care of this Sub-Committee during their visit. In June the second tour took place, the Sub-Committee accepting the invitation of a group of psychiatrists in Paris, and it was thoroughly enjoyed.

Each of the other Sub-Committees has organized schemes of research and has been otherwise occupied in the consideration of important problems. Definite progress in certain directions has been made.

The Council has had under consideration the stimulation and support of research by awards and grants, and has referred the matter to the Research and Clinical Committee for consideration and report. In the meantime it has approved of the renewal of the £50 grant in aid of the work of this Committee.

International and Colonial Relations.

One particularly good feature of the work of the Research and Clinical Committee is that it is establishing reciprocity with similar work in other countries and thus assisting towards the bringing together of all psychiatrists, irrespective of nationality, in mutual collaboration for the better progress of psychiatry. In this connection the Council feels that the Association will approve of its action in the following matters :

(a) It has approved of the principle of adhesion of the Association as a member of a projected International Association of Neurologists and Psychiatrists, inspired mainly by Prof. S. E. Henschen of Stockholm.

(b) It has responded cordially to a proposal emanating from New Zealand to establish there a branch of the Association.

The Remuneration and Service Conditions of Assistant Medical Officers.

The Council was invited by the Secretary of the British Medical Association to send representatives to a meeting of a Committee of that Association dealing with this matter. Two representatives of the Council (Drs. G. A. Lilly and J. R. Lord) duly attended. They correctly interpreted the views of the Council that the Royal Medico-Psychological Association would on no account undertake to act as a negotiating body with the Local Authorities in respect of the remuneration of

Assistant Medical Officers. They rightly pointed out, however, that the Association was in other respects much interested in this matter, as was shown by the Status of Medical Officers Report (1914) and the report of the Post-Graduate Education, etc., Committee (1923), and they took this opportunity of impressing on the British Medical Association Committee the importance of the recommendations contained in these reports and which had the approval of the Association.

Educational Matters.

A deputation consisting of the President, President-Elect, Past-President, Treasurer, General Secretary and Dr. J. R. Lord (representing the Registrar, unable to be present) attended at Chesterfield House on November 7, 1928, and presented H.R.H. Princess Mary, Viscountess Lascelles, with the Nursing Medal in Gold, the Honorary Certificate in Mental Nursing, and the first issue of the Association's new Nursing Badge. The President read an address, to which Her Royal Highness was pleased to read a reply. A full report and a replica—in miniature—of the certificate presented was published in the *Journal of Mental Science* (vol. lxxv, No. 308, January, 1929).

The Council in its last report described at some length the steps it proposed the Association should take to meet the criticism that the mental nurses, as a profession, have no say in shaping the Association's nursing educational policy. As a result the Mental Nursing Consultative Committee came into being, this change of name from "Mental Nursing Advisory Committee to the Education Committee" being allowed by the Council, subject to the approval of the Annual Meeting.

This Committee held its first meeting in London on March 21, 1929. The results of its deliberations were reported to the Educational Committee in May and referred to the Questionnaire Sub-Committee for examination. Whether this Mental Nursing Consultative Committee should become a permanent part of the Association's educational machinery is a matter on which the Council will report in due course.

The Sub-Committee of the Educational Committee known as the "Questionnaire Sub-Committee" has given earnest consideration to a number of suggestions for improving the examination and training of candidates for the Association's nursing certificate, which emanated from a direct question on this matter in the questionnaire of January, 1928. The Educational Committee has received the report of this Sub-Committee and has ordered its circulation for discussion at its next meeting.

The Council is pleased to report that the increase in the number of candidates for the Association's nursing certificates, which commenced about 1925, is being very satisfactorily maintained.

The Council recognized in its last report that the mental nursing handbook did not cover the new syllabus for the certificate of proficiency in the nursing of mental defectives, and requested the Educational Committee to give the matter its consideration. The latter body appointed a special sub-committee to make a preliminary inquiry as to how best to proceed in this matter. Several courses were open which need not be gone into here, but the special sub-committee recommended that "a separate handbook for those nursing mental defectives be published by authority of the Association."

The Educational Committee submitted this recommendation to the Council, which adopted it. As this recommendation involves an expenditure of more than £25 only an annual or special general meeting can appoint a special committee to carry it out (Bye-law 81). This course the Council recommends the Association to take without delay.

Progress has been made with the issue of the new nursing badges. They are now available, and can be obtained from the Registrar on payment of 6s. by those entitled to wear them. An illustrated circular to this effect is being sent to all training schools.

It is convenient to mention here that the Council at its November meeting (London), 1928, approved of nurses holding the Association's nursing certificates using the letters R.M.P.N.C. after their names.

At the last Annual Meeting the Council reported its appointment of a State Registration of Mental Nurses Committee, composed of 18 members and two nurse examiners, under the chairmanship of Prof. G. M. Robertson, the secretary

being Dr. W. M. Buchanan. The size of this committee was severely criticized, and the report was referred to the Council with a request to make a substantial reduction in this respect. The Council considered the reference at its November meeting (London), 1928, and decided that not more than 8 members should be called. In order to secure a quorum of five, four additional names were given to the Secretary of the Committee to call as necessary.

The purpose of this Committee was to seek an interview with each General Nursing Council, beginning with that in Scotland.

On December 1 the General Secretary forwarded to the General Nursing Council for Scotland a considered application for the recognition of the Association's Mental Nursing Certificate as qualifying for admission to the State Register for Mental Nurses, supported by Counsel's opinion and other relevant documents. This was pursuant of the Council's resolution at its May meeting (London), 1928.

On December 7 the Committee met the General Nursing Council for Scotland. There was an interesting discussion, but no decision on the application was possible until the Committee had conferred with the General Nursing Council for England and Wales.

On February 6 the General Secretary's application was forwarded to the Secretary of the General Nursing Council for England and Wales, and an interview was given the State Registration Committee on May 23, 1929. A written reply received, dated June 13, 1929, totally rejected the Association's application. Accompanying the reply was a copy of the Association's application with the Council's comments on 17 of its 38 paragraphs. Copies of all these documents appear in the current number of the *Journal of Mental Science*. It is worth noting that the Chairman of the General Nursing Council during the interview suggested that "The two examinations should continue, but that the Association's Examination should be regarded in the same light as a hospital examination is looked upon by the Council in the cases of nurses in other branches of nursing." No suggestion was made that the Association should withdraw its examinations, but it was strongly urged that "nurses in mental hospitals should be taught the value of State Registration and the duty or advisability of entering for the State examination." This, of course, is in effect covered by the Association's Birmingham resolution of 1925.

The Council has reappointed its State Registration of Mental Nurses Committee, which has received but has not yet had time to consider this reply. So the matter is still *sub judice*.

Parliamentary Matters.

Pursuant to the authority given at the last Annual Meeting the Council at its February meeting (London), 1928, appointed Mr. F. Sully as Parliamentary Agent to the Parliamentary Committee at an annual honorarium of £36. Experience since has shown the wisdom of the action taken.

During the year the Committee has not found it possible to take any action on the Report of the Departmental Committee on the Superannuation of Local Government Officers. The Committee, however, is keeping in touch with the principal bodies interested.

The effect the new Local Government Bill will have on mental deficiency administration and the future care and treatment of mental disorders (especially early cases) has received careful consideration. The matter was discussed at two meetings of the Committee, and finally certain resolutions were passed and recommended to the Council for adoption and circulation to the local authorities in Great Britain.

The Council, after some emendation, adopted these resolutions and their circulation has been completed. (*Vide Journal of Mental Science* for July.)

The Committee re-appointed the Sub-Committee which dealt with the Report of the Royal Commission on Lunacy and Mental Disorder, to reconsider the recommendations the Association submitted to the Commission on voluntary and early treatment and the whole matter of lunacy certification. The Sub-Committee has not yet made its report.

The Library.

The Library Committee still complains of the unsatisfactory accommodation afforded at British Medical Association House. Better accommodation is, however, likely to be provided during the coming year.

At the November meeting (London), 1928, there being a vacancy among the officers of the Council, the Council proceeded (Bye-law 68) to fill it, and unanimously appointed Dr. R. Whitwell, the first Honorary Librarian of the Association.

Mr. S. Honeyman, who had given great satisfaction in the performance of his duties as permanent Librarian, retired during the year, and Mr. T. J. Shields was appointed in his place at the same remuneration. The Council at its May meeting (London), 1929, after consulting the Revision of the Journal Committee, disagreed with the recommendation of the Library Committee that the reviewers should be paid and requested to send the books reviewed to the Library, as jeopardizing the voluntary character of the Journal.

The Journal of Mental Science.

The Editors, at the November meeting (London), 1928, submitted a proposal that out of the Annual Register of Members which prefaces the January number there should be created a Year Book, containing a statement of all the activities of the Association in addition to the usual register. This would be illustrated with plates of the medals and badges of the Association. The Year Book would also be issued as a separate publication. In the January number was reproduced a replica in miniature of the Honorary Nursing Certificate presented to H.R.H. Princess Mary, Viscountess Lascelles. Separate copies of this plate were made available to members and others at a small charge, and 56 have been sold. The issue of the Journal has had to be increased to 1,100 copies quarterly.

Quarterly Meetings.

The November and February Quarterly Meetings of the Association were mainly taken up with a discussion on General Paralysis organized by the General Paralysis Sub-Committee.

The report of the discussion has appeared in the Journal and a reprint is being prepared, which will be issued as a separate publication in due course. There is no doubt that this will be a useful addition to the literature on the subject. The President was the recipient of the warm thanks of the members present for his excellent summary of the debate on each occasion.

The Maudsley Lecture, as in previous years, was delivered in connection with the May Quarterly meeting, Prof. C. Spearman being the lecturer.

The Association's Headquarters.

The Council has considered a report detailing the accommodation it is proposed to allot the Association at the House of the British Medical Association when the building extensions and alterations are completed. The accommodation promised was thought by the Council to be satisfactory and the British Medical Association was so informed. The Council, however, at the same time decided to consider the matter again in twelve months' time.

His Majesty The King's Recovery.

The Association at the May meeting sent to His Majesty the King its hearty congratulations on his restoration to health.

The Mott Memorial.

The Memorial Volume to Sir Frederick Mott was published on May 16, 1929, and its reception by the Press was all that could be desired. Of the first 500 copies bound only 180 remain. It contains important original work and the Council trusts that members will not delay purchasing a copy, as the Mott Memorial Committee desires to close this account as soon as possible. Dr. J. R. Lord was congratulated by the Council at its May meeting (London), 1929, on the successful termination to his devoted labours as Editor.

Honorary Members' Diplomas.

All honorary members elected since the termination of the war have received the revised diploma. During the coming year Dr. J. R. Lord hopes to complete the revision, subject to approval of the Council, of the Corresponding Members' diploma.

Honours, 1929.

The Council report with pleasure the following honours bestowed by His Majesty the King during the year :

A Baronetcy on Sir EDWARD FARQUHAR BUZZARD, K.C.V.O.

K.B.E. on C. HUBERT BOND, Esq., *C.B.E.*

M.B.E. on Miss AGNES BRODIE, Matron, East Riding Mental Hospital ; Miss ELLEN A. CLEARY, Matron, Norwich City Mental Hospital ; Miss NESTA HAWKES, Superintendent, Prudhoe Mental Deficiency Colony.

Obituary.

The Council heard with regret of the deaths of Drs. Hugh Frank Bodvel-Roberts, David Bower, Donald Graham Campbell, Julius Labey, Colin Macdonald, Reginald Wickham Prentice, Elizabeth Dill Russell, Thomas Waddelow Smith, J. Beveridge Spence, J. V. G. B. Tighe, Robert Lauder Mackenzie Wallis, all ordinary members at the time of death.

J. SHAW BOLTON, *President.*
R. WORTH, *General Secretary.*

Dr. R. WORTH (General Secretary) read this report, and then went on to say that arising from it were three motions which he now begged to propose :

(1) That a special Mental Deficiency Nursing Handbook Committee be appointed and empowered to complete a handbook covering the syllabus for the examination for certificate of proficiency in nursing mental defectives, and that the following members be asked to serve on this Committee : Drs. C. G. A. Chislett, W. J. T. Kimber, R. L. Langdon-Down, E. S. Litteljohn, A. M. McCutcheon, Bedford Pierce, W. A. Potts, A. Rotherham, E. B. Sherlock and A. F. Tredgold, with power to co-opt.

Dr. LORD seconded.

[Agreed.]

(2) That letters of congratulation be sent to the recipients of the honours mentioned in the Report.

Dr. LORD seconded.

[Agreed.]

(3) That the action of the Council in appointing Mr. T. J. Shields as permanent Librarian be approved.

Dr. LORD seconded.

[Agreed.]

Dr. DOUGLAS McRAE said he understood that it was the possibility of New Zealand forming a Division of the Association which was considered in Council.

Dr. LORD said the facts were, that the proposal from New Zealand was that steps should be taken to form there a Branch. The Council, in reply, suggested the setting up first of all of a Division, for which there existed machinery in the Association's Bye-laws. Machinery for the establishment of a Branch, however, would have to be thought out and adopted by an Annual Meeting, as the Bye-laws did not provide for this. Meantime New Zealand could call members together as a Division and thus pave the way for a Branch, which could come into existence as soon as the necessary steps at this end were completed.

Dr. McRAE asked whether it would not be better to state that specifically.

Dr. LORD, in reply, said that New Zealand had received letters on the matter. Action taken had been reported at a quarterly general meeting and approved and recorded in the *Journal of Mental Science* for April. He thought that this was sufficient publicity.

The PRESIDENT said he understood that as far as possible the mental nursing handbook would be utilized in preparing the new mental deficiency nursing handbook. He hoped this course would be adopted, which would keep up the link between the two lines of nursing.

Dr. MENZIES said he wished to protest against the position that the members of the Association had no chance of considering the Council's Report before they were asked to vote upon it, though it contained important proposals, some of them financial. This had been going on for many years. The Council meeting was held on a date so near to that of the Annual General Meeting that no one had a chance of knowing what would be brought forward. Wonder was sometimes expressed as to why members took little interest in the work of the Association. He suggested that one reason was that things were adopted by the Council which met on the day preceding the General Meeting. It was an unprecedented position

in a learned society. By the employment of dictaphones it would be possible, if a Council meeting broke up at 5.30 p.m., to get a report of it circulated at least half an hour before the holding of the General Meeting which was to be asked to ratify it.

Dr. LORD pointed out that prior to 1926-27 the Council's Annual Report was contained on a sheet of note paper. It now took weeks to write.

Dr. R. WORTH then moved the adoption of the Report. This was seconded by Dr. LORD. **[Agreed.]**

3. (b) THE REPORT OF THE TREASURER.

Dr. R. WORTH (General Secretary), in the absence of Dr. Chambers, the Hon. Treasurer, read this Report and moved its adoption :

I beg to submit my Report, which gives a Statement of the Revenue Account and of the Balance Sheet for 1928.

There is also a Statement of the financial position of the Maudsley Bequest and of the Gaskell Fund.

The Bank Balance on July 3 was £749 3s. 6d.

A donation of five pounds (£5) was received, through Dr. Lord, with an intimation from the donor that it was to be used for Research. The Treasurer would like an instruction from the Council as to how this sum is to be dealt with.

There is still a small sum to the credit of the Asylum Workers' Convalescent Fund.

J. CHAMBERS,
Hon. Treasurer.

Continuing, Dr. WORTH said that regarding the donation of £5 received by the Research and Clinical Committee and which was reported at the last annual meeting, it was for that Committee to expend it. The Council had decided that the small sum which remained to the credit of the Asylum Workers' Convalescent Fund should continue to be disbursed as at present.

Dr. LORD seconded.

[Agreed.]

3. (c) THE REPORT OF THE EDITORS.

The Editors beg to submit their Annual Report for the year 1928.

The following table shows the cost of production of the Journal under various heads as compared with that of the previous year.

The work of the Editors during the year under review has been exceptionally heavy. The increased cost of the Journal was due to a temporary expansion of the Journal from 792 to 926 pages and the necessity for printing a greater number in order to keep a larger stock in hand for future purchasers. The number printed quarterly has therefore been raised from 1050 to 1100.

Reviews were 64 as against 41 in 1927—an increase of 23. Epitomes were 368 as against 279 in 1927—an increase of 89. Original articles were 46 as against 41 in 1927—an increase of 6. The epitomes reached a number far in excess of those published in any year since the Journal was founded.

The decision to include all the papers read at the annual meeting in the October number was made for the convenience of members who thereby would have the advantage of a complete record of the principal event in the Association's year.

Of late years there has been a remarkable increase in the number of articles devoted to clinical and pathological (including bio-chemical and bacteriological) research, especially by our junior psychiatrists. Many original papers are received from abroad for which it is seldom possible to find space.

The reviews of books have always been a special feature of the Journal. They are nearly always done by men who have special knowledge of the subject, and are not merely publishers notices. Thus they are, as a rule, of educational value. This accounts for their length being often out of all proportion to the size and cost of the book.

The Editors, at the November meeting (London), 1928, submitted a proposal that out of the Annual Register of Members which prefaces the January number, should be created a Year Book, containing a statement of all the activities of the Association in addition to the usual register. This would be illustrated with plates of the medals and badges of the Association. The first issue would take some time to complete and would delay the publication of the January number.

The Year Book would also be issued as a separate publication. The issue of both January and April numbers was regrettably delayed, chiefly because of conditions arising from the spring epidemic of influenza. In the January number was reproduced a replica in miniature of the Hon. Nursing Certificate presented to H.R.H. Princess Mary, Viscountess Lascelles. Separate copies of this plate were made available to members and others at a small charge, and 56 have been sold.

Analysis of Cost of Journal 1927-1928.

1927.				1928.			
£	s. d.	£	s. d.	£	s. d.	£	s. d.
702	5 3			796	19 4		
40	10 4			68	3 10		
72	19 6			83	11 8		
40	4 8			42	9 8		
64	19 6			76	7 9		
<hr/>				<hr/>			
		920	19 3			1067	12 3
75	6 9			97	8 11		
10	17 8			11	10 0		
43	9 4			51	5 1		
<hr/>				<hr/>			
		129	13 9			160	4 0
14	4 0			6	9 0		
18	9 4			35	19 9		
8	8 0			<hr/>		42	8 9
<hr/>						<hr/>	
		41	1 4			41	15 0
40	0 0			41	15 0		
<hr/>				<hr/>		<hr/>	
		40	0 0			41	15 0
<hr/>				<hr/>		<hr/>	
		£1,131	14 4			*£1,312	0 0

* Exclusive of £116 16s. 6d., cost of General Index, Vol. iii; £14 3s. 11d. credits for *The Clinical Study of Mental Disorders*; and £2 17s. 0d. overcharge credited to 1929.

£	s. d.	£	s. d.	<i>Credits.</i>		£	s. d.	£	s. d.
308	18 4			Sale of Journal, etc.		317	9 8		
25	4 0			Advertisements		23	19 7		
<hr/>						<hr/>			
		334	2 4					341	9 3

Cost of Journal.

1927.		1928.
5s. 4½d.	Cost of production of Journal per copy	6s. 1d.
3s. 9½d.	Cost to Association of Journal per copy	4s. 3d.
792	Size of Journal in pages	926

The cover and the style of printing the headings to original papers have been modernized, and appear to have received general approval.

The Editors' work, though heavy, can scarcely be compared with that of the epitomizers and reviewers as a whole. These voluntary workers are indispensable to the success of the Journal; without them, or with paid substitutes, the value of the Journal would be much lessened and its cost increased. Value for money, the Journal is probably the cheapest psychiatric publication in the world.

JOHN R. LORD
(for the Editors).

Dr. LORD read the Editors' Report and moved its adoption.

Dr. HAMILTON MARR seconded.

Dr. YELLOWLEES asked what relation the date printed on the outside of the Journal bore to the month in which it was delivered to subscribers.

Dr. LORD said the Report explained why the issue of certain numbers had been delayed.

[Agreed.]

REVENUE ACCOUNT—January 1st to December 31st, 1928.

1927.		Income.		1927.	
£	s. d.	£	s. d.	£	s. d.
112	12 1	...	...	301	0 10
17	8 0	By Dividends—General	...	376	14 4
26	0 5	" Journal—Printing, Publishing, Engraving, Ad- vertising, and Postage	...	117	15 0
327	10 5	" Examinations, Association Prizes, and Clerical Assistance to Registrar	...	5	15 8
80	0 0	" Petty Disbursements, Stationery, Postages, etc.	...	23	19 5
12	12 0	" Annual, General, and Divisional Meetings	...	448	10 11
363	12 9	" Rent of Premises and care of Offices	...	...	...
974	17 11	" Audit and Clerical Assistance	...	...	...
4605	6 2	" Miscellaneous Account	...	...	...
		" Fees for Certificates of Psychological Medicine...	...	...	...
		" Certificates of Proficiency in Nursing ... }	...	...	...
		" Subscriptions	...	1179	13 6
		" Interest on Deposit	...	10	1 3
		Balance	...	...	...
				£4854	0 4

BALANCE-SHEET—31st December, 1928.

1927.		Liabilities.		Assets.		1927.	
£	s. d.	£	s. d.	£	s. d.	£	s. d.
977	5 10	To Journal Account, balance of	...	479	0 3	By Lloyds Bank.—Bankers	...
90	14 2	" Meetings Account, balance of	...	65	9 3	" Deposit Account, (General	...
40	0 0	" Rent Account, balance of	...	40	0 0	" Interest due	...
32	11 0	" Miscellaneous Account, balance of	...	37	0 6	" Sales Account, balance of	...
132	12 10	" Gaskell Account	...	145	13 6	" Subscriptions Account, balance of	...
3	14 0	" Income Tax, etc.	...	6	7 6	" Library Account, balance of	...
154	17 1	" Maudsley " Dividends	...	171	18 4	" Fees Account, balance of	...
21	2 0	" " " Dividends	...	31	2 0	" Stocks, value at this date:	...
24	6 0	" " " Income Tax	...	20	4 0	" £634 8s. 3d. New Zealand, 3½ per cent. Stocks, 1940	...
540	16 7	" Examinations Account, balance of	...	1,301	7 9	" £320 14s. 8d. Ditto, ditto (Hack Tuke)	...
25	0 0	" Library Account, balance of	...	...	...	" £103 7s. 2d. Victoria, 3 per cent. Stocks, 1929-49 (Dr. Paul)	...
15	0 0	" Asylum Workers' Convalescent Fund	...	...	...	" £213 18s. 1d. Manchester Corporation, 3 per cent. Stock...	...
—	—	" Petty Disbursements, balance of	...	...	...	" £405 18s. 1d. New South Wales, 3½ per cent. Stock...	...
—	—	" Research Fund	...	...	...	" £386 0s. 0d. London, Midland and Scottish Railway, 1930-50	...
1,515	10 1	Balance as at 1st January, 1928	...	11,064	1 5	" £1864 1s. 2d. War Loan, 5 per cent. Stock, 1920-47	...
10,000	5 5	Add Balance as per Revenue Account	...	624	9 3	" £9074 1s. 3d. Conversion Loan, 3½ per cent. Stock	...
974	17 11	" Increase in Value of Investments	...	248	18 7	" ...	...
157	13 1	" Deduct:	...	11,937	9 3	" ...	...
12,048	6 6	" Subscriptions written off	...	...	...	" ...	...
68	15 0	" ...	...	125	19 0	" ...	...
12,570	11 6	" ...	...	11,811	10 3	" ...	...
				£14,138	5 5	" ...	...

(Signed) JAMES CHAMBERS, Hon. Treasurer,
(Signed) DUJARDIN, BOLT & Co.

G. F. BARHAM } Hon. Auditors.
CEDRIC W. BOWER }

The Year Book would also be issued as a separate publication. The issue of both January and April numbers was regrettably delayed, chiefly because of conditions arising from the spring epidemic of influenza. In the January number was reproduced a replica in miniature of the Hon. Nursing Certificate presented to H. R. H. Princess Mary, Viscountess Lascelles. Separate copies of this plate were made available to members and others at a small charge, and 56 have been sold.

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40	4	8				42	9	8
64	19	6				76	7	9
<hr/>				<hr/>				
75	6	9	920	19	3	97	8	11
10	17	8				11	10	0
43	9	4				51	5	1
<hr/>				<hr/>				
14	4	0	129	13	9	6	9	0
18	9	4				35	19	9
8	8	0				<hr/>		
<hr/>				<hr/>				
40	0	0	41	1	4	41	15	0
<hr/>				<hr/>				
£1,131 14 4				*£1,312 0 0				

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£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
308	18	4									
25	4	0									
<hr/>				<hr/>							
334 2 4				<i>Credits.</i>							
				Sale of Journal, etc.				317 9 8			
				Advertisements				23 19 7			
<hr/>				<hr/>				341 9 3			

Cost of Journal.

1927.		1928.	
5s. 4½d.	Cost of production of Journal per copy . . . . .	. . . . .	6s. 1d.
3s. 9½d.	Cost to Association of Journal per copy	4s. 3d.
792	Size of Journal in pages	926

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(for the Editors).

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1927.		Income.		1927.	
£	s. d.	£	s. d.	£	s. d.
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17	8 0	By Dividends—General	...	376	14 4
26	0 5	„ Sale of Journal	117	15 0
327	10 5	„ „ Handbook	...	5	15 8
80	0 0	„ „ Statistical Forms, etc.	...	23	19 5
12	12 0	„ „ Advertisements	...	448	10 11
363	12 9	„ „ Fees for Certificates of Psychological Medicine ... }	...	2839	11 1
974	17 11	„ „ Certificates of Proficiency in Nursing ... }	...	1179	13 6
4605	6 2	„ „ Subscriptions	...	10	1 3
		„ „ Interest on Deposit	...	£4854	0 4
		Balance	...	£4854	0 4

BALANCE-SHEET—31st December, 1928.

1927.		Liabilities.		Assets.	
£	s. d.	£	s. d.	£	s. d.
974	17 11	To Journal Account, balance of	...	By Lloyds Bank.—Bankers	...
4605	6 2	„ Meetings Account, balance of	...	„ Deposit Account, General	...
		„ Rent Account, balance of	...	„ „ Interest due	...
		„ Miscellaneous Account, balance of	...	„ Sales Account, balance of	...
		„ Gaskell Account	...	„ Subscriptions Account, balance of	...
		„ „ Income Tax, etc.	...	„ Library Account, balance of	...
		„ Maudsley „ Dividends	...	„ Fees Account, balance of	...
		„ „ Income Tax	...	„ Stocks, value at this date:	...
		„ Dividends „ Income Tax	...	£634 8s. 3d. New Zealand, 3½ per cent. Stocks, 1940	...
		„ Examinations Account, balance of	...	£320 14s. 8d. Ditto, ditto (Hack Tuke)	...
		„ Library Account, balance of	...	£103 7s. 2d. Victoria, 5 per cent. Stocks, 1929-49 (Dr. Paul)	...
		„ „ Asylum Workers' Convalescent Fund	...	£213 18s. 1d. Manchester Corporation, 3 per cent. Stock...	...
		„ Petty Disbursements, balance of	...	£405 18s. 1d. New South Wales, 3½ per cent. Stock...	...
		„ Research Fund	...	£386 0s. 0d. London, Midland and Scottish Railway,	...
		Balance as at 1st January, 1928	...	£1864 1s. 2d. War Loan, 5 per cent. Stocks, 1920-47	...
		Add Balance as per Revenue Account	...	£9074 1s. 3d. Conversion Loan, 3½ per cent. Stock	...
		„ Increase in Value of Investments	...	308 9 8	304 8 6
		Deduct:	...	283 14 2	283 14 2
		„ Subscriptions written off	...	1915 6 4	1887 7 2
		Balance	...	7189 12 2	6935 9 9
		£12,570 11 6	£14,138 5 5	£12,570 11 6	

(Signed) JAMES CHAMBERS, Hon. Treasurer.
(Signed) DUJARDIN, Bolt & Co.

G. F. BARHAM } Hon. Auditors.
CEDRIC W. BOWER }

MAUDSLEY BEQUEST.

1928.	Dr.	Expenditure.	£	s.	d.	Income.	£	s.	d.
Jan. 10.	To Cash—Income Tax	...	21	2	0	...	21	2	0
Aug. 29.	"	Postages	1	0	0	...	1	0	0
Oct. 25.	"	Adlard & Son	13	19	5	...	13	19	5
Dec. 4.	"	Lecturer's Honorarium	52	10	0	...	52	10	0
Dec. 31.	"	Amount owing ...	21	2	0	...	21	2	0
"	"	Balance (Dividends)	171	18	4	...	171	18	4
			<u>£281 11 9</u>				<u>£281 11 9</u>		

GASKELL FUND.

1928.	Dr.	Expenditure.	£	s.	d.	Income.	£	s.	d.
Jan. 10.	To Cash—Income Tax	...	3	14	0	...	3	14	0
July 12.	"	Designing and Engraving Medals	57	9	0	...	57	9	0
Sept. 13.	"	Prize	30	0	0	...	30	0	0
Dec. 31.	"	Examiner's Fees	4	4	0	...	4	4	0
"	"	"	4	4	0	...	4	4	0
"	"	Amount owing—Income Tax	3	14	0	...	3	14	0
"	"	" Solicitor's Fees	2	13	6	...	2	13	6
"	"	Balance (Dividends)	145	13	6	...	145	13	6
			<u>£251 12 0</u>				<u>£251 12 0</u>		

3. (d) THE REPORT OF THE LIBRARIAN.

Dr. J. R. WHITWELL said that his report was contained in that of the Library Committee. [Received.]

3. (e) THE REPORT OF THE HONORARY AUDITORS.

Dr. R. WORTH read this Report and moved its adoption.

We, the undersigned, having examined the Treasurer's books, and having duly compared and scrutinized receipts and vouchers, hereby certify that the Accounts and Balance-Sheet, as set forth, represent a true statement of the Royal Medico-Psychological Association's finances for the year 1928.

G. F. BARHAM }
CEDRIC W. BOWER } *Hon Auditors.*

Dr. H. YELLOWLEES seconded.

[Agreed.]

3. (f) REPORT OF THE REGISTRAR.

Dr. D. F. RAMBAUT read this Report and moved its adoption.

The entries for the May, 1929, examinations—exclusive of South African candidates, whose return is not yet to hand—have been as follows:

Preliminary Examination.—Nursing, 2,367; Mental Defectives, 183; total, 2,550.

Final Examination.—Nursing, 1,392; Mental Defectives, 164; total, 1,556.
Grand total 4,106.

The following is a comparative table for the last five years:

	Year.	Preliminary.	Final.	Totals.
May Exam.	1925	2,001	1,697	3,698.
„	1926	2,251	1,615	3,866.
„	1927	2,362	1,596	3,958.
„	1928	2,481	1,520	4,001.
„	1929	2,550	1,556	4,106.

I have made out a statement giving the number of entries from each class of institution, the number of passes and the percentages for the May, 1929, examination. They are as follows:

Preliminary Examination.

Class of institution.	Entries.	Passes.	Percentages.
English County Mental Hospitals	1,444	697	48'26
English Borough Mental Hospitals	283	184	65'01
Registered Hospitals and Licensed Houses	165	112	67'87
Scottish Mental Hospitals	310	223	71'93
Irish Mental Hospitals	165	98	59'39
Mental Defectives	183	152	83'06
Totals	2,550	1,466	57'49

Final Examination.

Class of institution.	Entries.	Passes.	With distinction.	Percentage of passes.	Percentage of distinction to entries.	Percentage of distinction to passes.
English County Mental Hospitals	798	511	26	64'03	3'25	5'08
English Borough Mental Hospitals	179	104	4	58'10	2'23	3'84
Registered Hospitals and Licensed Houses	102	66	3	64'70	2'94	4'54
Scottish Mental Hospitals	177	111	0	62'71	—	—
Irish Mental Hospitals	134	34	0	25'37	—	—
Federated Malay States	1	(absent)	—	—	—	—
Mental Defective Hospitals (sat for Nursing Certificate)	1	0	—	—	—	—
Total	1,392	826	33	59'34	2'37	3'99

I cannot give the numbers of the Mental Defectives Section for May, 1929, as they are not quite complete.

The whole of the results of the Preliminary and Final Examination have been sent out to the various institutions (except some of the Mental Defective Hospitals). This is a record.

There were four candidates for the Gaskell Gold Medal and Prize, the examination for which was held at the Maudsley Hospital on May 31 and June 1. The examiners have recommended that the Prize and Medal be awarded to Dr. Alexander Walk, Long Grove Mental Hospital, Epsom, Surrey.

There were no entries for the Certificate in Psychological Medicine.

There was one paper submitted for the Bronze Medal, but the President did not consider it was up to the standard required.

DANIEL RAMBAUT,
Registrar.
[Agreed.]

Dr. HAMILTON MARR seconded.

3. (g) REPORT OF THE EDUCATIONAL COMMITTEE.

Dr. W. J. T. KIMBER read this Report and moved its adoption.

The Educational Committee beg to submit the following Report for the year ending June 30, 1929 :

Four meetings have been held during the year.

The conduct of the Nursing Examinations under the revised Rules and Regulations and amended syllabus has been satisfactory, and a steady increase in the number of candidates entering is taking place.

The entries for the May examination this year, exclusive of South African candidates, were 4,106. This total is greater by 105 than that for May, 1928, by 148 than that for 1927, by 240 than that for 1926, and by 408 than that for 1925.

The number of candidates who presented themselves for the examinations during the year was :

For the Certificate of Proficiency in Mental Nursing—Preliminary, 3846 ; Final, 2214.

For the Certificate of Proficiency in Nursing Mental Defectives—Preliminary, 246 ; Final, 239.

The proposal that nurses holding the Certificate of the Association might place the letters *R.M.P.N.C.* after their names was approved by the Council.

It was decided to send copies of the Nursing Examination papers to the Secretary of the National Asylum Workers' Union in order that they might be published in the Union Magazine with model answers, which should be of benefit to future entrants.

The first meeting of the Mental Nursing Consultative Committee (referred to formerly as the Mental Nursing Advisory Committee to the Educational Committee) was held on March 21, 1929, in London. A number of helpful suggestions and some criticisms were put forward, and are now under consideration by the Sub-Committee appointed to consider answers to the questionnaire of January 19, 1928.

This Sub-Committee has had several meetings during the year, and, in conjunction with some members having special experience in mental deficiency work, has considered the question of how best to meet the requirements in regard to a handbook for those nursing mental defectives. Its report on the latter matter is appended.

No new institutions were recognized for training during the year.

One application for recognition was refused.

F. R. P. TAYLOR, *Chairman.*
W. J. T. KIMBER, *Secretary.*

Report of the Sub-Committee appointed by the Educational Committee to Consider how best to Meet the Requirements of those Nursing Mental Defectives in regard to a Handbook.

The Sub-Committee appointed to consider how best to meet the requirements of those Nursing Mental Defectives in regard to a handbook considered a report by Dr. Lord and a letter from Dr. E. S. Litteljohn, who had been co-opted but was unable to be present.

The Sub-Committee recommend that a separate handbook be published by authority of the Association for those Nursing Mental Defectives, and that a Committee of the Association be appointed to compile this handbook.

It is suggested that those members who drew up the syllabus for those Nursing Mental Defectives be asked to undertake this, with power to co-opt.

The names of these members were : Drs. C. G. A. Chislett, R. L. Langdon-Down, E. S. Litteljohn, A. M. McCutcheon, Bedford Pierce, W. A. Potts, A. Rotherham, E. B. Sherlock, and A. F. Tredgold.

Dr. F. R. P. TAYLOR seconded.

[Agreed.]

3. (h) REPORT OF THE PARLIAMENTARY COMMITTEE.

Dr. DOUGLAS McRAE read this Report and moved its adoption.

The Committee has met on five occasions during the year 1928-29.

Mr. Francis Sully has been appointed for a year as a paid Parliamentary Agent, in order that the Committee may receive the earliest possible notice of pending legislation affecting the interests of the Association. Mr. Sully has forwarded regular reports which have given every satisfaction to the Committee.

The Committee has re-appointed the sub-committee of nine members which framed the Memorandum on the Report of the Royal Commission, in order that it may reconsider the recommendations of the Association in regard to early treatment and certification, in view of the Report of the Commission, and possibly frame new proposals for the approval of the Association.

The Committee has considered the Local Government Act, 1929. It recommended the Council to circulate a memorandum to all County Councils and County Boroughs, in England and Wales, and to the County Councils and certain Royal Burghs in Scotland, drawing attention to three resolutions passed by the Parliamentary Committee. The memorandum has been duly circulated.

During the year efforts have been made to obtain publicity in the daily press for the views of the Association concerning the early treatment of mental illness, and progress is being made. Other matters which have been considered by your Committee have included the Report of the Mental Deficiency Committee of the Board of Education and Board of Control.

The Committee has to record with sorrow the death of Dr. David Bower, who served the Committee as Chairman and Secretary, and was an active member for many years.

NATHAN RAW, *Chairman*.

G. W. B. JAMES, *Secretary*.

Dr. F. R. P. TAYLOR seconded.

[Agreed.]

3. (i) REPORT OF THE LIBRARY COMMITTEE.

Dr. J. R. WHITWELL read this Report and moved its adoption.

The Committee has met on three occasions.

There has been a comparatively small call upon the Library for books.

The journals have been returned with a little more regularity than heretofore, with the result that a considerable number of journals have now been bound in volume form.

It is very much to be regretted that the Library is still located in the basement, which is most unsatisfactory, but the Committee is glad to learn that this disability is about to be remedied.

The Committee has to record with gratitude that Dr. W. H. Coupland has kindly presented a copy of *The Treatment of the Insane without Mechanical Restraint* by Conolly (1856). There are many similar books of considerable historical interest and value which the Library Committee would like to acquire.

J. R. WHITWELL, *Chairman*.

COLIN McDOWALL, *Secretary*.

Dr. DOUGLAS McRAE seconded.

[Agreed.]

3. (j) REPORT OF THE RESEARCH AND CLINICAL COMMITTEE.

Dr. B. H. SHAW submitted this Report and moved its adoption.

The Research and Clinical Committee beg to submit the following report for the year ending July, 1929 :

The Committee has met four times during the year, *viz.*, on July 10, 1928, November 22, 1928, February 13, 1929, and May 21, 1929.

As proposed in the last Annual Report the Glossary Sub-Committee has now been merged into the Clinical Psychiatry Sub-Committee, and its reference transferred to that Sub-Committee.

A recommendation was received from the Psychotherapy and Psychopathology Sub-Committee that arrangements be made to make available to research workers lists of references to foreign literature. Corresponding members in France, Holland, Germany, Italy, Austria, Japan and the U.S.A. were circulated and asked if they would participate in a scheme of reciprocation. A number of satisfactory replies were received, and it was decided to supply to corresponding members who agreed to reciprocate reprints of the various articles appearing in the *Journal of Mental Science*, and arranged that they should send to the Secretary of the Research and Clinical Committee copies of, or lists of, references to articles published in their respective countries. A number of books, articles and lists of references have already been received and circulated amongst the Sub-Committees.

General Paralysis Sub-Committee.—It was decided at the meeting of this Sub-Committee, held in May, 1928, that as regards future investigation there were three possible lines of inquiry:

- (a) The relative advantages of mosquito inoculation and blood inoculation.
- (b) The importance of inquiring into mortality causes, especially during the first two months following malaria.
- (c) The procurement of P.M. material for research purposes.

Mention was made of the "follow-up" work done on London cases through the Maudsley Hospital.

Since this meeting there has been a full discussion (held under the auspices of the G.P. Sub-Committee) on General Paralysis of the Insane at the Quarterly Meetings of the R.M.P.A. held on November 23, 1928, and February 14, 1929.

The Committee still await the publication of the Board of Control Report on the inquiries on G.P. and Malaria conducted by Surgeon Rear-Admiral Meagher. It is hoped also that a report on the follow-up work done at the Maudsley will shortly be published. Until these reports are to hand, and to avoid much unnecessary duplication of work it has been decided that further deliberations of the Sub-Committee should be postponed.

Epidemic Encephalitis Sub-Committee.—Two meetings of this Sub-Committee have been held during the year. Centres for the investigation of pathological material have been formed at the Maudsley Hospital, Birmingham, Lancashire and Oxford. Each centre makes its own arrangements with regard to the collection of material and the nature of investigations. At the first meeting consideration was given to provisions for the care of chronic cases of epidemic encephalitis under three headings, *viz.*, mild, bedridden and behaviour cases. After some discussion it was decided that in view of the imminence of the new Local Government Act the time was not suitable to make any proposals on the redistribution of responsibility for the care of the chronic encephalitic.

Psychotherapy and Psychopathology Sub-Committee.—The Sub-Committee has held one meeting since the last Annual Report, in October, 1928. As a result of endeavours to get in touch with other interested workers, some 60 more names have been received, making in all a nucleus of over 80 workers (including those actually on the Sub-Committee). Suggestions for research and discussion were drawn up and circulated to all the 80.

Six study groups have been or are being formed, including correspondence, research and local groups. The last have been especially well supported, and the Lancashire and the London local groups have already held several successful meetings. Other groups will probably be formed in the near future.

Efficient arrangements have been made and are at present working very satisfactorily for the collecting of exhaustive lists of titles of articles on psychological and psychopathological topics in all the journals in English. Our lists of such references, as well as our book list of the last thirty years of works on our subjects, have been borrowed by many workers and appreciation of their usefulness subsequently received.

Actinotherapy Sub-Committee.—The Sub-Committee has met once during the year. It was decided to investigate the effects of actinotherapy on three groups of cases, *viz.*, manic-depressive, toxic-exhaustive and post-encephalitic for three

months, and to report results of treatment as regards physical and mental state, blood-count, blood-pressure and basal metabolism. Eight members took part, and the results of treatment in 72 cases have been received. The items reported on varied greatly with different observers. Examination of the reports shows that considerable benefit resulted in the melancholia and toxic cases. No definite improvement was noted in the encephalitic cases with the exception of marked decrease in salivation.

Infectious Diseases Sub-Committee.—Owing to the illness of the late Secretary, Dr. Branthwaite, no meeting of the Sub-Committee was held in 1928. Dr. Branthwaite resigned in December, 1928, and Dr. McGrath took over the duties in January, 1929.

There have been two meetings of the Sub-Committee in 1929. The first meeting took place in February, in London, and, as it was the first time the Sub-Committee had met, a general discussion upon the Terms of Reference took place. It was agreed to send out two questionnaires to the Medical Superintendents of the mental hospitals in England and Wales. One asked for information concerning the "carrier" question, and the other dealt with the incidence of cancer in mental hospitals. One hundred and two forms were sent out, and seventy-seven replies have been received.

The second meeting took place in May, in London, when the replies were considered. As the forms relating to the incidence of cancer contained a great deal of information, mostly of a statistical nature, it was agreed to put them in the hands of a professional statistician. The forms referring to the "carrier" question were handed over to Dr. Petrie, with the request that he should examine and report upon them. The reports, when received, will be presented at the next meeting.

Pathological, Bacteriological and Biochemical Sub-Committee.—During the past year two meetings have been held. Of the six epitomes incorporated in the scheme of research decided upon, three have been received, as follows:

- (1) "The Accessory Sinuses, Pathology and Bacteriology" (No. 3), Dr. F. A. Pickworth.
- (2) "The Bacteriology of the Intestine (Aerobic Methods)" (No. 5a), Dr. F. H. Stewart.
- (3) "The Bacteriology of the Intestine (Anaerobic Methods)," (No. 5b), Dr. W. M. Ford-Robertson.

Dr. Watson has been unable to forward his epitome on "The Histology of the Basal Ganglia and Pellagra" owing to ill-health.

The regretted death of Dr. Mackenzie-Wallis, who was leader of Biochemical Research into Liver Function, and his preceding ill-health, has deprived us of his valued services.

Six epitomes on "Aerobic and Anaerobic Bacteriological Methods" have been sent out; two demonstrations on the anaerobic technique have also been given.

Much attention has been given to the preparation of a memorandum on a standard method of performing the Wassermann test, and in view of the fact that attention was also being given to this subject by the Mental Deficiency, General Paralysis and Epidemic Encephalitis Sub-Committees, a combined meeting of the four sub-committees was held at Horton on May 3, prior to which a questionnaire form covering all essential technical points was circulated. Fifteen members representing the four sub-committees were present. Consideration of the nine questionnaire forms which had been received from various laboratories showed that wide variation in technique and interpretation of results existed, and that at present the findings of one laboratory could not be compared with another. Considerable discussion followed, valuable progress was made, and important resolutions were carried. Other more debatable points have been referred to the Hon. Secretary for further elucidation, and these will be discussed later. The general feeling was in favour of adopting the dilution of serum as the basis of the complement-fixation test as being more logical and sensitive. In view, however, of the importance of being in line with the venereal diseases centres, whose test follows on lines divergent to those favoured, it was agreed to postpone making a decision pending additional information.

Clinical Psychiatry Sub-Committee.—During the past year four meetings have been held, the main subjects under discussion being clinical records and the classification of mental disorder. The clinical forms in use at Horton Mental

Hospital were agreed on as a basis to work from, and were circulated to all members for comment and suggestions. It was decided to postpone the consideration of a simpler form of record until a later date. The revision of the form of civil particulars and the general clinical form dealing with the physical state on admission and the history form are at present under consideration and the revised forms will be submitted to the members of the Sub-Committee for final approval.

Members of the Sub-Committee were circularized by the Secretary regarding the classification of mental disorders, with copies of various classifications used in this country, in America, and on the Continent, and expressions of opinion asked for. Later the matter was thoroughly discussed and a provisional classification arrived at which has again been circulated for criticism and expression of opinion.

Attention has also been given to the investigation of epileptic conditions, and a questionnaire has been drawn up and circulated widely in this country and abroad, avoiding as far as possible the ground covered by the Pathological and Psychopathological Sub-Committees.

Mental Deficiency Sub-Committee.—Two meetings have been held during the year. It has been reported to the Committee that Miss Darwin, a Commissioner of the Board of Control, has most generously endowed a fund to be used for research work in connection with mental deficiency and mental disorders, though the emphasis is primarily on mental deficiency. The income of the fund would be about £220 a year. The direction and administration of the Fund has been placed in the hands of a Board of Trustees.

Through the kindness of Dr. Gordon and later of Dr. Lindsay, the patients at the Manor Certified Institution are having their blood tested at Caterham by the Wassermann test. It is intended to test 1,000 cases. Up to the present 660 cases have been done. No definite pronouncement can be made at the present stage of the investigation, but of these 660 cases reaction has been positive in 83, viz., 12.5%. It has not yet been possible to obtain control tests among normal children. The Committee consider that standardization is badly needed, and hope that the work of the Pathological and Biochemical Sub-Committee may result in agreement on this.

A *précis* of the stigmata to be looked for in the clinical examination for congenital syphilis is being prepared.

The Committee have sent up a resolution to the Clinical Committee, asking that the influence of the Association may be used to induce the Ministry of Health to appoint a Committee to make inquiries into the causes of mental deficiency and the relative incidence of primary and secondary mental deficiency.

Study Tours Sub-Committee.—The Sub-Committee has held one meeting during the year. The following is a summary of the work done:

1. A tour of the Dutch mental hospitals was made by a party of 15 members from October 17 to 26, 1928, an account of which was published in the *Journal of Mental Science* in January, 1929.

2. Publication of a Guide to the Examinations in Great Britain and Ireland for a Diploma in Psychological Medicine.

3. Notification to members of—

(a) Commonwealth Fellowships in Psychiatry available at Denver, and correspondence relating to the entry of five members.

(b) Intensive course in Neurology and Psychiatry in Vienna, May to June, 1929.

4. Organization of a projected tour of mental hospitals in England by Dutch asylum physicians.

5. A tour of the mental hospitals and clinics of Paris was organized and held from June 2 to 11, 1929.

6. Replies to various inquiries by individual members.

Clinical Meetings.

The following is a list of Clinical Meetings held in England during the year:

Where held.	Date.	Number present.	
		Members.	Non-members.
Stafford Mental Hospital	1/11/28	7	7
Winson Green Mental Hospital, Birmingham	29/1/29	12	2
Hollymoor Mental Hospital, Birmingham	26/3/29	13	—
Parkside Mental Hospital, Macclesfield	21/3/29	8	2
Horton Mental Hospital, Epsom	4/4/29	27	2

Clinical Meetings are being held in Scotland and Ireland in connection with the usual Divisional Meetings.

Reports of all these meetings have been published in the *Journal of Mental Science* and form valuable reading.

The research suggested by Prof. C. Spearman in his Maudsley Lecture is of considerable interest and importance. The question of its organization is being considered by the Committee.

The Committee is of the opinion that sufficient incentive is not given by the Association to Research in the matter of medals and prizes.

Opportunities for expenditure under the grant of £50 which for the past two years has been sanctioned by the Association will present themselves during the coming year and a renewal of it is desired.

J. R. LORD, *Chairman.*

B. H. SHAW, *Hon. Secretary.*

Dr. LORD seconded.

Dr. HAMILTON MARR asked whether the work of this Committee embraced all forms of electrical treatment.

Dr. LORD answered that the Committee had an interest in all forms of treatment.

Dr. HAMILTON MARR asked whether any special Committee dealt with that point. He had in mind some of his own work during the war in which there was combined all these types of treatment—sinusoidal, high frequency, etc., as well as hydrotherapy—and he saw, in a clinic in Paris in 1923, ultra-violet rays being used for toxic cases. It would be of interest if the activities of this Committee could include electrotherapy, hydrotherapy, etc., all working under one committee.

Dr. LORD explained that the Actino-therapy Sub-Committee was a special sub-committee appointed to stimulate a form of treatment which was then in its infancy in this country, as far as treatment of mental disorders was concerned. There was a more permanent body, the Clinical Sub-Committee, with a reference which embraced, *inter alia*, all forms of treatment, electrical and other. The Actino-therapy Sub-Committee was composed of specialists on light treatment of all kinds. It was a Committee with a definite object, and would be discharged when that object was achieved.

Dr. DOVE CORMAC asked what other committee there was which dealt with electro-therapy, etc.

Dr. LORD replied that the Clinical Committee covered all forms of treatment. It was a kind of omnibus committee, but did not intervene in the work of other sub-committees.

Dr. H. YELLOWLEES said that the Report represented a wonderful attempt to combine, organize and co-operate psychiatric work of all kinds. He thought the Committee should be heartily congratulated on its achievements.

Dr. BEDFORD PIERCE asked whether this Report would be printed. He thought it was exceedingly important that members generally should know what was going on and not merely a small gathering like the present one.

The PRESIDENT replied that it would appear in due course in the *Journal of Mental Science*.

Dr. LORD said that it was the hope of this Committee in due course to publish yearly a kind of "Research and Clinical Annual," which would contain an account in detail of all the work of its Sub-Committees, certain psychiatric statistics, etc.

[Agreed.]

4 (a) REPORT OF THE REVISION OF THE JOURNAL COMMITTEE.

Dr. LORD read this Report and moved its adoption.

The Committee has met on several occasions during the past year, chiefly *pro forma* and with little to do. It has apparently performed its task and reported on all the matters contained in its reference. The Committee is satisfied that no radical alteration in the character, size and management of the Journal will serve any useful purpose. To run the Journal as a business venture would entail unjustifiable financial risks, and such publications are best left to regular publishing firms. It is exceedingly doubtful whether any additional psychiatric journals are required in the English language. The supplementing of the Journal by monographs and bibliographies is a matter which the Committee think can well be left

to the discretion of the Editors, who will always need to obtain the permission of an Annual Meeting, because of the finance involved.

The Committee strongly advise the Association to continue the voluntary character of the Journal for as long as possible. It is thereby a gauge of the zeal and enthusiasm of members for the advancement of psychiatry and symbolic of the Association's vitality.

The Committee feels that it has completed its labours and requests not to be reappointed.

R. PERCY SMITH, *Chairman*.

J. R. LORD, *Secretary*.

Dr. R. WORTH seconded.

[Agreed]

4. (b) REPORT OF THE MENTAL NURSING ADVISORY COMMITTEE TO THE GENERAL NURSING COUNCILS.

Dr. DOVE CORMAC said there was no report on this to submit, as the Advisory Committee had not been called in by the General Nursing Councils to advise them.

Dr. LORD said that Prof. Robertson had reported to the Council that no meetings of this Committee had been held during the year. The Committee had met *pro forma* and Dr. Kimber had been asked to continue to act as secretary.

[Agreed.]

5. MOTIONS INVOLVING EXPENDITURE OF FUNDS (BYE-LAW 99).

The PRESIDENT said there were three motions on the agenda involving the expenditure of the Association's funds. The first [5 (a)] was a grant of £50 for the work of the Research and Clinical Committee; the second [5 (b)] was a grant of £25 to the Library Committee; the third [5 (c)] was that the Association should authorize the cost of entertaining the Dutch psychiatrists to dinner on the occasion of their return visit this autumn. These disbursements had already been sanctioned by the Council. He would like confirmation of this expenditure, though none of the grants exceeded £50.

[Agreed.]

6. DATES OF THE QUARTERLY GENERAL MEETINGS OF THE ASSOCIATION AND OF THE QUARTERLY MEETINGS OF THE COUNCIL.

The following dates were submitted from the Chair: Wednesday, November 6, 1929; Tuesday, February 4, 1930; Thursday, May 8, 1930.

[Agreed.]

7. ELECTION OF HONORARY, CORRESPONDING AND ORDINARY MEMBERS. [Bye-laws 3, 4, 10, 13.]

Honorary Members.

Dr. J. R. LORD said it had again fallen to him to act as orator, a duty for which he had always felt but poorly qualified. He claimed the indulgence of members if he failed to do justice to the occasion, for he had had little opportunity of preparing for his task owing to the many calls the work of the Association in other directions had made on his spare time.

Prof. Sir Charles Scott Sherrington.

Members, in annual meeting assembled, were permitted by the Association's Bye-laws to elect three honorary members. It was enjoined therein that these should be medical men of eminence in psychology or in sciences of importance to psychiatry, or others who had distinguished themselves by their zeal for the welfare of the mentally afflicted. For many years the honoured name of a great neurologist, in his time a pioneer in cerebral physiology, had been on that roll. He referred to the late Sir David Ferrier. It appeared appropriate to him, the speaker, that another such should be elected to fill the vacancy thus created.

Who, he asked, could better fill that vacancy than Sir Charles Scott Sherrington, O.M., G.B.E., LL.D., D.Sc., M.D., F.R.C.S., F.R.C.P., F.R.S., Waynflete

Professor of Physiology, Oxford, a most distinguished alumnus of Cambridge University, whose fundamental researches into the physiology of the nervous system had brought him a fame imperishable in the annals of science.

Sherrington's name arrested attention where and whenever it caught the eye, for was it not that of one who had thrown a greater light on the integrative action of the nervous system than any man living or before him? He was unquestionably the greatest British physiologist of the day. His physiological conceptions were of a purely scientific nature. He had never proclaimed as facts anything that could not be demonstrated by experiment, nor did he ever over-estimate the value of his physiological researches to other branches of biology, or intrude into departments of science outside his province.

Who, the speaker asked, could but honour the man who, in a great hour of triumph, when he was announcing his mastery of hitherto unsolvable problems, was led by his honesty to direct attention to where he and his science had failed? Never did he, the speaker, admire Sherrington so much as when he said: "The shaping of the animal body, the conspiring of its structural units to compass later functional ends, the predetermination of a specific growth from egg to adult, predetermined to a natural term of existence, these and their elemental mechanisms we are, it seems to me, still at a loss to understand."

Sherrington's good work had not, however, been limited to physiology. He had rendered valuable services to humanity in many directions. He was a member of the Commission on Asiatic Cholera in 1886, of the Board of Trade Committee on Sight Tests in 1910-12, of the Home Office Committee on Lighting of Factories and Workshops in 1913, of the War Office Committee on Tetanus in 1916-17, of the Scientific Committee of the Central Board of Control (Alcohol) 1916-17, and Chairman of the Industrial Research Board, 1918.

A life such as Sherrington's, devoted to lofty ideals and rich in achievements, could not fail to excite universal admiration. He had been created G.B.E. in 1922, and the Order of Merit, bestowed upon him in 1924, placed him among the nation's "immortals." Honorary degrees had been showered upon him by the universities, and over twenty of the most famous scientific academies and societies at home and abroad had acclaimed him an honorary member.

In conclusion the speaker said that Sherrington's election as an honorary member would be symbolic, not only of the Association's great appreciation of his services to physiology and neurology, but also of the gratitude of individual members for having led them to a clearer conception of cerebral functioning—knowledge which bore directly on the better understanding of the pathology of mental disorders. (Applause.)

Dr. Ivan Petrovitch Pavlov.

Members might with reason ask, Why, having said that the vacancy on the roll of living honorary members caused by the death of Sir David Ferrier could only be adequately filled by the election of Prof. Sir Charles Sherrington on the ground of his eminence as a brain physiologist, do you now put forward the name of another such physiologist for a like honour?

Further reflection, however, would show that there were good grounds for the proposal.

For one thing, he found it difficult to think of Sherrington without, at the same time, thinking of Pavlov. It had been said that what Sherrington had done to illuminate the functioning of the central nervous system at subcortical levels, Pavlov had done in regard to the cerebral cortex, for the reflexes discovered by Pavlov, and termed by him "conditioned," depended upon the integrity of cortical nervous centres. In common parlance one might call them psychic reflexes, but by whatever term they were known, or whatever conceptions members had in regard to them, their existence could not be doubted. All would agree that Pavlov's researches had excited the interest of physiologists and psychologists throughout the world. He had brought a sword, not peace, in the world of psychology. Sherrington's great discoveries had been mainly confined to the sphere of physiology. Prior to his researches physiologists had devoted themselves to the study of tissues and organs, their function and minute anatomy. The physical organism had lain in pieces thoroughly dissected, and awaiting a physiological re-assembly. It had been once again the case of the "man" and the

"occasion." Sherrington at this juncture had found his mission. He had indeed re-integrated the organism as a functional unit, but physiologically. Its integration individually by mind he had left to the psychologist.

Pavlov's genius, on the other hand, had led him farther afield, and, distrustful of psychological methods, he had soared to the heights of laying bare by physiological experiment and observation the secret of mental functioning. How far he had succeeded was being discussed everywhere.

Pavlov's hypothesis of cortical activity and animal behaviour, for the validity of which there was much experimental evidence, was based upon mobile and varying conditioned reflexes, their excitation, regression and dissolution. The inhibitors to excitatory processes were external, internal and sleep. The properties of cortical machinery were the irradiation and concentration of nerve impulses. The chief functions of the cortex were synthetizing (coupling and combining) and analysing (decomposing).

The hypothesis was simplicity itself, and to an increasing number appeared convincing. Of its importance to the psychologist, though Pavlov had advised caution in applying it to man, there could be no shadow of doubt, but that was not the time or occasion to discuss the many problems it raised. It had to be remembered that Pavlov was also a psychologist, and held striking views on that subject. His lectures did not reveal him in the character of a psychological mechanist, and he had repudiated being a materialist. He had said that mind, soul and matter would some day be proved to be one, which would put an end to all metaphysical and psychological speculation.

Though it was Pavlov's ardent devotion since 1902 to the elucidation of the normal activity of the highest parts of the central nervous system that had mostly struck the imagination outside Russia, it had to be remembered that he had done fine work for medicine and physiology in several directions. In 1888, nine years after he qualified, he discovered the secretory nerves of the pancreas; later he had formulated the laws governing the regulation of the blood-pressure; later still he had described the innervation of the heart and of the digestive system. The science of pharmacology also owed much to his researches.

The star of physiology had shone brightly on the Russian horizon in the past. If Setchenov was the Father of Russian physiology, Pavlov might be called its Tolstoy, and he had seen to it that its light had not been dimmed in recent years. His personal safety and the freedom of his work from interference had been Russia's particular care during her agony of social upheaval and civil war—so much and so widely was he honoured and revered in his native land.

A true disciple of science, gifted with both acute logical thinking and imagination, and revealing in his life's work a rare honesty of purpose and enthusiasm, all in the cause of science and humanity, no member, the speaker thought, would deny the claims of Ivan Petrovitch Pavlov, M.D., Member of the Russian Academy of Sciences and Director of the Physiological Laboratories of the Institute of Experimental Medicine and Academy of Science at Leningrad, to the highest honour it was in the power of the Association to bestow. (Applause.)

Dr. Eugenio Tanzi.

The death, in 1927, of Senatore Leonardo Bianchi removed from the roll of living honorary members the sole representative of Italian psychiatry. The names of many Italian psychiatrists, famous for their brilliant researches into the pathology of mental disorders and all well qualified in every way for such an honour, had occurred to the Nominations Committee, but the claims of one whose name and teachings were as well known to British psychiatrists as were Bianchi's could not be ignored. He referred to Eugenio Tanzi, M.D., Clinical Professor of Nervous and Mental Diseases in the University of Florence, and Director of the Psychiatric Clinic of St. Salvi of that city.

Prof. Tanzi, if not the *doyen* of Italian psychiatrists, must be, he thought, very nearly so, for he was born at Trieste in 1851, and commenced his psychiatric career in 1883. From that year to 1891, as an assistant at psychiatric clinics successively at Modena, Reggio Emilia, Genoa, Turin, and again at Genoa, he attracted attention by his important clinical and experimental researches and his critical writings. In 1891 his career as a teacher commenced on his appointment as a Lecturer on Psychiatry in the University of Padua and at the Higher Royal Institute

of Florence. He attained his majority in 1893, when he became the Clinical Professor of Nervous and Mental Diseases of the University of Cagliari, in Sardinia. In the following year he was transferred, in a similar capacity, to the University at Palermo, only to be again transferred a year later to the University of Florence, where he still retained the Chair of Psychiatry. In 1896 he founded the well-known and much esteemed *Rivista di Patologia nervosa e mentale*, of which he had been the Editor for thirty-three years. It still remained one of the best of the many Italian psychiatric journals.

Members were all aware that Tanzi was the author of a famous text-book. The first edition was published in 1905, and four years later an edition in English appeared, since which time Tanzi's name had been unforgettable in British psychiatry. In collaboration with Lugaro a second edition appeared in 1913, and the third—the present edition—in 1923. In 1911 he published a treatise on forensic psychiatry, on which subject he was a recognized authority.

Tanzi's teachings had assisted, in no small degree, in the moulding of modern psychiatry. His views had always carried great weight, though they were not always in agreement with the general trend of Italian psychiatry. He was highly respected for his independence and originality of thought, clear judgment and critical attitude to anything not well supported by accurate observation or founded on careful research and experiment. Like Bianchi, he had interested himself a good deal in social problems.

The speaker felt confident that his proposal would receive the unanimous assent of members present, and the Association would heartily welcome this addition to the roll of honorary members. (Applause.)

Corresponding Members.

Continuing, Dr. LORD said it was now his duty to say something about those whom it was proposed to honour by electing them as corresponding members. At the previous annual meeting he had spoken at length about the qualifications such candidates should have. He would merely repeat that a corresponding member should be a physician of high standing in his own country as a writer, teacher or research worker in psychiatry or kindred subjects. He had on that occasion foretold that this group of members would for the future be a more integrated part of the Association, and this had come to pass earlier than he had expected. A promising *liaison* had been established between them and the Research and Clinical Committee. The Study Tour, etc., Sub-Committee had by the tour in the Netherlands established such friendly relationships with Dutch psychiatrists that it was now proposed to strengthen those ties by electing some of them as corresponding members. Others he had to propose had already established communication with the Association in some useful way. He would deal with them in alphabetical order.

Dr. K. Herman Bouman.

Prof. Bouman, a distinguished clinician and teacher, was a remarkably versatile man with wide interests, and greatly esteemed in psychiatric circles in the Netherlands.

A disciple of Winkler, he was at that moment President of the Dutch Association for Neurology and Psychiatry. He had also occupied the Chair of Psychiatry in the University of Amsterdam since 1915.

He had done much to illuminate the morbid anatomy of diseases of the nervous system. He was a keen anthropologist, and in this relation had made a careful study of the population of Amsterdam. He had written on the psychology of art, and had studied the art and speech of the palæolithic age of mankind.

Amsterdam was greatly indebted to him for a good practical scheme of instruction for the feeble-minded. On the sociological side of psychiatry he had devoted himself to the stamping out of inebriety and other anti-social agencies.

He, the speaker, had no doubt the Association would be the richer for Prof. Bouman's co-operation. (Applause.)

Dr. Vilo Maria Buscaino.

Prof. Buscaino, a graduate of the University of Naples (medicine and surgery "with commendation," 1911), entered upon his psychiatric career in 1912 under

Prof. Tanzi, at the Clinic of St. Salvi, Florence, where he remained, except for an interval of war service, until 1927, when, after a few months' private practice as a consultant, he was appointed Director of the University Clinic for Nervous and Mental Diseases at Catania. He had been awarded the *Croce al merito di guerra* for distinguished services in the field, following which he had been posted to the medical staff at the neuro-psychiatric military centre at Reggio Emilia. In January, 1928, he became Co-Director, with Tanzi, of the *Rivista di patologia nervosa e mentale*, having been on the editorial staff of that journal since 1925. He was also a member of the Council of the Italian Society of Neurology.

From the commencement of his career Buscaino had been a keen experimentalist and research worker, chiefly in regard to (1) the biochemistry of the nervous system (histological, urological and pathogenic aspects), and (2) the neuro-vegetative-endocrine mechanism of the normal and pathological display of the emotions.

He had thrown a flood of light on these and allied subjects regarding which he had made many fundamental discoveries. Indeed, it was rare that one could take up a recent work on normal or pathological bio-chemistry, or the functioning of the endocrines, without very soon coming across his name.

Buscaino's observations and researches were contained in some seventy-five papers and a large monograph on *The Biology of the Living Amaba* (1921).

It was obviously impossible on that occasion to pass in review all Buscaino's pioneer work. Amongst other things he had demonstrated the possibility of producing, *in vitro*, by chemical means, amœboid glia-cells; the presence of an abnormal protein in the thyroid of epileptics; the anaphylactic nature of the epileptic crisis, the biopathic personality in epileptics being due to the sensitivity induced by dysthyroidism; the vegetative-endocrine basis of psychopathic crises; the histo-chemical variations in endocrine functioning in states of fear in animals; the importance of the basal ganglia and of the vegetative-endocrine system in emotional reactions and in hysteria, and (with Pentinnelli) the experimental production of a genuine hepato-basilar degeneration, etc.

That by no means exhausted what psychiatry owed to Buscaino's enthusiasm and scientific attainments. He had earned the high respect and regard, not only of his Italian colleagues, but of workers in the fields of neurology and psychiatry everywhere.

The speaker then went on to refer to Buscaino's experimental work in relation to that of Mackenzie Wallis, Pavlov and Bianchi, remarking that the bio-chemical, physiological and psychological responses of the nervous system to internal and external environment, though separate lines of research, should maintain friendly and helpful relationships, because all three were necessary in any attempt to explain the "how" and "why" of animal behaviour, which again was the key to human conduct.

The Association, he felt sure, would join with those present in honouring Prof. Buscaino and indirectly that brilliant band of Italian scientific psychiatrists in which he figured so prominently. (Applause.)

Dr. Franklin G. Ebaugh.

The Association was grateful to Prof. Ebaugh for throwing open to British and Irish medical graduates the student fellowships in the famous clinic of the University of Colorado, of which he was the Director.

His text-book, with Strecker, on *Clinical Psychiatry*, now in its second edition, was finding friends everywhere, and was a really good exposition of the latest evolved methods of examining a psychiatric case. In regard to Ebaugh's clinical researches, he, the speaker, had only time to mention his investigations on the usefulness of intra-cisternal injections of lipiodol, accompanied by X-ray examinations in the localization of lesions of the spinal cord, and the treatment of general paralysis by puncture of the cisterna magna. He was also keenly interested in mental hygiene, especially in regard to mental clinics and mental health problems in children.

Prof. Ebaugh was eminently qualified in every way for the honour it was proposed the Association should confer on him, and it gave him, the speaker, great pleasure to propose it. (Applause.)

Dr. J. H. Pameijer.

Of Dr. Pameijer he need hardly say anything in advocacy of his candidature. He was now well known to many members present and was representing Dutch psychiatry at that meeting. (Applause.) He had, indeed, in actual practice, been a very useful corresponding member for the last two years. However, as a permanent record of the grounds for this election, which he felt sure would be unanimous, he would remark that Dr. Pameijer, who had been educated under Heilbronner and Winkler, had been attracted to the administrative and sociological aspects of psychiatry in which he had made his influence felt and had done not a little pioneer work. He had thus come to occupy a post for which he was well qualified, that of Director of the Maasoord (City of Rotterdam) Mental Hospital, Poortugaal, in connection with which he had established in 1926 a social service for the after-care of discharged patients, and other psychiatric social activities among the poor. Other mental hospitals in Holland were following his example.

The Netherlands Psychiatric Association had, in him, an energetic and most useful member, as the recent tour of British psychiatrists to that country had well shown. He, the speaker, felt that all present would heartily welcome Pameijer as a corresponding member. (Applause.)

Dr. George K. Pratt.

Dr. Pratt was a well-known writer and lecturer on mental hygiene, and had taken a prominent part in the modern mental hygiene movement in the United States of America. He had been Medical Director of the Massachusetts Society for Mental Hygiene, and was now serving the same cause in the larger capacity of Assistant Medical Director on the Executive Staff of the National Committee for Mental Hygiene, New York City.

Judging from his writings he had studied mental hygiene from every aspect, and it was difficult to say which he had most illuminated, unless it be mental hygiene in regard to children, their upbringing and education. He attached the greatest importance to the pre-school and parental education of children, and was Chairman of the Mental Hygiene Committee of the National Congress of Parents and Teachers.

Dr. Pratt was already in touch with the work of the Research and Clinical Committee, and participating in its scheme for mutual exchange of literature. As a psychologist, psychiatrist and sociologist, and for the fine work he had done and was doing for mental hygiene, he well deserved a place on their roll of corresponding members, and he, the speaker, felt that the Association would gladly, in that way, set its seal on the mutual co-operation already commenced. (Applause.)

Dr. W. M. van der Scheer.

Dr. van der Scheer, a disciple of Winkler, was one of the most eminent and respected of Dutch psychiatrists, and for several years was the President of the Dutch Association for Psychiatry and Neurology.

Research worker and administrator, a combination not so uncommon as was generally supposed, he was appointed in 1922 to the Directorship of Holland's largest mental hospital, that of Santpoort (province of North Holland), at Meerenberg.

Prior to this he was State Inspector of Mental Hospitals, and had been Director of the Duinenbosch Mental Hospital at Bakkum.

He had written a good deal on neurological and psychiatric subjects, and his researches and observations on the psychoses of osteomalacia and on Mongolian idiocy were valuable contributions to our knowledge of those subjects.

He would ever be remembered as the pioneer of the Simon method of occupation therapy in Holland—a method which had now spread from Santpoort to nearly all the Dutch mental hospitals.

This was not the first occasion advancement had spread from Santpoort, for was it not at this mental hospital that mechanical restraint on a large scale was first abolished in Holland, as it had been at Hanwell in this country?

Van der Scheer's genius had secured for him a permanent place in the annals of Dutch psychiatry, and he, the speaker, felt that the Association would be proud to number him among its corresponding members. (Applause.)

Dr. E. J. Stuurman.

Dr. Stuurman was formerly an Assistant Medical Officer at Santpoort Mental Hospital, and in 1928 had been promoted to be Director of the Endegeest Mental Hospital at Oegstgeest, near Leyden. He was well known for his anatomical, neurological and psychiatric research work, especially in regard to heredity and dementia præcox. That he had the respect and good-will of his colleagues was evidenced by the fact that he was the Secretary of the Dutch Association for Psychiatry and Neurology.

Stuurman was eminently fitted in every way to become a corresponding member of the Association. (Applause.)

Dr. Douglas A. Thom.

Dr. Thom was a leading New England psychiatrist who had attended several of the annual meetings of the Association, and was therefore known to not a few of its members.

He, the speaker, found it difficult to know where to start or what particular activity to stress in such a career of strenuous labour in the field of psychiatry and sociology. Time would only permit of his setting forth some of the latest activities of Dr. Thom—or as now he should more properly be called, Prof. Thom—for the governing body of the famous Tuft Medical School had recently called him to the Chair of Mental Hygiene.

Prof. Thom, like Dr. Pratt, was early impressed with the importance of mental hygiene to the community and to the race, and with the variety and immensity of the problems it raised owing to public ignorance and State apathy. On the scientific side much spade-work was necessary before a clear vision could be obtained of how the prevalence of mental abnormalities of all kinds should be combated and their evil effect on the social organism abated.

Prof. Thom's later contributions had been among others (1) a valuable contribution to our knowledge of the relationship between infantile convulsions and the chronic disorder of later life; (2) a careful study of epilepsy in the offspring of epileptics; (3) infant research work for the Baby Clinic Association of Boston. He had written and lectured a good deal on mental hygiene, especially in children, and on the all-importance of early years to the adult citizen.

Dr. Thom had done good work as the Director of the Division for Mental Hygiene of the United States Veterans' Bureau, and was a co-Editor of the Official Bulletin of the Massachusetts Department of Mental Diseases.

He, the speaker, though he had scarcely done justice to Prof. Thom's services in the cause of humanity, felt that he had said enough to ensure the unanimous endorsement of all present of his proposal to add that name to the roll of corresponding members. (Applause.)

Dr. E. D. Wiersma.

Prof. Wiersma was an individual psychologist of great eminence, and his many researches had carried his name far and wide. Since 1903 he had been Professor of Psychiatry and Neurology at the State University of Groningen. He was one of those who sought a psychology based upon facts ascertained by scientific methods. Those who had been present at the Maudsley Lecture by Prof. Spearman in July last knew that in recent years considerable progress towards this end had been made. To that progress Prof. Wiersma had contributed in no small measure. He, the speaker, looked upon him as a creative genius in psychological methods, and many reliable and successful mental tests had originated with him.

Wiersma was also a psychiatrist, but one who approached the problems of mental life, not as the generality of Dutch psychiatrists did, by anatomical and physical researches, but by psychological investigations. He was not, however, a psycho-pathologist in the commonly accepted sense. To him all mental phenomena went hand in hand with material changes in the brain, but of those two aspects of normal and abnormal psychic events, investigations of the material changes had been tried and found wanting, and experience had proved to him and to many others that psychological investigations had brought much more to light.

In other words, Wiersma was a faithful follower of the illustrious Galton, who,

by studying the differences in various persons' imagery, had founded individual psychology, which sought to compose the differences between psychologists and physiologists and satisfy the aim of both to explain the phenomena of mental life. He believed that the new psychology had implications of great value not only to sociology and education, but to psychiatry.

No account of Prof. Wiersma's career would be complete without mentioning his pioneer work in regard to mental oscillation and perseveration (inertia). He was (in 1906) the first to devise and employ definite and serviceable tests for the latter. With Heyman he had built up an hypothesis that individual differences were based upon emotivity, activity, and the proportion of primary to secondary psychic function. The account by Wiersma and Heyman of the application of this hypothesis was undoubtedly one of the most brilliant contributions to psychology in recent times.

Wiersma's application of individual psychology methods to epilepsy had been published in the *Journal of Mental Science* for 1923. A further application embodied in his recent lectures on "The Psychology of Dementia" he had also presented to the Journal, which would publish them in due course. He had also done fine research work in regard to Mendelism, particularly in respect of psychopathic traits.

He, the speaker, thought that the Association would be delighted to honour the name of Prof. Wiersma and would welcome his election as a corresponding member. (Applause.)

In conclusion, Dr. LORD said he felt he had done his task but imperfectly, yet he had no doubt in his own mind as to the entire fitness of all those of whom he had spoken for the honour he and those associated with him proposed, and was certain this would be unanimously endorsed by members present. (Loud applause.)

Drs. Douglas McRae and W. Starkey were appointed scrutineers of the ballot, and the President subsequently announced that the elections, in accordance with the following list, had been unanimously approved.

Honorary Members.

- IVAN PETROVITCH PAVLOV, M.D., Member of the Russian Academy of Sciences and Director of the Physiological Laboratories, Institute of Experimental Medicine and Academy of Science, Leningrad.
- Sir CHARLES SCOTT SHERRINGTON, O.M., G.B.E., M.A., LL.D., D.Sc., M.D., F.R.C.S., F.R.C.P., F.R.S., Waynflete Professor of Physiology; 9, Chadlington Road, Oxford.
- EUGENIO TANZI, M.D., Professor of Psychiatry; Direttore, Clinica Psichiatrica di S. Salvi, Firenze. Director, *Rivista di patologia nervosa e mentale*.
- Proposed by Prof. J. Shaw Bolton, Drs. W. M. Buchanan, J. Chambers, R. R. Leeper, J. R. Lord and R. Worth.*

Corresponding Members.

- K. HERMAN BOUMAN, M.D., Professor of Psychiatry and Director of the University Psychiatric Clinic, Amsterdam.
- V. M. BUSCAINO, M.D., Professor of Psychiatry, University of Catania, Sicily.
- FRANKLIN G. EBAUGH, A.B., M.D., Professor of Psychiatry, University of Colorado Medical School; Director, Colorado Psychopathic Hospital, Denver, Colo.
- J. H. PAMEIJER, M.D., Director, Maasoord (City of Rotterdam) Mental Hospital, Poortugaal.
- G. K. PRATT, M.D., Assistant Medical Director, National Committee for Mental Hygiene, 370, Seventh Avenue, New York.
- W. M. VAN DER SCHEER, M.D., Director, Santpoort (Province of North Holland) Mental Hospital, Meerenberg.
- F. J. STUURMAN, M.D., Director, Endegeest Mental Hospital, Oegstgeest, near Leyden; Secretary, Dutch Association for Psychiatry and Neurology.
- DOUGLAS THOM, M.D., Professor of Mental Hygiene, Tuft Medical School: 520, Commonwealth Avenue, Boston, U.S.A.
- E. D. WIERSMA, Professor of Psychiatry and Director of the University Psychiatric Clinic, Groningen.

Proposed by Prof. J. Shaw Bolton, Drs. J. Chambers, J. R. Lord and R. Worth.

Ordinary Members.

MUTHIAH, ASAINAYAGAM RICHARD, L.M.S.Singapore, Assistant Physician, Central Mental Hospital, Tanjong Rambutan, Perak, Federated Malay States.

Proposed by Drs. W. F. Samuels, S. B. Pal and James W. Murdoch.

RICH, GILBERT J., A.B., A.M., Ph.D.Corn., M.D.Chic.; Assistant Physician, Psychopathic Hospital, Boston, Mass.

Proposed by Drs. Marjorie Franklin, G. Warwick Smith and R. Worth.

SELLINN, LOWELL SINN, B.A.Mich., **M.A.**Columb., **Sc.M.**New York, **M.A.** Bellevue, Assistant Resident Physician, Bellevue Psychopathic Service; Assistant Alienist, Bellevue Hospital, New York City.

Proposed by Drs. George H. Kirby, J. R. Lord and R. Worth.

WOODCOCK, OSWALD HAMPSON, M.D., Ch.B.Manch., **P.M.O.**, Ministry of Pensions (Headquarters Neurological Inspectorate), 22, Ridge Hill, Golders Green, N.W. 11.

Proposed by Lt.-Col. E. L. Forward, and Drs. G. Warwick Smith and R. Worth.

8. COMPLIMENTARY MOTIONS AND ANNOUNCEMENTS.

The **PRESIDENT** announced that the winner of the Gaskell Gold Medal and Prize was Dr. Alexander Walk, of Long Grove Mental Hospital, Epsom.

The **PRESIDENT** announced that the following Honours had been conferred by H.M. the King:

Baronetcy of the United Kingdom :

Sir Edward Farquhar Buzzard, *K.C.V.O.*

The Most Excellent Order of the British Empire.

K.B.E.—C. Hubert Bond, Esq., *C.B.E.*

M.B.E.—Miss Agnes Brodie, Matron, East Riding Mental Hospital; Miss Ellen A. Cleary, Matron, Norwich City Mental Hospital; Miss Nesta Hawkes, Superintendent, Prudhoe Mental Deficiency Colony.

[Interval.]

AFTERNOON SESSION.—WEDNESDAY, JULY 10.

In the Council Chamber, Westminster City Hall.

9. CIVIC WELCOME BY HIS WORSHIP THE MAYOR OF THE CITY OF WESTMINSTER—MAJOR VIVIAN ROGERS, *D.S.O., M.C., J.P.*

His Worship, the **MAYOR OF WESTMINSTER**: Ladies and Gentlemen,—May I first of all enter on a note of apology for being so punctual, but the reason is that I have to be somewhere in East London by a quarter to three, where the Prince of Wales is inspecting the London Fire Brigade, so I hope you will forgive me for wanting to get off quite early. I shall have the great pleasure and privilege of meeting some of you this evening at your banquet, to which you have so kindly invited me.

It gives me great pleasure to be granted the privilege of welcoming you to the Westminster City Hall on the occasion of your Annual Meeting. I must confess my ignorance by explaining that until recently I had never personally come in contact with your Association. The title of the Association would probably not have conveyed much to me, but when I learned that your Association was formed to help in every possible way to advance the treatment and the cure of the mentally afflicted, I felt at once thankful that the first occasion on which I could come in touch with you would be in my capacity to-day, and not as one of those for whom you are doing so much good. I understand that your Association is by no means a new one, it having been in existence for nearly ninety years. And I should like to very heartily congratulate you on what appears to me to be the estimable

working of your Association and its very notable objects. Speaking as one with some little interest in local authorities, I am pleased to note the very amicable way in which you appear to work with the local authorities, although, on the other hand, you never hesitate, as I understand it, in addressing yourselves, sometimes forcibly, to central authorities and the Legislature on the broader issues affecting the insane. And who could be more qualified to press views on such a subject than your Association? I confess that I think the formation of associations to further such professional interests as yours—I belong to two in my profession—can do nothing but good for their members. With regard to your activities, I do not want to quote figures which are probably better known to you than they are to me, but I took an interest in reading every word I could find about your Association, and I could not help being struck by the number of mental nurses, some 25,000, who have been trained and examined and registered by your Association since 1892, when your examinations were started. Is it surprising that, as a result of this and other good work, our gracious Sovereign expressed his appreciation of your work by granting you your Royal Charter? Another thing which must be gratifying to you is to realize that a number of your members and nurses holding your certificate have, during the past year, been recognized by His Majesty, who has conferred upon them signal honour. To them, and to your Association, I offer my hearty congratulations.

Your agenda paper shows that you have a very considerable amount of work before you, and some most interesting papers to be read and discussed. I will therefore content myself by saying that I offer to you, one and all, a most hearty welcome to Westminster, to our City Hall, and I trust that your deliberations will result not only in satisfaction to yourselves as medical psychologists, but to the welfare of that great profession of which you are an integral part. (Applause.)

10. A VOTE OF THANKS TO THE MAYOR.

The PRESIDENT (Prof. J. SHAW BOLTON) desired, on behalf of the Association, to tender grateful thanks for the extremely kind words of greeting which the Mayor had uttered, and also for the use of this beautiful chamber for their deliberations. The annual meetings of the Association were always their most important functions, and when they took place in such beautiful surroundings they were likely to be much more fruitful of result.

Dr. NATHAN RAW (President-Elect) said it gave him the greatest possible pleasure to second the vote of thanks to His Worship the Mayor.

The vote of thanks was carried by acclamation.

The MAYOR OF WESTMINSTER assured the meeting that he felt very grateful for the kind words of Prof. Bolton and Dr. Nathan Raw, and again wished the Association a very useful time.

11. THANKS TO THE RETIRING OFFICERS AND COUNCIL.

Dr. W. F. MENZIES (Cheddleton) said it was his pleasant duty that day to move a vote of thanks to the Council and Officers of the Association for their services during the past year. This was not a duty which one looked upon as obligatory, or even desirable, for he did not know why the Officers should be thanked, because the Association did more for them than they did for the Association. Still, it was the custom, and the present was the third or fourth time that he had been asked to do it, and it was becoming difficult to find anything new to say.

First he would speak of the President. Much water had flown under the bridges of the Thames since the President and he were colleagues together at Rainhill, and those who saw the President now, with that dignified mien and that skill with which he guided the deliberations of the Association, had no idea of the wit and the caustic humour, the generous smartness of repartee which used to distinguish him as a youth. In fact when the speaker heard he was leaving Rainhill and going to Yorkshire he asked him whether he thought he was wise, and the retort was, "Better the Devil you know than the Devil you don't know." He would be succeeded by another of their colleagues, Dr. Nathan Raw, who was then at Mill Road Infirmary in Liverpool.

The next officer to mention was the Honorary Treasurer. All were very sorry indeed that Dr. Chambers was in such poor health, because he supposed that

Dr. Chambers was the great remaining financial expert in the Association, and his treasurership had done incalculable good for it. He took up the mantle of Dr. Hayes Newington, and had filled the post with great efficiency. The members would all wish him a speedy return to health.

The General Secretary, Dr. Worth, had been for many years an active officer, and had carried on his duties with great efficiency. Unfortunately, he had not been able to do quite so much during the year just past, and therefore the speaker took leave to couple with his name that of Dr. Lord, who had done an enormous amount of work for the Association, particularly—in his opinion—in pressing on these Research Sub-Committees, in which a beginning had been made this year. He hoped this phase of the work of the Association would be productive of much good in the future.

The Registrar, Dr. Rambaut, was really the official upon whom most of the heavy work of the Association devolved, because, whatever other bodies might say, the chief work of the Association was its examination work. It was upon its capacity to conduct the examination of nurses that the future of the Association would largely depend. He did not say it was the best, but it was the sort of work which had been forced on the Association, and had gradually grown with the years. It was possible to look back over the years and see that many new business methods had been introduced to make this work ever more efficient.

Next he wished to mention the Editors of the Journal. There, again, the Journal had advanced immensely. On looking round on the scientific journals published in English, he came to the conclusion that the epitomes and reviews in the Association's Journal were better than those in any other scientific publication. That, he thought, was incontrovertible.

The Librarian, Dr. Whitwell, did not work under the best circumstances, but he thought it probable that the accommodation for the Library would be entirely reorganized as soon as the B.M.A. extensions were completed.

To these and other members of the Council he moved a very cordial vote of thanks. **[Agreed.]**

The PRESIDENT said he had been asked to reply for the Council and Officers. The Council and Officers had done their best to carry out their duties to the satisfaction of the members and it was a great pleasure to learn that what they had done received approval.

12. INDUCTION OF NATHAN RAW, C.M.G., M.D., J.P., LORD CHANCELLOR'S VISITOR, TO THE OFFICE OF PRESIDENT.

The PRESIDENT said his next duty was a very pleasing one. A year ago the Association appointed the speaker as its President when he was personally known to very few. His predecessor so appreciated this that, following the example of the Vicar of Wakefield to his wife, he prepared an epitaph for him, the speaker, in order that he might keep it before him throughout his period of office, so that by endeavouring to live up to it he might carry out his duties in a satisfactory manner. He could only say he had endeavoured to carry out the duties which had been imposed upon him. The new President stood in need of no such assistance; he was a man who was well known to every member of the Association, a man who occupied a high official position under the Crown, and also one who had done yeoman service in furthering the work of the Association. It could be truly said of him, as of few others, that the office of President could be regarded as a reward for services rendered to their branch of the medical profession, not an office granted to him in the hope of favours to come.

The President then invested Dr. Nathan Raw with the Presidential Badge, and wished him a very happy year of office amid loud applause.

The President in the Chair.

13. INVESTITURE OF THE EX-PRESIDENT WITH THE PAST PRESIDENTIAL BADGE.

The PRESIDENT said his first duty as President of this great Association was to present to the Past President the Badge appertaining to that position. Prof. Shaw Bolton had very ably filled the office during the past year.

14. PRESENTATION TO THE PRESIDENT OF FOREIGN DELEGATES AND OTHER DISTINGUISHED VISITORS.

The **PRESIDENT** then asked Dr. Lord to act as master of ceremonies, and present to him (the President) the distinguished foreign delegates who had honoured the Association with their presence.

Dr. **LORD** introduced Dr. J. H. Pameijer, a representative from Holland, the Director of the Maasoord City Hospital, Rotterdam.

Dr. **PAMEIJER** said that his colleagues had charged him with the duty of conveying to their English colleagues respectful greetings, for whom they entertained very loyal feelings. They highly appreciated this invitation to send a representative to the meeting, and the Association's decision to nominate and elect five Dutch Corresponding Members. He himself felt it a great privilege to be present at the annual meeting of this ancient Association. He thanked the Association for the distinction which had been conferred on him. These international cooperations possessed high value, for the work which was being done would have much less importance without them. He wished the annual meeting every success.

Dr. Lord next presented Dr. Henri Flournoy, who brought the greetings of Swiss psychiatrists.

15. PRESENTATION OF THE GASKELL GOLD MEDAL AND PRIZE.

Dr. **LORD** presented Dr. Alexander Walk, to whom the President handed the Gaskell Medal and Prize.

16. THE PRESIDENTIAL ADDRESS.

The **PRESIDENT** then delivered his address on "Fear and Worry: A Sociological Study" (*vide p. 573*).

The **GENERAL SECRETARY** (Dr. R. Worth, *O.B.E.*), said: It is my privilege to propose a vote of thanks to Dr. Nathan Raw for his address. I congratulate him in the first place on his election as our President, and secondly I thank him for the very excellent address he has given us. Dr. Raw informed some of us last night at the Council Dinner that 41 years ago he was appointed an Assistant Medical Officer at Barming Heath, and he has told us that he gained this appointment on account of his skill at cricket. Since then he has held numerous appointments, but in recent years he has devoted himself to work on the prevention of consumption, and has added considerably to the literature on the subject. During the war he was in charge of the Liverpool Neurological Hospital, and now, as you know, he is a Lord Chancellor's Visitor in Lunacy. From this wide experience he has brought to bear on the subject of his address a wide field of thought. Dr. Raw—who was a member of Parliament for some years—did a great deal in the House to further the cause of this branch of the profession, and I believe was Chairman of the Committees of the House which went into the matter of fresh legislation on Lunacy Laws.

It always occurs to me that members of our branch of the profession are inclined to be self-centred, and if I may say so, are somewhat restricted in vision, but it is men like our President—a man of many other interests—who can treat the subject in hand from a larger and wider outlook. It has been truly said that we all fear something, and it often takes time before this is evident. When I was a young Superintendent even the Lord Chancellor's Visitors inspired in my mind a little fear, but when they appear they are such charming gentlemen that one looks forward to their visits, so this was a good example of a fear that was groundless. When Dr. Raw first asked me to play a game of golf with him I feared that I should be no match for him—another fear that was groundless. (Laughter.)

Ladies and Gentlemen, I now move a hearty vote of thanks to our President for a very admirable address.

Dr. **BEDFORD PIERCE** (Commissioner of the Board of Control), in seconding the vote, said he wished to join with Dr. Worth in expressing on behalf of all present thanks for this address. As one heard the description of a nervous person attempting to speak in public one almost feared one would give a personal exposition of the signs of fear. He would content himself with saying that he considered this address had been one of the most literary, most thoughtful and most philosophical

presidential addresses ever heard at a meeting of the Association, and members would thank Dr. Nathan Raw most cordially for it.

The resolution was put to the meeting by the proposer, Dr. Worth, and carried by acclamation.

The PRESIDENT said he wished to thank the proposer and seconder, and all present, for their kindness in listening to his address and for the appreciation accorded him. It was very difficult to select a suitable subject for an address of this kind: and if one confined oneself to the purely medical or scientific side of the specialty it might prove exceedingly dull. Perhaps the case was best met by a subject in which there was a little of both, and he was very glad it appeared to have met with approval.

[Adjournment.]

THE ANNUAL DINNER.

The Annual Dinner took place on Wednesday, July 10, at the Hotel Metropole, Northumberland Avenue. The President, Dr. Nathan Raw, occupied the chair.

The official guests included: His Worship The Mayor of Westminster (Major Vivian B. Rogers, *D.S.O.*), Sir Arthur Robinson, *G.C.B.*, *C.B.E.* (Permanent Secretary, Ministry of Health), Sir Charles Pinkham, *O.B.E.*, *J.P.* (Chairman, Middlesex County Council), L. G. Brock, Esq., *C.B.* (Chairman, Board of Control), Mrs. Pinsent (Commissioner, Board of Control), Sir George Buchanan, *C.B.* (Ministry of Health), The Right Hon. Lord Riddell (Chairman, Royal Free Hospital), Dr. J. H. Pameijer (Dutch Delegate), Dr. Henri Flournoy (Swiss Delegate), Sir J. Rose Bradford, *M.D.* (President, Royal College of Physicians), Lady Barrett, *D.B.E.*, *M.D.* (Dean, London [Royal Free Hospital] School of Medicine, Sir James Purves Stewart, *K.C.M.G.*, *C.B.*, *M.D.* (Senior Physician, Westminster Hospital), Dr. Woodward (Dean of Westminster Hospital), Dr. N. C. Horner (Editor, *British Medical Journal*), Dr. Alfred Cox, *O.B.E.* (Medical Secretary of the British Medical Association), Miss Vickers (Secretary, Mental After-Care Association).

The following, among others, were invited, but were unable to be present: The Lord Chancellor, The Rt. Hon. Arthur Greenwood, *M.P.* (Minister of Health), His Eminence Cardinal Bourne, The Lord Chief Justice of England, The Dean of Westminster, Lord Southborough, *G.C.B.*, *G.C.M.G.*, The Earl of Birkenhead, Surgeon Vice-Admiral Gaskell, *C.B.*, Lt.-General Sir Matthew H. G. Fell, *K.C.B.*, The Vice-Chancellor of the University of London, The President, Royal College of Surgeons, The President, Medical Society of London, Sir Claud Schuster, The President, Royal Society of Medicine, Sir Robert Bolam (Chairman, Council, British Medical Association), Miss Musson (Chairman, *G.N.C.* for Eng. and Wales), Lt.-Col. F. E. Fremantle, *M.P.*, *M.D.*, The Hon. H. C. Bailey (Board of Control), Sir Wm. G. Lobjoit, (Middlesex *C.C.*), Mr. Hubert J. Greenwood, *D.L.* (Chairman, Horton Mental Hospital), Mr. de Salis (Middlesex *C.C.*), Dr. Costley White (Headmaster, Westminster School), Professor Winifred Cullis, *C.B.E.*, Sir Philip Gibbs, Sir George Newman, *K.C.B.*, *M.D.* (Ministry of Health), Mr. K. A. Wolfe Barry, Mr. William Turner, *F.R.C.S.* (Westminster Hospital), Mr. Arthur Evans, *F.R.C.S.* (Westminster Hospital), Sir James Berry, *M.D.*, The Hon. Mr Justice McCardie, Sir Squire Sprigge (Editor, *Lancet*), Mr. Parker Morris (Town Clerk, City of Westminster), Sir Montague Cox (Clerk, London County Council), Mr. R. H. Curtis (Chief Officer, London County Mental Hospitals).

TOASTS.

The PRESIDENT proposed the toast of "The King," and it was loyally pledged.

"THE CITY OF WESTMINSTER."

Lt.-Col. J. R. LORD, *C.B.E.*, in proposing this toast, said that at the meeting of the Association that afternoon the President had given a moving and instructive description of Fear. The President had not, however, revealed to them what was to be understood by "funk," but one could regard it as yielding to fear and decamping. That was just what he felt like doing that moment. His great fear was that he would prove a totally inadequate substitute for Sir James Crichton-Browne, to whom rightly belonged the honour of proposing that toast. Sir James, who was one of the most eloquent men of our times, and whose absence all would

deplore, would no doubt have told them in stately phrases that Westminster, first known as "Thorney Island," or as "Apple Island," was a busy place long before London came into existence. He would have said of it that the date of its first Charter was lost in antiquity, and that it was the pulsating heart, not of England, but of the Empire.

But for him, the speaker, to speak adequately of the part Westminster had played in history was impossible. He might, however, venture to portray the thoughts of the many pilgrims who wandered with respect, even reverence, through its highways, both broad and narrow. Who of them, the speaker asked, could fail to note that set in its mighty buildings, some of brick, some of stone, some mightier still of steel and concrete, was the Constitution of the British Empire, who could fail to feel when under the spell of Westminster's ancient abbey church that enshrined in it were the triumphs and tragedies of the history of England? And lastly, who of them could possibly think of any other place on earth as the proper site for the Imperial Cenotaph. (Applause.)

"Mr. Mayor," he continued, "you preside over an imperial city, a city of palaces, unique in its history and traditions. In this respect you occupy a proud position among mayors. You no doubt are proud of Westminster, but it is no less true that Westminster is proud of you. It is well known that you have earned the high respect and goodwill of its citizens by your devotion to civic work. This is enhanced by your fine record as a soldier during the war. Such a record was to be expected, for where is the Marlborough boy who is without patriotism—love for home and country—both in peace and war. Has not that great school supplied more Empire-builders and soldiers than any other in this country?"

He, the speaker, was to-night the mouthpiece of those present, all of whom desired to do honour to Westminster, the seat of Imperial government, the home of Majesty, and to its Mayor for his fine work as citizen and soldier, and on behalf of the Association to thank him for his hearty welcome and kind hospitality.

Before, however, the toast was honoured, he would like to touch on two other matters. Westminster was the home of Olympius, so had said Ian Hay, but an Olympius surely now dethroned. Was not the going to sleep and falling down of one of the Horse Guards horses that awaited to carry far and wide the news that England had let loose the reins of war, a symbol of this? (Loud laughter.) Was not Scotland Yard in Westminster, and the chief of the Metropolitan Police one of its citizens? That reminded him, the speaker, that in the Westminster of the eighteenth century thieves used to cut out the backs of carriages and steal the wigs of gentlemen and the decorative headgear of the ladies. The Overseers of those days ordered people to sit on the front seat of carriages and face the rear, to prevent those robberies. (Laughter.) The other matter he would like to refer to briefly as something remarkable that Westminster was proud of was its past Overseers' Society, founded in 1713. It held an annual dinner, and the speaker had been privileged more than once to be a guest at that dinner. On one of those occasions, not the last, he had to speak for the Army, and at short notice, a field-marshal who was present having rebelled—surely a privilege limited to that rank. (Laughter.) The Mayor had inherited the duties of this most remarkable set of men, the Overseers of Westminster, but not the tobacco box, now so encased as to be a small mountain, which was given to the Overseers in 1713 by a barber-surgeon named Henry Monck. Col. Lord then bade the company present rise and drink to the health of Westminster and its mayor. (Loud applause.)

HIS WORSHIP THE MAYOR OF WESTMINSTER (Major Vivian Rogers, D.S.O., M.C., J.P.), in responding to the toast, said he felt that it was an undue honour to be privileged to address this Association twice in one day. Col. Lord had spoken eloquently and kindly of the City over which he, the speaker, had the honour to preside, and had referred to many points of interest it presented. He, the speaker, would like to describe one or two more, if in so doing he would not be boring them. Dr. Lord first spoke of the antiquity of Westminster's Charter. The Charter was not really ancient, but Westminster was. The first record the City possessed of boundaries was in the year 785, when Offa, king of the Mercians, laid down certain boundaries, which were subsequently confirmed by King Edgar in 951. An interesting point was that the boundaries of that remote time included a certain portion of what was now the City of London. He had had an interesting experience the other night. He was at a function with an American general who was very interested in Westminster. His daughter, he said, could not understand what

presidential addresses ever heard at a meeting of the Association, and members would thank Dr. Nathan Raw most cordially for it.

The resolution was put to the meeting by the proposer, Dr. Worth, and carried by acclamation.

The PRESIDENT said he wished to thank the proposer and seconder, and all present, for their kindness in listening to his address and for the appreciation accorded him. It was very difficult to select a suitable subject for an address of this kind: and if one confined oneself to the purely medical or scientific side of the specialty it might prove exceedingly dull. Perhaps the case was best met by a subject in which there was a little of both, and he was very glad it appeared to have met with approval.

[Adjournment.]

THE ANNUAL DINNER.

The Annual Dinner took place on Wednesday, July 10, at the Hotel Metropole, Northumberland Avenue. The President, Dr. Nathan Raw, occupied the chair.

The official guests included: His Worship The Mayor of Westminster (Major Vivian B. Rogers, *D.S.O.*), Sir Arthur Robinson, *G.C.B.*, *C.B.E.* (Permanent Secretary, Ministry of Health), Sir Charles Pinkham, *O.B.E.*, *J.P.* (Chairman, Middlesex County Council), L. G. Brock, Esq., *C.B.* (Chairman, Board of Control), Mrs. Pinsent (Commissioner, Board of Control), Sir George Buchanan, *C.B.* (Ministry of Health), The Right Hon. Lord Riddell (Chairman, Royal Free Hospital), Dr. J. H. Pameijer (Dutch Delegate), Dr. Henri Flournoy (Swiss Delegate), Sir J. Rose Bradford, *M.D.* (President, Royal College of Physicians), Lady Barrett, *D.B.E.*, *M.D.* (Dean, London [Royal Free Hospital] School of Medicine, Sir James Purves Stewart, *K.C.M.G.*, *C.B.*, *M.D.* (Senior Physician, Westminster Hospital), Dr. Woodward (Dean of Westminster Hospital), Dr. N. C. Horner (Editor, *British Medical Journal*), Dr. Alfred Cox, *O.B.E.* (Medical Secretary of the British Medical Association), Miss Vickers (Secretary, Mental After-Care Association).

The following, among others, were invited, but were unable to be present: The Lord Chancellor, The Rt. Hon. Arthur Greenwood, *M.P.* (Minister of Health), His Eminence Cardinal Bourne, The Lord Chief Justice of England, The Dean of Westminster, Lord Southborough, *G.C.B.*, *G.C.M.G.*, The Earl of Birkenhead, Surgeon Vice-Admiral Gaskell, *C.B.*, Lt.-General Sir Matthew H. G. Fell, *K.C.B.*, The Vice-Chancellor of the University of London, The President, Royal College of Surgeons, The President, Medical Society of London, Sir Claud Schuster, The President, Royal Society of Medicine, Sir Robert Bolam (Chairman, Council, British Medical Association), Miss Musson (Chairman, G.N.C. for Eng. and Wales), Lt.-Col. F. E. Fremantle, *M.P.*, *M.D.*, The Hon. H. C. Bailey (Board of Control), Sir Wm. G. Lobjoit, (Middlesex C.C.), Mr. Hubert J. Greenwood, *D.L.* (Chairman, Horton Mental Hospital), Mr. de Salis (Middlesex C.C.), Dr. Costley White (Headmaster, Westminster School), Professor Winifred Cullis, *C.B.E.*, Sir Philip Gibbs, Sir George Newman, *K.C.B.*, *M.D.* (Ministry of Health), Mr. K. A. Wolfe Barry, Mr. William Turner, *F.R.C.S.* (Westminster Hospital), Mr. Arthur Evans, *F.R.C.S.* (Westminster Hospital), Sir James Berry, *M.D.*, The Hon. Mr Justice McCaig, Sir Squire Sprigge (Editor, *Lancet*), Mr. Parker Morris (Town Clerk, City of Westminster), Sir Montague Cox (Clerk, London County Council), Mr. R. H. Curtis (Chief Officer, London County Mental Hospitals).

TOASTS.

The PRESIDENT proposed the toast of "The King," and it was loyally pledged.

"THE CITY OF WESTMINSTER."

Lt.-Col. J. R. LORD, *C.B.E.*, in proposing this toast, said that at the meeting of the Association that afternoon the President had given a moving and instructive description of Fear. The President had not, however, revealed to them what was to be understood by "funk," but one could regard it as yielding to fear and decamping. That was just what he felt like doing that moment. His great fear was that he would prove a totally inadequate substitute for Sir James Crichton-Browne, to whom rightly belonged the honour of proposing that toast. Sir James, who was one of the most eloquent men of our times, and whose absence all would

deplorable, would no doubt have told them in stately phrases that Westminster, first known as "Thorney Island," or as "Apple Island," was a busy place long before London came into existence. He would have said of it that the date of its first Charter was lost in antiquity, and that it was the pulsating heart, not of England, but of the Empire.

But for him, the speaker, to speak adequately of the part Westminster had played in history was impossible. He might, however, venture to portray the thoughts of the many pilgrims who wandered with respect, even reverence, through its highways, both broad and narrow. Who of them, the speaker asked, could fail to note that set in its mighty buildings, some of brick, some of stone, some mightier still of steel and concrete, was the Constitution of the British Empire, who could fail to feel when under the spell of Westminster's ancient abbey church that enshrined in it were the triumphs and tragedies of the history of England? And lastly, who of them could possibly think of any other place on earth as the proper site for the Imperial Cenotaph. (Applause.)

"Mr. Mayor," he continued, "you preside over an imperial city, a city of palaces, unique in its history and traditions. In this respect you occupy a proud position among mayors. You no doubt are proud of Westminster, but it is no less true that Westminster is proud of you. It is well known that you have earned the high respect and goodwill of its citizens by your devotion to civic work. This is enhanced by your fine record as a soldier during the war. Such a record was to be expected, for where is the Marlborough boy who is without patriotism—love for home and country—both in peace and war. Has not that great school supplied more Empire-builders and soldiers than any other in this country?"

He, the speaker, was to-night the mouthpiece of those present, all of whom desired to do honour to Westminster, the seat of Imperial government, the home of Majesty, and to its Mayor for his fine work as citizen and soldier, and on behalf of the Association to thank him for his hearty welcome and kind hospitality.

Before, however, the toast was honoured, he would like to touch on two other matters. Westminster was the home of Olympius, so had said Ian Hay, but an Olympius surely now dethroned. Was not the going to sleep and falling down of one of the Horse Guards horses that awaited to carry far and wide the news that England had let loose the reins of war, a symbol of this? (Loud laughter.) Was not Scotland Yard in Westminster, and the chief of the Metropolitan Police one of its citizens? That reminded him, the speaker, that in the Westminster of the eighteenth century thieves used to cut out the backs of carriages and steal the wigs of gentlemen and the decorative headgear of the ladies. The Overseers of those days ordered people to sit on the front seat of carriages and face the rear, to prevent those robberies. (Laughter.) The other matter he would like to refer to briefly as something remarkable that Westminster was proud of was its past Overseers' Society, founded in 1713. It held an annual dinner, and the speaker had been privileged more than once to be a guest at that dinner. On one of those occasions, not the last, be it noted, he had to speak for the Army, and at short notice, a field-marshal who was present having rebelled—surely a privilege limited to that rank. (Laughter.) The Mayor had inherited the duties of this most remarkable set of men, the Overseers of Westminster, but not the tobacco box, now so encased as to be a small mountain, which was given to the Overseers in 1713 by a barber-surgeon named Henry Monck. Col. Lord then bade the company present rise and drink to the health of Westminster and its mayor. (Loud applause.)

HIS WORSHIP THE MAYOR OF WESTMINSTER (Major VIVIAN ROGERS, D.S.O., M.C., J.P.), in responding to the toast, said he felt that it was an undue honour to be privileged to address this Association twice in one day. Col. Lord had spoken eloquently and kindly of the City over which he, the speaker, had the honour to preside, and had referred to many points of interest it presented. He, the speaker, would like to describe one or two more, if in so doing he would not be boring them. Dr. Lord first spoke of the antiquity of Westminster's Charter. The Charter was not really ancient, but Westminster was. The first record the City possessed of boundaries was in the year 785, when Offa, king of the Mercians, laid down certain boundaries, which were subsequently confirmed by King Edgar in 951. An interesting point was that the boundaries of that remote time included a certain portion of what was now the City of London. He had had an interesting experience the other night. He was at a function with an American general who was very interested in Westminster. His daughter, he said, could not understand what

the "City of Westminster" meant when she saw it on the houses of every street corner. Therefore he, the speaker, explained what he need not explain to the present company, namely, the municipal government of London, amplifying his remarks by saying that their first dated boundary went back to 785 A.D. She said "1785?" and he replied, "No, 785," at which she exclaimed, "What? 700 years before my country was discovered?" That gave an idea of its antiquity. It was not a City then; it became one when a Bishop was appointed to it in 1540. But the bishopric lasted only nine years, as it was abolished in 1559. Still, by courtesy, Westminster remained a City until, by Royal Charter, in 1900, Queen Victoria confirmed the title of "City."

Westminster was a city over which anyone, as Col. Lord had said, might be proud to have the honour of presiding. He was particularly proud of it. He had worked for the past twenty-five years in Westminster, and he knew most of its corners. It was not easy to know the whole of it. It covered four square miles, and there were 100 miles of streets to look after. The number of public buildings and places of interest within the boundaries of Westminster was almost without limit. When one thought of the Royal Palaces, the Houses of Parliament, the Abbey, the Government buildings, the Law Courts—to say nothing of the principal theatres, and he thought it would be agreed that London's chief shopping centres were within its precincts—that remark was borne out. Apart from that, Westminster had the distinction of being the richest city in England, its rateable value at the moment being little short of ten millions, and he rather anticipated that when the quinquennial valuation occurred next year it would exceed the ten-million mark.

He did not propose to weary the company with lengthy remarks. Apparently something boring was expected from him, as he noticed that a musical interlude had been arranged to follow his speech—(Laughter)—a privilege which had been accorded to no other speaker. He wished to thank all the members of the Royal Medico-Psychological Association for the very kind welcome extended to him in his position as Mayor of Westminster City, and he wished every member of this gathering the best of luck and success during the remainder of their Annual Conference, and for ever after. (Applause.)

"THE UNIVERSITY OF LONDON, WESTMINSTER HOSPITAL SCHOOL OF MEDICINE."

Prof. J. SHAW BOLTON said it was with the greatest possible pleasure that he rose to propose this toast. The toast was a double-barrelled one, the first double-barrelled toast he had ever proposed, so he would find it difficult to steer a course between doing justice to himself and boring his hearers. He would endeavour at all events to avoid boring the assembled company. He had the honour of being a member of the University of Leeds, but he would disappoint those who expected him to speak of that University; he felt he must propose the toast as a graduate of the University of London. In the course of his remarks he would like to say what the University had done for general education. The idea of university education a century ago was attending a seat of learning where men went through a training before they went home to work as they chose. They occupied the greater part of their time enjoying the mental and physical skill of the few residents rather than showing any tendency to study seriously for their future careers. The University of London did not go in for that. Its system of examination, introduced into this country for the first time there, could be described as an intellectual apprenticeship. Thousands of young men and boys—himself among the number—were able in the first three-quarters of a century of its existence, to obtain a degree based upon knowledge, without having seen the inside of either a university or a They acquired their information somehow, and that it was acquired was proved by the test of examination. He did not mind telling the company how he came to the University. He was assisted to matriculate by a reverend gentleman who produced in him an undying hatred of Latin and French. He worked for the Intermediate by himself, in a wooden shed, and he employed cats and pigeons, because they were cheaper and easier to obtain than were rabbits and fowls. As soon as he passed the Intermediate examination he had to give up the study of science, as he was unable to obtain facilities for carrying on. Therefore he had to take up mental and moral science. He could not say how much he hated these subjects, particularly moral science, and he would not have believed at that time that forty years afterwards he would be in a position such as he now occupied. He was

one of many thousands who obtained a degree in that way. He did not wish to propose this course to anyone; he was merely indicating how it came about.

He would now say, in a word or two, what was absolutely true with regard to the University of London. In London it had been possible to obtain a University degree, also to obtain the qualification of the Colleges of Physicians and Surgeons. For more than half a century it had been a serious source of discomfort to diplomates in London that they did not have a University residence. But he could say, with truth, that the graduates of London were as well, if not better, trained than in any of the provincial Universities. During the past quarter of a century the University of London had extended its spheres of influence by undertaking the teaching as well as the examining of candidates. It had incorporated a number of the largest and most important Colleges. The only thing the University of London missed—and it missed it greatly—was a suitable home for a body of its outstanding importance. That would come in the future, but at the present time, and ever since it was founded, the University of London existed in the lives of its undergraduates.

He now proceeded to the second half of the toast, that of the Westminster Hospital School of Medicine. He knew but little personally about that School, but he knew that if the School was represented by other teachers of the outstanding importance of Sir James Purves Stewart, it must necessarily be a very great teaching School. He believed that the Westminster was one of the oldest hospitals in London. It differed from many in the fact that it had been rebuilt four or five times. It had recently associated itself with a mental hospital, and he would like to spend a few minutes in referring to the importance of this. In the case of Leeds, Wakefield Mental Hospital was closely associated with the University, and he occupied a position on the staff of that University. That arrangement, however, did not hold to the same extent in many parts of the country. Another example was Springfield Mental Hospital, the Medical Superintendent of which was the General Secretary of this Association. Such an association between mental hospital and university was extremely important. The case of Westminster differed from the association in the north, because the consultants of Westminster Hospital undertook to obtain their advice from Springfield Mental Hospital, and the latter undertook to provide a lecturer, and also to provide a place in the curriculum of the University of London. There was also at the same time an important social association. The sports ground of Springfield Mental Hospital was used by the students of Westminster Hospital, and there was an association between the two in projecting games, etc. It foreshadowed, he thought, the time when a similar connection would be general throughout the country. He had the greatest pleasure in proposing the toast, coupled with the name of Sir James Purves Stewart. (Applause.)

Sir JAMES PURVES STEWART, *K.C.M.G., C.B.*, in responding to the toast, said that the latter part of Prof. Shaw Bolton's speech was what he would have said himself. He found himself in the position of a fellow countryman of his own, who had a horse suffering from an asthmatic affection. He met a veterinary friend in the street and asked his advice as to what he should do. The reply was to indicate a certain cure. He told him to procure a certain powder, put it in a long glass tube, insert the tube in the horse's mouth, then blow the powder in. Next day the veterinary surgeon met the man and asked him if he had carried out the advice. He said yes, he did just as he was told, but the horse blew first! (Laughter.) Prof. Shaw Bolton had "blown first," because he had told the company all those things about Westminster Hospital which he had hoped would have been reserved for him, the speaker, though admittedly he had done it better than he, Sir James, would have done. It was therefore necessary that the speaker should approach the matter from a different angle.

To one who, like himself, was not a medico-psychologist, there was bound to be some hesitation in addressing a medico-psychological audience such as this. And this hesitation in his case amounted almost to a phobia, but his own fear was due to a different cause from Col. Lord's. The speaker's phobia was due to the possibility that an innocent outsider like himself was facing a number of psycho-analysts—Freudian or otherwise—concealed behind innocent-looking cigars. These analysts often attached most remarkable meanings to most innocent gestures. The safest thing would appear to be to address these distinguished psycho-analysts from behind a curtain. But he assured members of the Association that the

dominant complex of the guests to-night lay close to the surface, and that it was one of sincere gratitude for the kindly hospitality.

“ALLIED SOCIETIES.”

Sir HUBERT BOND, *K.B.E.*, said the terms in which this toast was listed entrusted its proposer with a somewhat roving commission. Its ambit was not confined to London's seventy medical societies, nor even to England and Wales, where, besides five in the Principality, there were 98 provincial medical societies, at least eight of which published transactions or a journal, and of which the first was said to have been founded at Warrington about 1774. Since their own Association drew its members from all parts of the Empire and was peripatetic throughout Great Britain and Ireland, the company would wish him to include in their thoughts the 25 Scottish and 5 Irish medical societies, as well as the many others that flourished throughout the Empire; and to extend to them, severally and collectively, fraternal greetings, together with most hearty good wishes for their combined prosperity, and for their success in their great aim which underlay every medical society—namely, the benefit of humanity, especially in the maintenance of health.

Even then they would find the horizon receding; because science was heedless of frontiers, and they would be ill-content to sit down until they had extended not less cordial wishes to the many similar societies which enriched the life of nations without the British Empire, not a few of whom were represented in the Association's roll of Honorary and Corresponding Members, some of whose delegates had honoured the Association by their presence at that annual meeting, and at that evening's gathering.

Again, were there not, besides dental societies, also a growing number of nurses' professional associations? They were certainly allies. Yet again, there were various cognate societies which, being partly lay as well as medical, served to preserve a just balance between professional enthusiasm and that which was acceptable to the public.

So were he to interpret his commission in its wide sense, and to attempt to do justice to the position of all these societies, whose work one was so often glad to fall back upon in aid of one's efforts, it was patent for how tediously long the patience of the company would be tried. Their just alarm at the bare thought of such an infliction, however, would be quickly dispelled, as five minutes' attention was all he asked. And in further justification for short-circuiting much that indeed ought to find a place in any attempted recognition of the fine work done by the allied societies was the fact that scarcely a fortnight ago there appeared, in the *British Medical Journal*, a lecture—delivered before the London Clinical Society—by Sir Humphry Rolleston upon “Medical Friendships, Clubs and Societies,” in which, with great charm, he told many highly interesting facts concerning the rise and progress of these societies.

It was, he said, the reply to this toast, rather than its proposer, which the gathering desired to hear; but the speaker's consequent desire to be brief would scarcely excuse his sitting down without short allusion to some of those societies. It would be of interest to know when and where a body of persons practising medicine, either mystic or scientific, first banded themselves together into an association or society—probably in the far distant days of an early Egyptian civilization. If the answer to such a question had to remain shrouded in doubt, there appeared to be no dubiety, according to accounts given in this and last week's newspapers—*The Observer* of July 7, 1929—that it was South Africa that could claim to possess the most recently formed medical association or union; and, although its membership was limited to witch-doctors, although the “smelling-out-rod” was held to have more virtue than the stethoscope, the clinical thermometer, or even the X-rays, and although an emulsion of pulverized gramophone record in water obtained from a railway-engine was believed to contain both a “voice” and a “go,” enabling it to cure aphasia and every disordered motor function, yet might it not be presumptuous on the part of the profession to ignore them, when recalling the fact that, before Europe awoke to the significance of a bite from a malaria-infected mosquito in cases of general paralysis, the members of this union had learnt to apply it as a cure for this disease?

However, one was on safer ground when looking no further back than 1649 for the germ of a medical society in our own country—the year in which, Sir Humphry said, “Ye Philosophical Clubbe” began its meetings in Oxford. The Royal

Medical Society of Edinburgh, Founded in 1737, Charter in 1738, was within eight years of celebrating its bicentenary; it was still primarily for students rather than for the fully fledged; its latch-key was still in the speaker's possession. but alas! had not been used since his undergraduate days. Of those nearest to the Association's present place of meeting, the Medical Society of London, founded in 1773, was the oldest. In 1805 it begat the Medical and Chirurgical Society, from which sprang, by union with several other medical bodies, the Royal Society of Medicine, with its twenty-five sections, including one for Neurology and another for Psychiatry. Then there was the Medico-Legal Society, before whom some of the legal conundrums which confronted this Association's work were often favourite topics. The activities, so potent for good, of that great body, the British Medical Association, were weekly before the profession, and it was in their palatial premises that the Royal Medico-Psychological Association had dwelling. They were fortunate in having present to-night its Medical Secretary, Dr. Alfred Cox, whose name in the work of that great Association was a household word, and whose constant strivings to improve the opportunities for good professional work were familiar to all, as was his ready help to a number of his hearers personally.

The value of the Royal Medico-Psychological Association was far-reaching. Fully and properly used, its membership was of the utmost service to the individual member, and, with the aid of the Press, as a disseminator of knowledge there was no more potent agent. Sir Humphry Rolleston had something to say about Edward Jenner and the Gloucestershire Medical Society. The speaker could supplement this by mentioning that Jenner, who was an ardent Freemason, was in the habit, before his Lodge—the Royal Lodge of Faith and Friendship, at Berkeley—was assembled, and before its doors were closed to none but Masons, of holding a "Lodge of Science," to which anyone interested was welcome, and at which many facts of importance to health were discussed and taught.

Before asking those present to drink the toast he would strike the note on which he desired to conclude. To that language, full of delight and charm, which so pleasantly greeted their ears when they crossed the Channel, English admittedly was so deeply indebted that our French friends would pardon a solitary tilt. His "grouse" was against their word *aliéné*, from which we derive our unfortunate, but he trusted moribund, terms "alienist" and "alienism." Too much and too long had the specialty been isolated from the main body of medicine. Happily the barriers, *ab initio* rotten and unsound, were now fast breaking down; and, in welcoming to-night representatives of other medical bodies, it was the desire that they should discern something more than an attempt to show hospitable courtesy. He wished them to credit us with a deep sentiment of unity and a fixed intention to seek help and strength from them, together with an earnest desire that our own work likewise might be sought in aid and not found wanting in value. It was brotherhood that bound, and friendship was the great chain of human society.

He submitted the toast of our "Allied Societies," and coupled with it the name of Dr. Alfred Cox, *O.B.E.*, Medical Secretary of the British Medical Association.

The toast was pledged with enthusiasm.

Dr. ALFRED COX, *O.B.E.*, in responding to the toast, said nobody could have been selected who could have done it with a better will—though someone else might have done it more skilfully—than himself, because there was no man in any association who had received more acts of kindness and more signs of willingness to cooperate than had he in his official position. He could not profess to speak in the name of those honourable societies which were mentioned by Sir Hubert Bond, but no doubt the members of those societies would wish him to say what he felt for his Association, namely, that they were very grateful for their hospitality and the kindness with which this toast had been received. The British Medical Association was allied with the Royal Medico-Psychological Association in many ways. In the first place, both bodies shared the same building, and, up till now, they had not quarrelled. Secondly, they had shared the same Librarian, and had likewise shared the names of some of the most honoured members of the profession. He need mention only three to show how close that bond of membership had been. There was their honoured founder, Sir Charles Hastings, who established the Association in 1832, so that the centenary would be celebrated in 1932. He was a member of the Medico-Psychological Association. Sir Clifford Allbutt was also a member of this body. Another was a distinguished member

of the profession who had more recently gone—Sir Frederick Mott. In addition, they shared some common interests, as both Associations were interested in the question of lunacy-law reform, and both had been putting in a good deal of hard work and spending much money in this connection during the last few years. They were now looking for some results. As the present company knew, the Royal Commission on Lunacy reported in 1926, and he supposed that, if those concerned were very good, in something like twelve years' time some results might be seen. He mentioned twelve years because he had been looking at the figures concerning Royal Commissions on lunacy affairs, and he found that twelve years was about the average time which elapsed between the issue of the Report and any practical result. He did not know where the blame for that delay lay, but it was not with the Board of Control. It was a very poor compliment for the people who put in the hard work implied by a Royal Commission if its labour were to be shelved and left, while Parliament was playing with many things which, to his mind, seemed to be of much less consequence. He could not hope to live to see it himself—(Laughter)—but perhaps the more junior members present might be at an Association dinner some night when a Minister of Health would proudly announce that he would bring in a Lunacy Reform Act. He, like other speakers, had promised he would not be long, but his difficulty had always been how to sit down when making a speech of this sort. For many years he had been trying to learn how to do it gracefully, and he had generally had to fall back on a story. Even in the presence of that prince of story-tellers, Lord Riddell—who was also a very good honorary member of the medical profession—he would like to tell a story which he believed Lord Riddell had not heard before, and that was saying a lot. During the war, he, the speaker, was Secretary of the Central Medical War Committee, and one of his duties was to find doctors for the Army. The doctors concerned all had a year's commission, but later on all except those from Ireland had to go for the duration of the war. The Irish doctors still kept up the one year. It was just after the Ministry of National Service had been formed that one of his colleagues rang him up and said a doctor wanted to see him. An Irishman appeared on the scene. He said to the visitor, "What can I do for you?" The reply was, "I want some work." He, Dr. Cox, "Fancy bothering me with a thing like that; there is work for everybody. Why don't you go to the war?" He said, "I have been there for a year; just come out." "Go back then." "I'm not going back." "Why?" "When I qualified I did eye work. I have applied six times for eye work, and each time some damned Scotsman has got the job." He had been told that the Minister of National Service found work for everybody; he had been down to Caxton House, and found that the head of it was Dr., later Sir James, Galloway, another Scotsman, and moreover an Aberdonian, so he came away, feeling it was no good, and so came on to the speaker to see if he could do anything for him. There was a moral in that, but it was not for him to point it. This was one of the few societies that were not pervaded by Scotsmen.

Again he thanked the Association and the company for the way in which the toast had been received, and for the very enjoyable evening he had spent.

"THE GUESTS AND VISITORS."

Prof. GEORGE M. ROBERTSON said that as no less than four were to reply to this toast, it had been intimated to him that his remarks in submitting it must be brief. The President, in telling him this, reminded him of the story of James Russell Lowell, the great after-dinner speaker. Lowell's friend met him one day in the street and asked him if he was going to speak at a great function which was shortly to be held. He replied that he was. The next question was, "How long will you speak?" "I suppose, about twenty minutes." Then his friend said to him "Take my advice, James, if you don't strike 'ile' in five minutes, stop boring!" (Laughter.)

In the first place, the speaker wished to congratulate the Association's guests and visitors for their bravery in coming to dine with members of an Association with such a reputation as that of the Royal Medico-Psychological, a body having such a long and, to many, incomprehensible name. The public had a short way with them; they called them "mad doctors." The members did not object to that very much, because everyone now knew that everything was relative, including

madness. It was pointed out to an Aberdonian that it was a curious circumstance that the percentage of insanity in Aberdeen was very much higher than in other places, in spite of the Aberdonians being reputed to be very wise people, with very large heads. It was also said to be the only place where the late W. E. Gladstone could get a hat which would fit his head. An Aberdonian said it was easy to account for that: that the standard of intelligence was set so high in that city that any person possessing the slightest defect was at once conspicuous and he was regarded as insane, whereas the very same people, if they lived in London, for instance, would be regarded by the inhabitants as very clever.

A list of the guests had been placed in his hands by the Secretary; and as the speaker could not, in the short time at his disposal, do justice to each distinguished guest, he had tried to arrange them into categories, and he hoped his hearers would excuse him for this rude treatment.

First, there were the magnates, in whose territory they were all enjoying themselves: His Worship the Mayor of Westminster and the Chairman of the Middlesex County Council. Next there were members of Government Departments: Sir Arthur Robinson and Sir George Buchanan of the Ministry of Health, Mrs. Pinsent and Mr. Brock of the Board of Control; Mr. Ross of the Scottish Office. There were also present representatives of the medical profession: the President of the Royal College of Physicians, the Dean of Westminster Hospital Medical School, and the Dean of the London School of Medicine for Women; the Secretary of the British Medical Association—who had just spoken—and the Editor of the *British Medical Journal*. There was one guest, however, whom he could neither compress nor classify, namely, Lord Riddell. He did not know whether to regard his lordship as an editor, or to put him down as a fluent after-dinner speaker, or whether to regard him as a Gulliver, or as just a very fine fellow. He thought that, after all, he must leave him as he was, a riddle! (Laughter.)

The Association was fortunate, also, in having present two foreign delegates—Dr. Flournoy, of Geneva, and Dr. Pameijer, of Rotterdam. Two years ago the speaker formed one of a deputation of four representatives of this country in France. They were graciously invited to the British Embassy by Lord Crewe, who was then the British Ambassador in France, and all were greatly impressed with their interview with Lord Crewe, who thanked them for coming to France, and said he appreciated very highly the good work which the deputation was doing. He added that the attention which they thus paid in this way to the French nation helped very greatly in the strengthening of the bonds of friendship between Great Britain and France. In the same way, and for the same reasons, those present appreciated the visit of these foreign representatives from Switzerland, from Holland, and from Germany, and thanked them for coming to this, the Association's Annual Meeting.

It was his duty to couple with this toast the names of four persons: Dr. Flournoy, who was the Lecturer on the subject in the University of Geneva and represented the Swiss Society of Psychiatry. His father had a female patient who could speak the language of the Martians. The existence of this language proved that Mars was inhabited! When flying across the Atlantic became a daily experience those who wished to take a trip to Mars would find a knowledge of the Martian language useful. That lady's family and all her friends believed in what she said, but he regretted to say that Dr. Flournoy, senior, had his doubts. He, the speaker, would like to know more, however, about that gifted and romantic lady. Dr. Pameijer was Medical Superintendent of Rotterdam Mental Hospital, and he had distinguished himself in the organization of social services outside the hospital. The Association was deeply indebted to him for having acted as guide to a body of physicians from mental hospitals in this country who had recently visited the mental hospitals of Holland, greatly to their own advantage. And he was glad to say that the physicians of Holland would return this visit, and he hoped the event would take place this year.

Lady Barrett was the Dean of the London School of Medicine for Women, and one of the most distinguished women physicians of her day. That hospital tolerated medical men, but admitted no male student into its precincts. For that there were, no doubt, very good reasons.

Sir Arthur Robinson was the Principal Secretary of the Ministry of Health, and it was to be feared that the pressure of work would prevent the bringing in of lunacy legislation in the near future, though, as Dr. Cox said, this was very much desired.

He, the speaker, would take the present opportunity of pointing out that the Association was greatly distressed at the failure of the Nurses' Registration Act as applied to mental nurses. During the last five years the Association had trained over 5,000 mental nurses. These nurses were admitted to be the best-trained mental nurses in the world, yet only 5% of those mental nurses were registered by the State. He thought that the good sense and the guiding hand of the Ministry of Health was needed to put this matter right.

Dr. J. H. PAMEIJER (Rotterdam), in responding to the toast, said the Dutch Association for Psychology and Neurology thanked the Royal Medico-Psychological Association for the invitation to a representative to be present at its annual meeting. His little country followed the doings of this Association with great interest, and always with sympathy.

Sir ARTHUR ROBINSON, *G.C.B.*, also responded. He said he was going upon the assumption that he would be the third to respond to the toast, but the unfortunate absence of Lady Barrett altered that. In a few brief words he would like to thank the Royal Medico-Psychological Association, on his own behalf and that of the guests, for the hospitality which had been extended to them this evening. They had had, as usual, an excellent evening; they had heard excellent speeches, and had enjoyed a good dinner.

He supposed he ought to say something in reply to the vigorous attack made by Dr. Cox, who said it would take twelve years to carry out the recommendations of the Royal Commission on Lunacy. Dr. Cox thought he would be dead before the recommendations of the Lunacy Commission were carried into law. But, as far as the carrying out of the wishes of a Royal Commission was concerned, the average period in recent cases was well under two years not twelve years, so that possibly Dr. Cox might live to see legislation on the subject of lunacy. (Hear, hear.) The Ministry of Health had enormous commitments, and the last accusation which could be made against the Ministry was that legislation was short. When one thought of slums, and de-rating, and local government and pensions, naturally some things got crowded out, but he could assure the Medico-Psychological Association and Dr. Cox that, so far as it was humanly possible, the Ministry of Health would do its best to see that this particular Royal Commission's Report would not lie on the shelf until it became too dusty.

The night was getting on, and no doubt Lord Riddell would tell the company some extraordinarily good stories—he knew one or two of them himself, but he would not attempt to rival his lordship. He thanked the Royal Medico-Psychological Association very cordially for their kind hospitality.

[Lady Barrett was called away during the proposal of the toast.]

"THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION."

The Rt. Hon. LORD RIDDELL said the toast of the evening had been entrusted to him, and it was coupled with the name of the President. He confessed that he came there that night with some trepidation. That morning a friend of his had said to him that he understood he was dining with this Association to-night. On being told that such was the fact, he asked whether he, Lord Riddell, having regard to his excursions on the subject and his references to sterilization of the unfit, had provided himself with a dagger-proof coat. (Laughter.) Of course he explained to the friend that, being a guest, he felt he was safe in such company. The other day he, the speaker, was called upon to give evidence for a man who was charged with driving to the danger of the public. The report of the case ran that so-and-so was fined forty shillings and costs, and that Lord Riddell gave evidence on his behalf and his licence was endorsed. (Laughter.)

This was a most valuable Association. He understood that it produced friendship among medical men who were entrusted with the task of looking after certain unfortunate members of the community; he had called them lunatics, but had been castigated for so doing. (Oh!) Secondly, the Association was very useful for research purposes; thirdly, for the exchange of views, and fourthly as a spurring point for Sir Arthur Robinson and other people. As a ratepayer, he regarded the proceedings of this Association with a certain amount of fear. He gathered, from the reports which had recently been issued, that it was proposed to spend thirty millions in housing mental deficient; he had not got the figures with him but he had looked into them. Some time ago he saw, in an Australian paper, a cartoon which represented a man who had brought an action under the Workmen's

Compensation Act. He was portrayed as broken up, arms, legs and head. The scene was a lawyer's office and the man was depicted receiving a cheque and looking at it. The lawyer asked whether anything was the matter with the cheque. The man replied, "There is nothing the matter with it, but I was wondering whether it was you or me that fell off that blooming scaffold." (Loud laughter.) That was how ratepayers felt about all these expenses; they sometimes wondered whether it was possible for them to exist if such expensive accommodation was to be provided for mental deficients; they wondered what was to be done for the normal people, and whether normal children were to be penalized for the abnormal ones. One sometimes wondered whether it was right, that such a large sum should be spent in educating mental deficients, whereas a much smaller sum was expended in educating normal children upon whom the future depended. When he was in America he heard of a parson who had been called upon to deliver a funeral oration on a member of his flock, who had been a hard worker in the congregation. The oration wound up with the assurance that the man was happier where he was than he had been on earth. But a lady in the front pew, who was his widow, said, "I am his widow, I have been in spiritual communication with him, and he asked me to say that what you have said is incorrect." (Loud laughter.) The parson, who was very much annoyed, said, "I have been in the profession thirty-five years, and have delivered about 14,000 funeral orations, and this is the first time I have ever had any back-chat from the corpse." (Much laughter.) He hoped the experts present would pardon this back-chat from a ratepayer, who was likely to become a corpse if he was called upon to pay more in rates for the benefit of the mentally deficient. Those remarks did not seem to meet with much appreciation, but they were well thought out, and were, he considered, deserving of the most careful consideration. Everyone was very keen on his own job, and sometimes one did not see "the wood for the trees." But there was one advantage in being a mental defective or a lunatic, considering that when one had been made such, one would not be unmade without one's consent. He knew several lunatics who had a good deal of sense. They were living in comfort, some under gentlemen here. Under the beneficent provisions of our law a certain allowance was made out of their estate for their maintenance, in priority to their creditors, who would like them to become, as one might say, "unlunaticked"—(laughter)—or "uncertified," but this could be done only with their consent, and they were much more comfortable where they were. They played golf all day, then went home in the evening to what in the former days used to be called an asylum. That well showed the advantage of living as a lunatic.

It had given him very great pleasure to be present to-night and to hear all the charming speeches which had been delivered. He was specially interested in what Dr. Cox said, as he was a special admirer of Dr. Cox; he was the best Trade Union Secretary in the country, a wonderful man! (Laughter.) There was a strong feeling about these Scotsmen, he agreed—he was himself a Scotsman. He, the speaker, hoped that those of his hearers who went in fear of the Scotch would remember that the English were really much the cleverer people, because they made use of the Scotch, while they themselves sat back and took the bulk of the profits.

But, quite seriously, this was a most admirable Association. He was delighted to see on his right this friend from Holland. It was a real pleasure to realize the high estimation in which our scientific people were held abroad. The truth was that we did not make enough of our clever people. We had here some wonderful scientific people, about whom most of the inhabitants knew very little unless they happened to be in the same business or profession or calling. When one went abroad to Holland and other countries one found how much such men were appreciated among those who really understood the subject, and who could, therefore, estimate their merits. This was one of those learned societies which combined practical with theoretical work, and which did a great deal to maintain the high position which our country had so long held in this particular province of medicine. It was a proud thought that we, with the French, were the first to initiate the modern treatment of lunacy. Quakers had many claims to distinction, but he thought their chief claim was the fact that they produced the first English-speaking doctor who appreciated the nature of mental disease. That was a great honour for the Quakers.

He asked the company to drink to the health of the Royal Medico-Psychological Association. The Mayor stumbled over the name badly; one never knew what

mayors would be up to; they did not concentrate enough. A journalist told the speaker the other day that he saw a paragraph in his paper stating—"Among the beautiful girls was the Mayor." He called the reporter to him and said, "What is the meaning of this?" He replied that it might be a grammatical error, but it was a fact. (Laughter.) He assured the company that the Mayor of Westminster always did his duty in that respect. That gentleman was telling him just now that he had been opening some garden fête, and he made a mellifluous speech on the occasion. By some accident it was attributed to the Mayor of Chelsea; he, Lord Riddell, believed it caused a lot of trouble with the Mayoress of that borough.

The company must not think, because he had been somewhat frivolous, that he did not appreciate what an important toast this was, and what admirable work this Association did. He trusted that the Board controlling the Association would give serious heed to the proposal to build no end of asylums, mental homes, mental colonies for all these mental defectives; it was a very serious problem. How much more money was to be spent on the care and treatment of the abnormal? How much more was the country going to penalise the normal for the benefit of the abnormal? Were people going to look at these questions without prejudice and without being bound by traditions? He had read very many reports, but he had not read one which was more serious than the one recently issued concerning mental deficiency—serious because of the facts it disclosed, but even more serious because of the extraordinary proposals it made for remedying these conditions at serious cost. It showed that the persons who wrote it did not properly appreciate the economic facts and the effects of those proposals upon our overburdened rate-payers, who were not mental defectives, though they might be well on the road to becoming so if rated to a greater degree. With this somewhat doubtful appreciation of the Association—(Laughter)—he asked the assembly to drink their health with much enthusiasm. He expressed the hope that during the forthcoming year they would most carefully study these mental deficiency reports, and find some means, in conjunction with Sir Arthur Robinson, of avoiding spending these large sums of money on people who were shut off more or less as if they were criminals. The Association had the advantage of possessing a most distinguished President—(Applause)—one of those specialists who possessed a large amount of special knowledge and of special experience, whose mind had not been warped, and whose vision had not been curtailed by the nature of his occupation. Dr. Nathan Raw was a fine example of a British medical man and a British man of science, and all in the Association were proud of him.

Dr. NATHAN RAW (President) thanked Lord Riddell for the happy and felicitous speech in which he proposed the toast. The Royal Medico-Psychological Association was a great organization comprizing about 700 doctors. The duty of dealing with the insane was a difficult and trying one involving a good deal of disappointment but in many cases with successful results. The Association was anxious for legislation based on the Report of the Royal Commission, and were specially anxious to devote their energies to the prevention of insanity, by giving treatment in the early stages, and so avoiding, if possible, certification.

Members and guests then departed.

The musical interludes were provided by Miss Phyllis Everett (contralto), Mr. Will Gardner (humorist entertainer), and Mr. Victor Marmont at the piano.

MORNING SESSION.—THURSDAY, JULY 11.

In the Hastings Hall, British Medical Association House, London, W.C. 1.

The PRESIDENT in the Chair.

18. PAPER.—"Some Cases of Mental Disorder: A Patho-Clinical Study," by W. M. FORD-ROBERTSON, M.B., Ch.B. (*vide* p. 618).

Dr. W. F. MENZIES (Cheddleton) said that in discussing this paper it was a question of how much time one could spend in speaking about it. It was, he considered, one of the epoch-making contributions to this Association, and it was one of the first which definitely proved the influence of the anaerobes in focal infection.

On the previous day many expressed regret that this was a medico-psychological association, so that it cut out of membership the bio-chemist. He did not think a man could be both. He admitted that Dr. Ford-Robertson came near to that combination, but life was not long enough to permit of both qualifications in the one man. The bio-chemist must have started as a pure chemist when he left school. He brought before the Association what he thought was a serious fault in its membership, namely, that it was impossible to elect as a member a pure chemist. He suggested that some effort should be made, such as in an associate-membership, to invite bio-chemists to join the Association.

With regard to Case 4 referred to in the paper, whom he had seen in consulting practice, the question at that time was whether it was dementia præcox or manic-depression. She was a public-school girl, an excellent athlete; the mother was alcoholic, and the father and mother lived in the same country house but did not speak to each other for years on end. When the girl got older she began to think about these things, and to adopt psychological defences. The head mistress wrote to her mother and said she had "gone off her head," and accordingly sent her home. There was much insanity in the family. It was thought to be a confusional case rather than of primary dementia. She was given a course of psychotherapy, but was later admitted to St. Andrew's Hospital. At school she had amenorrhœa. Her leucocytes were about 10,000. In her hysterical fugues she adopted the same drunken rollings of the head and body which had beset her mother when put to bed at night. Her psychology was manifested in the psychosis. She adopted the best defence she could. It threw an interesting light on the psychogenic origin of mental disorder.

Dr. BEDFORD PIERCE (Commissioner of the Board of Control) said he had only heard part of the paper, but what he did hear had not only given him much pleasure, but it seemed extremely comforting as to the future of the Association, illustrating the excellent way in which scientific work was being done in the mental hospitals to-day. As Dr. Menzies had just said, it was most satisfactory to have a scientific paper of this nature, showing results of such careful scientific investigation.

Dr. Ford-Robertson asked those present for criticisms. It was impossible for him, the speaker, to make a criticism, but he would like to ask one question. Supposing every person in the room had an exhaustive examination made of his physical condition, what number would show in their body the micro-organisms which Dr. Ford-Robertson mentioned? It would be interesting to know whether an average lot of people, of the same age and status, would be sufficiently free from the organisms in question.

Dr. J. R. LORD (Epsom) said that this paper was a real illumination to those members of the Association who had not appreciated how far the bio-chemical and bacteriological technique in regard to the examination of cases of mental disorder had recently progressed in this country. Dr. Bedford Pierce had said that a number of people in the general population might also show the same kind of bacteriological pictures that had been described. Dr. Douglas McRae who had worked with Dr. Ford-Robertson's father, had laid it down to him, the speaker, that it was not merely a question of a person having septic foci, it was rather a question of whether he was absorbing toxins from them. Whether or not he did so depended on his bio-chemistry; in other words, it was a bio-chemical problem of defence. But that was not all. Bio-chemical defence was essential to health, even life. A toxin or a virus had a chemical constitution like everything else, and the destructive effects in the body in general amounted to chemical combinations which robbed the tissues of oxygen so that a state of anoxæmia resulted. If the individual was not capable of putting up this chemical defence there occurred what was commonly called septic or toxic poisoning.

It was with the view of ascertaining some of these basal factors that the Association's Research and Clinical Committee was established. Such problems could not be mastered by one person working alone. Someone with expert knowledge was necessary to direct and co-ordinate the work of many who had not that knowledge, and often wasted their time and energies through lack of such guidance. A right step had been taken in associating a bio-chemist with the Committee's activities by electing Capt. Mann as its Honorary Adviser in Bio-Chemistry. He did not wish them to discuss the question of opening-up the Association to non-medical members, but he thought, with Dr. Menzies, an

associateship, with a strict limitation of numbers, might be established for which scientific workers would be eligible.

He wished to congratulate Dr. Ford-Robertson on a most instructive paper. The speaker expected something of the kind, being aware of the fine work that gentleman was doing. He hoped the researches would continue, but of course without prejudice to other lines of inquiry, for though bio-chemical processes were the ultimate *modus operandi* of morbid mental states, biochemistry could not answer the question why such problems should arise.

The PRESIDENT, in bringing the discussion to a close, said he desired, first, to congratulate Dr. Ford-Robertson on continuing the brilliant work of his father. He offered his congratulations also to Dr. Rambaut, at St. Andrew's Hospital, for having made it possible for these scientific investigations to go hand-in-hand with clinical observations and treatment. At St. Andrew's there was an ideal combination: a laboratory, a pathologist, a first-class bio-chemist, a bacteriologist and capable clinicians and nurses. Thus one had had presented to them the whole picture. He hoped many institutions would follow Dr. Rambaut's example.

With regard to the suggestion made by Dr. Menzies and Dr. Lord, that bio-chemists should in some way be associated with the work of the Association, he was heartily in agreement. But it would be necessary to revise the Association's Bye-laws to effect this. Obviously if members were to make scientific progress in the treatment of mental disease, bio-chemical observations must be included—observations such as had been so splendidly reported to the Association to-day.

As to the paper itself, it was difficult to offer criticism. It was true that many of the micro-organisms found in these patients were also present in everyone. Whether or not their toxins were absorbed and did great damage was for the observers and the bio-chemists to demonstrate. It was remarkable that there should be so many anaerobes, especially the Klebs-Loeffler. He would like to hear how Dr. Forbes-Robertson made his autogenous vaccines.

The case which had most impressed him was that described as a rapid toxæmia. It seemed pretty conclusive that it was a direct infection by a superabundant dose of the leptostreptothrix and that by treatment with autogenous vaccine those symptoms were alleviated. Many had written papers dealing with the association of mental and bodily disorders, and the two finest examples of this association were furnished by alcohol and puerperal insanity. Both, he considered, were obviously toxic infections. When the toxic infection had been overcome, the patient made a magnificent recovery.

It was possible to pursue this subject for hours, but he did desire to congratulate Dr. Ford-Robertson, from the chair, on what he considered a very brilliant piece of work.

Dr. FORD-ROBERTSON, in reply, first wished to thank the President and other speakers for the very kind appreciation they had shown of his research. This kind of work was necessarily arduous and very difficult. One was faced with so many problems, and one felt that each step in the advance was by no means the end of the difficulties; the work was no more than at its beginning.

Dr. Menzies had made reference to the influence of anaerobes in bacterial infection, especially the last case. In mental patients there seemed to be a peculiar association between the oral aerobic group, such as *Streptococcus anginosus* and *S. salivarius* and other streptococci; mental patients seemed to harbour these organisms. There was the added factor of anaerobic infections, and it was the combination of the two which made it difficult to know where one stood in toxic ætiology: *i.e.*, had the anaerobes a greater or a less importance than the other type of infection? Much work was needed in order to elucidate that problem.

Dr. Bedford Pierce mentioned control work. For 2½ years the speaker was Hon. Bacteriologist to Southport Infirmary, and he was also in private consulting bacteriological practice. He had carried out 300 to 400 intestinal examinations, also dental, tonsillar and resting-juice cultures, and had traced infections from mouth to colon. Further he had the opportunity in 200 cases of making this complete overhaul which he had undertaken in mental cases. One very striking fact presented itself. Out of that large number of cases he had thirteen borderline patients, two were under certification. The moment one encountered them, the anaerobe or leptothrix group came into prominence. Not only were those organisms found, but they were vigorous, in large numbers, and easily grown.

Anaerobic bacteriology was difficult, and it was hard to get suitable artificial culture media for these organisms.

As to whether these organisms occurred in non-mental patients, he had found some more, especially diphtheroids, but of the Hoffmann type, and much less metachromatic. There must be, he thought, a very gradual, almost insensible gradation between the non-neurotoxic and the neurotoxic person. His experience of such bacteriological work was that the organisms in non-mental cases were small in number and frequently incapable of subculture, but in the psychotic group the whole flora presented itself much more strongly and clearly. Since he had once more started bacteriological work on mental cases, many of them ill for a long time, he had been constantly confronted with the factor of anaerobic infection, and in most cases the organisms were very vigorous and easy to grow if the proper technique was applied.

Dr. J. R. Lord had mentioned the question of resistance, and what that gentleman said the speaker regarded as very true. It was not only a question of somatic resistance, the resistance of our tissues—for example, the tonsils—but in mental patients the factor of the susceptibility or otherwise of the brain and nervous system to infection must be of importance. For example, some of us escaped acute diphtheria, a known neuro-toxic infection, suggesting a natural resistance; of those, however, who contract the disease, many completely overcame it; nevertheless the difficulty of eradicating the Klebs-Loeffler bacillus from the tonsils was well recognized. The tonsils of many mental patients can be shown to harbour Klebs-Loeffler types of bacilli, but essentially as anaerobes. Infection of this kind when merely confined to the tonsils might have relatively little pathogenic significance, but if the same organism could be traced as infecting the whole length of the colon, their pathogenic importance must be greatly increased and their neurotoxic action taken into account. The degree of neurotoxic reaction in such cases must be partly dependent on the susceptibility of the central nervous system. The colon seemed an ideal nidus for these types of bacteria, but they could rarely be isolated except as anaerobes. They were extremely difficult to eradicate. The evidence he now had of chronic bowel conditions in mental disease was becoming increasingly interesting. He carried out, from time to time, X-ray examination by opaque meal and enema, and in tracing the course of the barium through the intestine it was astonishing to note in some the degree of spasticity of the colon, causing the meal to hurry through the small intestine. It was a reflex condition depending probably on the stasis lower down the bowel.

Environment was, of course, extremely important. The psychotic person, or the person with that tendency, was up against the difficulties of life, and if he had to face in addition the difficulty of an adverse internal environment, which from time to time rendered his nervous system thoroughly toxic, it was not to be wondered that he might break down. He was not trying to minimize the importance of psychology; he thought psychology would have its greatest field in the re-education of the patients to adjust themselves to their environment after they had recovered from their physical disorder. He thought there would be a great scope in the future for psychological treatment on those lines.

With regard to the Research and Clinical Committee, as the Honorary Secretary of a sub-committee of that Committee, he could only endorse heartily what Dr. Lord had said, and how very important cooperation was. He, the speaker, did not think it was possible for every hospital to go upon the same lines in research on a comprehensive scale; that kind of research, however, must be a matter of team-work. He thought the needed cooperation could be secured by such a scheme as the Research and Clinical Committee had formulated, by which workers could meet and discuss the problems. The question of having associated with them a number of biochemists was, he thought, one of the greatest importance. He did not himself profess to be a chemist in the proper sense of the term and did not possess any degree in chemistry. In the various tests one needed to beware of pitfalls. The biochemist enabled one to ascertain the state of the individual's internal environment and the different mechanisms involved in the process of toxæmia, regression, and remission.

He was very pleased to note that the President congratulated Dr. Rambaut on his scheme. He, the speaker, wished to say how very much he was indebted to that gentleman for his constant kindness and help in everything he, Dr. Ford-Robertson, had done. The scheme for the reception hospital at St. Andrew's was

Dr. Rambaut's own; thought out before the war, which delayed its realization. Dr. Rambaut in the interval visited many mental institutions both at home and abroad in his quest for the right lines to follow.

The President mentioned the question of the method of making autogenous vaccines. He, the speaker, made the vaccines in his laboratory and, with the anaerobic technique used, it was possible, after subculture, to get pure growths of diphtheroids and streptothrix which were washed off, killed by heat, and standardized. He had not yet ascertained whether they produced soluble toxins. He had proceeded on endotoxic lines. There yet remained an enormous amount of work to be done in that regard, as to the possibility of isolating some chemical substance which could be used in place of the vaccine. He was not himself satisfied with vaccines alone; he was under the impression that there was a subtle factor which was being missed. But he hoped that some other members of the Committee would take up the question.

He thanked them all warmly for their appreciation of his efforts, and for the way they had listened to a very long paper.

Dr. MENZIES: Have you used the mercury pump the whole way through for the cultures and subcultures?

Dr. FORD-ROBERTSON replied in the negative; his method was more simple. He used sterile concentrated hæmoglobin as the enriching agent, adding it to the glucose agar. The oxygen was pumped out of the hæmoglobin by means of a Geryk pump for 12 to 24 hours before adding it to the media, until there was no residual oxygen left. While the agar was soft the tubes were sloped and as soon as set were plugged with sterile wool. Pyrogallol and 10% sodium hydroxide were then added and the mouth of the tube sealed with a cork and paraffin. The chemical action of the two reagents drew out any remaining oxygen in the tubes, and in 24 to 36 hours the tubes ripened, turning to a beautiful plum colour. By this change one was certain of using a strictly anaerobic media. It was with this media he had first studied his father's work. He had been able to perfect the technique and during the past six years he had been using it constantly. It was this method which had enabled him to make the bacterial isolations mentioned.

19. PAPER.—“Charcot's Disease in Tabo-Paresis,” by GORDON F. PETERS, M.R.C.S., L.R.C.P., D.P.M. (*vide* p. 639).

Dr. J. R. LORD (Epsom) said there were some interesting features in the first case, particularly the fact that the onset of general paralysis was late, and of an acute kind. She had been a case of tabes for many years, and the Charcot disease of the spine had existed from early life.

He confessed that when looking through the literature, the causation of Charcot's disease seemed to be very obscure. He had had thoughts as to whether its occurrence might not be due to secondary infections, the syphilitic virus being the deteriorating factor which permitted of further invasions because of the lessened resistance which the syphilitic virus brought about.

The Charcot spine case gave cause for wonder. The skiagram showed that the vertebræ had almost moved right round. The absence of pain when these Charcot joints were handled was a remarkable factor, which, again, might point to a toxic condition and a destruction of the nerve supply.

The PRESIDENT asked whether there was anything else found *post-mortem*.

Dr. PETERS: There was no evidence of any other disease.

Dr. T. SAXTY GOOD (Oxford) asked whether the pituitary was examined in the three cases reported. A similar case had been published lately, in the *Lancet*, almost identical with Dr. Peters's second case. In the *Lancet* case the posterior lobe of the pituitary showed signs of disease. An interesting point in these cases of tabo-paresis and general paralysis was as to why those people developed mental symptoms. For instance, there were three cases admitted to the Oxford County Asylum in which it was known that the syphilitic infection was of very long duration. The onset of the mental symptoms in each case was within a week, and took place during the recent influenza epidemic. Of the three cases, one was still living, though he thought the end was not far off. Unfortunately, when the other two cases died he was unable to procure a *post-mortem* examination. It was interesting that if one took these cases of encephalitis which

occurred in the influenza epidemic, or which took place in large numbers from any cause, one would nearly always find a paretic curve, though one could not find any evidence of syphilis.

He mentioned those two points, because recently his colleagues and he had been investigating the pituitary gland in these cases, with some rather interesting results. They were, however, too vague at present for him to put into words. What had always been of great interest to him was not so much how these patients got general paresis, but rather why the general paralytic had these extraordinary mental symptoms. In one of the cases mentioned to-day, in which there was acute loss of power, and loss of perception of place and time, there was confusion due to toxæmia. That also had been his own experience. He raised the point because he had had a similar case, and it was one of true Charcot's disease; he knew she had had primary optic atrophy for many years. After she became a definite tabo-paretic she gave birth to a child. She had malaria treatment, but it produced no good effect. She had a positive Sigma for both blood and cerebrospinal fluid. Also, there were definite changes in the pituitary gland.

Dr. PETERS, in reply, said that in the cases he described the pituitaries were apparently normal to the naked eye.

The PRESIDENT, in the name of the meeting, thanked Dr. Peters for having read this most interesting paper, and for the complete and most careful observations it contained as to the appearances both before and after death.

[Interval.]

AFTERNOON SESSION.—JULY 11.

20. VISITS.

Members and their friends visited Springfield Mental Hospital by the kind invitation of the Committee of the Visitors. They were received by Mr. De Salis (Chairman of the Hospital), Sir William Lobjoit, O.K.E. (Chairman, Middlesex Mental Hospitals Committee), and Dr. and Mrs. Worth.

Parties were conducted round the hospital, and in the Hall there was provided a cinematograph exhibition of the circulatory system in action and of digestive processes.

Tea was served on the lawn of the hospital, and during the afternoon selections of music were discoursed by the hospital orchestra. A cricket match was in progress, which was watched with interest by many members and guests.

A very pleasant afternoon was spent, for which all were grateful.

[Adjournment.]

MORNING SESSION.—FRIDAY, JULY 12.

In the Hastings Hall, British Medical Association House, London, W.C. 1.

The PRESIDENT in the Chair.

Among those invited to be present and who attended were Miss Olga Nethersole, R.R.C., Dr. A. H. Macdonald, Dr. J. M. Roberts, Mrs. E. F. Pinsent, Dr. J. N. D. Bosworth Smith, and Dr. R. H. Crowley.

21. DISCUSSION.—“The Report of the Mental Deficiency Committee (Joint Committee of the Board of Education and Board of Control). Part I, General; Part II, The Mentally Defective Child; Part III, The Mentally Defective Adult; Part IV, Report of Dr. E. O. Lewis on An Investigation into the Incidence of Mental Deficiency.”

(For opening paper by Dr. A. F. TREDGOLD, *vide* p. 584.)

The PRESIDENT said the Association was very grateful to Dr. Tredgold for having presented this subject so lucidly. The subject was now open to discussion. He was glad to see present Mrs. Pinsent, of the Board of Control, and a member of

the Departmental Committee on this subject. Perhaps she would kindly make a few remarks.

Mrs. PINSENT (Commissioner of the Board of Control), replying to the President's invitation, said she did not come with any intention of speaking on the paper. Dr. Tredgold had given a most lucid explanation of the main features of the Report, and she would be very interested to hear the discussion by members of the Association. Possibly later in the morning she might make a few remarks on any points that might meantime occur to her.

Dr. W. A. POTTS (Birmingham) said he would like to thank Dr. Tredgold very much for his wonderfully clear exposition of the principal points embodied in the Report; what he had said in that exposition was absolutely beyond criticism. He, the speaker would, however, like to direct attention to one very important matter.

Dr. Tredgold strongly emphasized the great importance of mental defect, and drew attention to the almost certain fact that its incidence had increased and was a grave social danger. The recommendation of the Committee that backward children and feeble-minded children should be dealt with by Education Authorities without any specific certification had much to be said in its favour, especially in certain districts; but it seemed to the speaker that a policy of taking them together, without clear differentiation, would possibly emphasize the difficulty which arose from the constant mistake of talking of well-marked defectives as border-line cases without making a diagnosis. The majority of medical practitioners never recognized mental defectives, but said of any such case, "It is a borderline case." Unless something was done to counteract this policy it would tend to increase the number of defectives, because if dealt with as borderline cases, they were not treated for what they really were. If the profession, or any section of it, accepted such a recommendation, they could only prevent it from doing more harm than good if at the same time they demanded that all medical practitioners should in future have some instruction in the subject of mental defect. Medicine was a curious profession. In the year 1913 an Act of Parliament was passed making it a duty for every practitioner in general practice to certify, when necessary, mental defectives who had to be placed in an institution; yet no provision had been made in medical schools for the instruction of medical students in the subject of mental defect, and the post-graduate instruction provided—the best of it through the instrumentality of Dr. Tredgold—was still hopelessly inadequate. A short time ago, in order to be assured that he was not making a mistake in uttering this statement—as at one time he was taken to task by someone who said he, Dr. Potts, was ignorant of the excellent instruction given in mental defect, and that the majority of the profession were competent to diagnose a case—he asked many young practitioners if they had heard about mental defect. They replied that they had heard about it, but that was all they knew of it; they had never been to a lecture or clinic on the subject. Yet the ordinary public were under the impression that the medical practitioner, every medical practitioner, was qualified to recognize a case of mental defect. This danger was increased at present owing to the introduction of tests of intelligence. People thought these were sufficient to diagnose mental defect. The truth was that they were tests of intelligence, while mental defect was essentially a social incapacity, and might not be recognized by means of mental tests. Many of the tests were used by people who did not understand the subject, and recently he had seen several certificates of mental defect in which, as part of the certificate, it was stated that the defective had a mental age of 9 or 10 years, and when he examined those cases he found that the mental age of some of them was 4, 5 or 6 years—a serious discrepancy. The profession would not get on to the problem of mental defect until the education of the medical profession in this very important matter was insisted on. (Hear, hear.)

Dr. J. CARSWELL (London) said he had had a depressing feeling for some time that he had lived in vain, but after hearing Dr. Potts he was satisfied that he had not lived in vain. Dr. Potts had just said what he himself had never tired of saying for many years, so he would now merely state that he agreed with every word that gentleman had uttered, and perhaps "a little more so." Perhaps, some day, Dr. Potts would have the courage to express some extension of what he had said to-day. He, the speaker, was satisfied that the holy awe with which so-called tests of intelligence had been regarded in the past had greatly obscured the real estimate of the nature and quality of mental defect.

Having made that personal confession, he would like to say a little more of a personal character. If instruction in mental defect was to be set going at all, it must be set going by those who were teaching medical students mental disease. While he was engaged in the most pleasurable duty of his life, he took the opportunity of using not only his position as a certifying authority and in the treatment of non-certifiable cases, but also his position of medical officer of the school authority and, through the session, he took bodies of three, four, or five students and showed them the methods of examination of children who were alleged to be suffering from mental defect. In that way he cleared his conscience of any reproach of having failed in the duty of showing medical students cases of mental defect as they occurred, and as he, to the best of his knowledge, tried to examine them and classify them. And he had reason to think that that duty was not altogether neglected even now, and that a great deal of work had been done in that way, and that if the medical man to whom Dr. Potts had referred had been trained in Scotland, perhaps he would have obtained more knowledge on the subject than he had obtained elsewhere. A practical scheme of that sort was possible in an area dealing with a million people packed together, as were the people of Glasgow, but it was very difficult in London, because much time would be spent in getting schools to do it. But that such an organization had to be built up was obvious enough.

He was rather at a loss, and he spoke subject to correction. He gathered that the idea of non-certifying applied only to some mentally defective children, and not to all.

Dr. TREGGOLD: It is suggested there should be no need to certify children in order that they may receive the particular kind of education that their case requires in a special school under the Education Authority.

Dr. CARSWELL: The other point was that this suggestion arose because in a substantial proportion of the children who had been certified as defective it was found at a later estimation of the condition that they suffered from defects which prevented their benefiting from the education supplied by the ordinary school, but that in the social sense they were not defective at all. He was glad he had lived to hear that that was now recognized. It was obvious enough to him thirty years ago. Again, he claimed that to a considerable extent he separated out that class of children from the defectives; and while pointing out that they might be taught along with the other children in special schools, it was desirable that they should be re-examined every sixth month, and the teachers given special instructions regarding them.

But that did not prevent him from supporting, very heartily, Dr. Potts's view that when a child was found to be making no progress in the ordinary school he should not be subjected to a special mental examination, but, simply on the word of the teacher, should be passed into a special school. He agreed with Dr. Potts when it was suggested that a child by reason of some mental incapacity was not getting the benefit he ought to from education in the ordinary schools, it was a not hazardous thing to leave it to the teacher to decide.

Dr. E. S. LITTELJOHN (Epsom) desired simply to ask a question as to the reason Dr. Treggold gave for the abolition of the special schools. The work now carried out in them would be carried out in the ordinary schools; simply the name of the special schools would be done away with. But Dr. Treggold said the law would not permit an extension of the special schools at present, and he, the speaker, did not know why.

Dr. TREGGOLD, answering Dr. Littelljohn, said it was a very important question, and it was gone into in the Report. There were various factors. One was the reluctance of school medical officers to certify children. Medical officers said, "I will not certify this child as a mental defective." It had been a factor in preventing schools being established. These factors, under the present state of the law, made it impossible to enlarge the special school system to an extent that would provide education for all the children existing. And there were further difficulties. As long as special schools had to be isolated from the rest of the school system, there were extreme difficulties about making proper provision in small towns. The Committee had calculated the population necessary to run a special school, and there were many areas in which there were not enough school children to start a special school. There were various considerations of that kind, also the fact which Dr. Carswell alluded to—that one-third of the

children who went to special schools were certified as mentally deficient, and when they reached the age of sixteen they were no longer defectives. It was a great hardship that a child who was a dunce or a dullard should have to be certified as a mental defective in order that he should receive the proper form of education; it was a hardship when the child came to leave school and required employment. All the arguments were set forth and dealt with in the Report. He saw no advantage in retaining certification, but he saw many advantages in abolishing it.

Dr. A. H. MACDONALD (Dr. Barnardo's Homes) said he hailed with delight the suggestion to abolish certification because he hoped this would benefit a large number of children who up to the present had not benefited by these special schools or classes and who ought to have done so. In the work in which he was engaged they had a large percentage of dull and backward children, and that might be because many of them had been "hit" before they came in. It was his duty to see every boy when he reached the age of fourteen. Soon after entering this work it struck him that something was wrong—that an injustice was being done to the child; *i. e.*, that the education provided in the schools was not benefiting a large number of the little children. Four years ago he took some care in examining all the children in the Homes, some 8,000 of them, and he concluded that there were 60 per thousand who ought to have gone through or ought to be in special schools.

And he had been interested to-day to hear the speakers who called in question the advisability of abolishing certification. He had found that there existed a diffidence among medical officers in regard to certifying these children, for the reason that there was held to be a certain stigma attached to it, and if that stigma was removed, more children were likely to be received into the special schools. More provision would have to be made if that suggestion were taken up. If certification were abolished there should ensue a great benefit to the children.

Dr. W. F. MENZIES (Cheddleton) said he did not know whether at this late hour one was justified in spending much time on this Report; he could only take up a few points.

The Report was simply excellent; it was the result of an enormous amount of work, and its findings were of such importance that his wonder was that it had not attracted more attention. All the efforts of those who had tried to get the Press of this country to take notice of such an important thing as mental illness and mental deficiency had met with no more than a lukewarm enthusiasm, to say the least. One must conclude that the reason was that it was not good "copy." One could not get the Press to report the subjects which were dealt with at, for instance, the Board of Control's Conference some few years ago, or to take notice of the magnificent work of Sir Hubert Bond at a more recent congress in recommending so many of these reforms. And, he repeated, it was probably all because it was not "copy." Yet when one moved among the general public who took an interest in these subjects without knowing much about them—he was speaking of the lay members of the public—they said, "What are the doctors doing about it?" "What is the Medico-Psychological Association doing about it?" Unless the Press gave them the opportunity, medico-psychologists could not influence the public. He did not see that much could be done unless the great newspapers brought these subjects forward in the public interest.

As to the proportion of mental defectives in the population, the Report mentioned 8 per thousand, but his own idea was that the number was at least 12 per thousand. There were two methods which had been found very useful in ascertaining the proportion of mental defectives, and both were somewhat humorous. The first was: Had the man—or woman—passed the fourth standard when at school? If not, he or she was a mental defective! He was referring to such cases as had not some obvious physical defect associated with their mental deficiency, such as the intelligent epileptic or the person who was blind. The second, equally humorous, was that if a working man was not married by the age of thirty, he was a mentally deficient person. That remark was directed in an ordinary way to those who had to perform manual labour for a living. It was wonderful how safe it was! It was a different case in the moneyed classes, in which men could please themselves on such a matter and could pay for people to look after them. A poor man, however, could not pay for these things, unless he had a wife (laughter). Therefore the labouring population married for the wife to carry on the work, and, later, the children went to work and helped with the finances. It was therefore

argued that any man in the working class who could not get a girl to have him and marry him by the time he reached thirty was a mental deficient. Inducing a girl to marry a man whom she regarded as a fool might mean the marrying of mental defectives together. How often one found both husband and wife mentally deficient. That introduced an incomplete dominant. Most of the children of such marriages were bound to be mentally deficient. In his institution he had a farm labourer. Both he and his wife were mentally defective. In ten years there had been born five children who were mentally deficient, and the house was in such a state that no public authority could employ them. In the case of his institution, out of 1,100 patients, 250 to 350 had some mental defect. Some had an added psychosis, but not all of them, and, as he had said, he was inclined to think 12 per thousand was likely to be nearer the true incidence than 8 per thousand. In North Staffordshire one had one of the most interesting districts in the country, where the carboniferous limestone pushed itself through the secondary geological formations such as the new red sandstone, and where limestone caves abounded, some of them containing interesting remains, such as those of the cave-wolf and the cave-bear, and in the later stages coins and ornaments, first Roman, then British. In the higher strata were the bones of Saxons who fled from the Danes. These things were evidences of an old and stable population, some of whose present-day descendants, until the introduction of char-à-bancs, had never seen a railway train. In going through and visiting people of that kind one noticed several features of interest. First, there was the great astuteness of the grandparents—most intelligent on the average; second, there was the fewness of the parents, and the third was the large number of mental defectives in the present generation. That meant that the old people had been accustomed to make a fair living, when times were not so hard socially; and it meant that as financial stringency increased, the population—those who were sensible enough—filtered out of their native places and moved to the towns. It was surprising how many such families sent their defective children back to be looked after by the unmarried aunts and by the grandparents. The numbers were small, but he had come across them frequently.

The third point he wished to comment upon was sterilization. He did not wish to go back on the doctrines of Weissman and question whether bodily deformities were propagated, but there was no doubt that the whole population, perhaps of the world—certainly the civilized population—were, in regard to complete mental health, only heterozygous. If they were homozygous there would be no mental deficiency and no mental disorder; there would be no insane, and the population would die out, as so many had in the history of the world. The vast majority of people were heterozygous, and this mental deficiency was, luckily, and necessarily a recessive Mendelian factor. He admitted that many people refused to believe it acted as a simple Mendelian recessive. It was a complicated matter. But mental defect began in the embryo in some cases, while in some it did not begin until old age, and there was no distinction between mental defect and acquired mental illness; it was only a question of the stage at which the toxin was added to the inherent instability. And he did not suppose that any body of people would object to sterilization if it was going to do good. Those who spoke in this way were not sentimental; they merely said that the bulk of the people displayed a heterozygous dominant for sanity, and if mental defectives were sterilized one could only get hold of those who procreated many children.

The vast bulk of mental defectives had, in times past, been able to earn a fair livelihood. The standard arrived at in this respect was from 10s. to £1 a week; if they earned more than £1 they were not considered to be of abnormal development. But now standards had risen. At the present time, when there was much unemployment, the mental defective had been cast out from employment, and there were now many more of them, who had been thrown on the Local Authorities for their support. It was a social problem, but no one would ever suggest sterilizing these somewhat subnormal citizens.

Another point was, was it desirable to be without mental deficiency? Mental deficiency was an evidence of genetic variation and where genetic variation occurred one found variants from the mean in both directions. It was all problematical, but if one was going to hope for the time when there would be no mental deficiency, it would be hoping for the time when there also would be no genius. Variability was a necessity for all animal life. By doing away with it one would

be doing away with the progress of the human race, and as long as there was a human race there would exist mental deficiency.

Dr. J. R. LORD said it had been suggested that this meeting, being representative of a varied body of opinion on this subject, might perhaps, before it dissolved, come to some conclusions and approve certain motions.

He would first, however, like to comment on one or two points which had been referred to that morning.

It had been a real privilege to hear somebody who was recognized as a great master on this subject. The speaker knew that Dr. Tredgold's time was much taken up, and his coming to read the paper was greatly appreciated by members.

Dr. Tredgold had spoken of the importance of the subject of mental deficiency, and of the size and gravity of the problem. It was a point which he, Dr. Lord, had himself recognized, and he had done his best to get it appreciated by others. He had tried to provide adequate opportunities for those members interested in mental deficiency to remain linked up in the Association with those who had to do with mental disease. He had assisted towards the formation of a Mental Deficiency Sub-Committee of the Research and Clinical Committee, which was doing good work.

Dr. Menzies had complained of the lack of interest shown by the Press on this subject. He, the speaker, had reason lately to complain of just the opposite. Some present might remember an inflammatory article in a Sunday newspaper headed "Lunatics on Parole," making the most atrocious charges against a well-behaved and respectable section of the community. There was the "sterilizing" section—a noisy, irrational crowd whose creed Dr. Menzies in a few words had laid in the dust. This section was out solely to save expenditure—to take a short cut to a purely imaginary millenium—one of mental and social equality on a high plane. The mental case and the mental deficient likely to be harmless if free from confinement, were to be given the option of sterilization and freedom or life-long incarceration. He was putting it mildly. They called this "voluntary" sterilization. In the speaker's opinion what they all wanted to know was the causation of primary and secondary amentia. Only on this foundation could rational eugenic measures be taken. The Association had asked the Minister of Health to appoint a committee of inquiry on this matter.

Another point in this interesting subject which had struck him was the extraordinary similarity of the present position as to mental deficiency to that of 1828 in regard to mental disease. In 1828 the Poor-Law Authorities, *i.e.*, the overseers of the poor, had control of the lunacy situation in their areas. They feared to meet the financial situations necessary to the proper care and treatment of those mentally afflicted, *i.e.*, build asylums. It was more economical to keep such persons in workhouses and local prisons. If one could find a private hospital to take them at a still cheaper rate, they sent them there, and only then. That was the reason Lord Shaftesbury, when he took the matter up in that year, applied pressure in the only possible way he could, and that was by the intervention of magistrates with special powers and duties—a matter he, the speaker, would have to speak about at a later session.

The other point, mention of which he welcomed, was the presence of high-grade mental defectives in mental hospitals. The mental hospitals would be glad to be rid of them. They were the people who gave rise to articles in the Press of wrongful detention, and when at liberty, often circulated imaginary and lying accounts of their treatment during confinement. The Press did not appreciate that those people were really mental defectives, and that some mental disorder had made certification under the Lunacy Acts necessary. In many instances, however, when these superadded symptoms had abated it was impossible to get them admitted to certified institutions, so they had to be discharged.

A further point was concerning the lack of a sound education of medical students in psychiatry, which included mental deficiency. The National Council for Mental Hygiene had taken the matter up strongly. That body pointed out to the General Medical Council the fact that the medical practitioner was enjoined by law to act as if possessing this knowledge, and yet there existed few facilities for its being acquired. Arrangements had been made with the Fellowship of Medicine to establish such a course, and extensions on those lines would no doubt come in due course. As to medical students, the clinical instruction they received in mental hospitals could be enormously extended and improved if the

medical schools desired. In the case of the London (Royal Free Hospital) School of Medicine for Women and Horton Mental Hospital this had been done. Why should not other medical schools follow suit?

He ventured to propose the following motions:

"That the Royal Medico-Psychological Association, being deeply concerned with the evidence in the Reports of the Joint Mental Deficiency Committee, the Board of Education and the Board of Control regarding the number of mental defectives in the country, the insufficiency of provision for their education and training and the inadequacy of measures for their care, supervision and control, strongly urges upon His Majesty's Government the necessity for action being taken without delay.

"Those actions are: (1) To provide suitable educational and training facilities for all mentally defective and mentally subnormal school children; (2) to provide sufficient treatment, school and institutional accommodation for those in need of these forms of care, and to provide adequate means for the protection, care and supervision of those not in need of institutional care; (3) to set up a Royal Commission for the purpose of making full inquiry into the causes of mental deficiency in its relationship to abnormal mental conditions and to social problems, and to any measure by which it might be prevented."

"Further, that a copy of the above resolution be sent to the Prime Minister, the Minister of Health, the President of the Board of Education and the Chairman of the Board of Control."

He submitted these to the meeting.

Dr. E. S. LITTELJOHN (Epsom) said it gave him much pleasure to second the motions.

Sir HUBERT BOND (Commissioner of the Board of Control) said that the reason he had not spoken, so far, was that he came to learn; also the matters he had wanted to speak of were not yet sufficiently digested in his mind. He was very glad to have been present to hear what had been said. He was sure all those present appreciated the immense importance of this Report which was being discussed, and none more than himself.

But when it was suggested that members should assemble to discuss this Report, he did not know there would be any proposal to submit resolutions to the meeting. Moreover, he was not sure he had sufficiently grasped the purport of the resolutions; his feeling was that they needed to be before one in writing in order that their force might be accurately apprehended. Against one of them he would, however, venture to speak. He was a disbeliever in the efficacy of a Royal Commission for the purpose of inquiry into the causes of mental defect, or, in deed, of any other disorder. He suggested to the members present, for their consideration, that such a recommendation was unwise. A Royal Commission, in his view, would not hasten progress in this matter.

Dr. LORD replied that it was felt that if the meeting were able as a whole to arrive at definite conclusions, it could express them by resolution, and it was to suit that eventuality that these motions had been drawn up. It was open to those present to suggest amendments.

Dr. TREGOLD remarked that much could be said in support of Sir Hubert Bond's point of view, but he also thought much could be said in favour of this Association expressing its opinion in this definite way; it was a very important body in matters of this kind.

He had given no more than a brief summary of this Report. There were a large number of mental defectives—children and adults—for whom no proper provision was made, either in the matter of schooling, training, supervision, or care; and he felt sure that even those in Government situations and Government offices would realize that unless the public took some steps to stir them into activity, nothing would be done, in spite of this Report; there would be successive Royal Commissions until "the crack of doom." The only thing which cut any ice was when the subject was taken up by the Press and by important bodies like that under whose auspices this discussion was being held. He had carefully read the suggested resolution, and it seemed to be drafted in very general terms—in terms, indeed, which he thought anybody might support. Therefore he strongly urged the meeting, if it approved of the words submitted, to vote for the resolution. He held definitely that an Association such as this ought to give its views on such an important matter. No one, for instance,

could find fault with the preamble: "That the Royal Medico-Psychological Association, being deeply concerned with the evidence in the Report of the Joint Mental Deficiency Committee of the Board of Education and the Board of Control regarding the number of mental defectives in the country, the insufficiency of provision for their education and training, and the inadequacy of measures for their care, supervision and control, strongly urges upon His Majesty's Government the necessity for action being taken without delay." That, he thought, the Commissioners in Lunacy would heartily welcome. The resolution went on to say more about them. [Reads]. It was No. 3 that Sir Hubert Bond objected to, namely, the suggestion of an inquiry by a Royal Commission. To some extent he shared Sir Hubert's dislike of Royal Commissions; a Royal Commission was a cumbersome piece of machinery, and any result from it was a long time in coming. At the same time it had certain advantages. It was the form of inquiry for which the country would probably have the most respect. Other forms of investigation were by a Departmental Inquiry, or an inquiry by the Medical Research Council, or something of the kind. He thought the country would distrust any inquiry by the Medical Research Council; he would himself. ["Why?"] He had seen what happened in one or two such inquiries, one a rather recent one, which had something to do with ultra-violet light, and the Report seemed to him to be somewhat unbalanced. It did not increase one's respect for reports emanating from that quarter. Departmental Committee enquiries were always open to a certain amount of suspicion, because he had heard of a certain jealousy between one Government Department and another. There might not be much truth in that, but the suspicion rather robbed such an inquiry of the great authority it ought to possess. That left one with the Royal Commission form of inquiry, and that commanded as much popular respect as any form in this degenerate age. And it had the advantage of being able to spend money, and could be constituted on a wide basis. However, if desired, the wording of (3) could be—"institute full inquiry into the causation of mental deficiency in its relationship to social problems and any measures which might be preventive."

Sir HUBERT BOND pointed out that there were now less than a score present. Should not this matter be referred to the Council of the Association? The recommendation for consideration to be given to it should emanate from the Council.

The PRESIDENT said the meeting would be perfectly in order in sending up a resolution if it so decided. After all, this was the Annual Meeting of the Royal Medico-Psychological Association, and gave and did not take instructions from the Council. Expressing his own view, he thought the very general terms of the resolution were such that no one could find fault with, but he was inclined to agree with Dr. Tredgold's alternative to (3), that instead of advising the setting up of a Royal Commission, the meeting should simply say, "institute a full inquiry." In any case it would be a very long, laborious and difficult inquiry, and, moreover, there was not very much possibility of another Royal Commission being set up on mental matters for a long time, and already a Departmental Inquiry on this particular matter had been asked for.

Therefore, unless any further objections were expressed to the terms of the proposed resolution, he would put the first and second divisions, with the addition of "young adults," and in the third division, instead of "a Royal Commission," "institute a full inquiry."

Dr. LORD, as Acting General Secretary, and speaking on Sir Hubert Bond's point, said the Council of the Association had already expressed its approval. He had previously mentioned this. At its last meeting a letter was sent to the Ministry of Health asking that a Departmental Committee of Inquiry into the causation of primary and secondary amentia should be appointed. The present meeting was the annual one, and could intimate to the Council what its wishes were on any matter.

The PRESIDENT then put the resolutions as amended to the meeting, and they were carried without dissent.

He expressed the Association's deep gratitude to Dr. Tredgold, and to those who had taken part in the discussion.

[Interval.]

AFTERNOON SESSION.—July 12.

The PRESIDENT in the Chair.

22. PAPER AND DISCUSSION.—“**A Modern Approach to the Problem of the Admission of Mental Patients to In-Patient Treatment,**” by J. R. LORD, C.B.E., M.D., F.R.C.P.E. (*vide* p. 596.)

THE PRESIDENT said the meeting had listened to a wonderful paper—what one would expect from Dr. Lord. It was very original, and supplied something to think about. He invited contributions from any who had ideas on the subject, and especially from any who had had wide experience.

Dr. J. CARSWELL (London) said he offered no apology for being the first to rise to discuss this important paper, because if at that morning's meeting he was glad he had lived so long, he was more glad that afternoon. Indeed, Dr. Lord had surprised him. While the opener was quickly uttering the word “sociological,” he, Dr. Carswell, thought he might stumble on the word “socialistic.” Had he done so, the speaker would have gone to Downing Street and asked to see Mr. Ramsay Macdonald, and would have asked that Dr. Lord be made a Peer of the Realm!

He asked whether Dr. Lord was not a little “crass” when he made the comment about safeguarding patients from wrongful admission and detention after they got into asylums?

Dr. LORD: At the Edinburgh meeting in 1927, Prof. George Robertson suggested that the solution of all our difficulties in England regarding such safeguarding was to add to our English Lunacy Act that clause in the Scottish Act which permits a patient after coming into a mental hospital to apply for a separate examination by two independent practitioners, who shall declare whether he shall be released or shall stay. This proposal was brought up at the Select Committee of 1877 and rejected, so it was not a new proposition.

Dr. CARSWELL, continuing, said he was glad to have an opportunity of removing from Dr. Lord's mind any idea that what Prof. Robertson put forward was in any sense the Scottish opinion. Prof. Robertson must have been speaking at large on that occasion, as he sometimes did, in booming that rather obscure and self-enacting provision, which had never been a cure for anything in the world.

Before he, the speaker, became a Commissioner, he had earned two or three fees by being appointed by the Board in Scotland to examine cases under that provision. He hoped Dr. Lord would not persist in saying that this was a suggestion coming from Scotland. In Scotland they had very much more to say on the subject. He, Dr. Carswell, had lived through what Dr. Lord was pleading for since 1878. He had not been a medical officer long when it was impressed upon him how absurd it was that patients should come right into the asylum who had never had the slightest care for their malady, and were simply seen during a hurried morning's round by parish medical officers, certified, and within a few hours bundled into the asylum. It seemed so absurd that he dreamed dreams; he dreamed that some day all this would surely end.

Then it happened that he was transferred from purely asylum work to parochial work, with the special view to looking after these cases of alleged insanity. He knew the “ins and outs” kinds referred to by Dr. Lord; they would disappear, not by psychiatry, but by the humanizing of administration. The Local Government Act of 1929 was one of the finest things which had been done for administration in connection with mental and physical diseases, and it marked a great epoch in the progress of medicine. Many a time he had tried to get patients certified so that they might cease this wandering into parochial institutions and into the street. But they could not all be certified; they had their wits about them too much for that, and perhaps not more than a tenth of them ever reached an asylum ultimately.

From his experience he did not agree with that paragraph in the paper in which it was remarked that 50% of the coming and going cases ultimately landed in the asylum. They were, however, a perpetual burden to everybody who had a thought for them, and that type of patient, when once he was in an asylum, generally made himself fairly disagreeable.

So it was obvious that something had to be done to treat patients without certification, and when he said recently at a meeting of the Parliamentary Committee that it was necessary to be bold in this matter, that the Association must proclaim itself in favour of the abolition of certification, he meant that the justification for every rational step suggested for the early and better treatment of the insane had as its basis the view that certification stood in the way.

That there were cases, as Dr. Lord had pointed out, in which some sort of authority for detention was necessary, was undoubtedly the case. The so-called "non-volitional" case—it was an ugly word—was in this category. Once one admitted (and he was speaking from his experience as a Scottish Commissioner) the principle of the voluntary admission of a patient to an asylum, one had to recognize the fact that the day might come when that patient would be less volitional, and less clearly apprehend what he had done. In practice, the Scotch Commissioners—with very few exceptions—simply left well alone. They found a man lying in the third stage of general paralysis of the insane, who had entered the asylum as a voluntary patient, and they said that so long as the medical superintendent chose not to have him certified, he could remain not certified. He did not know what was the practice in England, but he had heard it stated that the certification of such a case was recommended by the Commissioners, and, that being so, some medical superintendents were prone to have such patients certified, to forestall an order to do so by the Commissioners. In Scotland there was a friendly understanding between Commissioners and superintendents which was hardly possible in a larger country like England, and the Scots Commissioners left more to the discretion of the superintendent than the sister body in England.

He thought that perhaps Dr. Lord would have referred to a provision in the Scottish Act of which the Scotch were rather proud, namely, "Certificate G," whereby a single practitioner could place a patient (naming him) in care. It ran: "I, G. C—, being a medical practitioner, place A.B—, who is suffering from temporary mental disorder, not of a confirmed character, in the house of J. B— for a period not exceeding six months." That case was not reported to the Board of Control; it needed no justice's signatures or sheriff's order. The legality of the procedure had never been disputed. He was of the opinion that if it did come to a decision of the Court, the Court would probably hold that such a certificate only protected the keeper of the house from the pains and penalties attached to the keeping of a lunatic as a source of gain, and conferred no authority for compulsory detention. He was aware that Prof. Robertson held a different view. But in Scotland they were lucky, for they did many things which were practically outside the law which the Board of Control in Edinburgh fell in with, because it was the best thing to do. There was also the question of the function of the Sheriff, who was a trained lawyer, usually of high standing. In some cases he was a K.C. In a place like Glasgow there were six or seven sheriffs. The question whether granting the order on the two medical certificates produced to him meant he was acting administratively or judicially had never been settled. The former was the view generally held. The sheriff never saw the patient, though it was in his power to do so. Neither did he call other evidence. In an experience extending over many thousands of cases he could only recall one instance in which a sheriff refused to grant an order. In the year 1889 Brudenell Carter's Committee of the London County Council produced a report recommending the establishment of a special hospital for acute cases to be admitted without certification, which was approved by that Council, and his, the speaker's, Council in Glasgow, agreed to the setting up of a similar institution for early cases. That came to pass, and in 1914 a psychiatric hospital was built where teaching was carried on and patients admitted without formality. The General Board of Control and the Local Government Board in Scotland approved of it, and the system had worked so well that to-day there was no mental patient reported to the Local Authority in Glasgow, that went direct to the asylum. All patients had the benefit nowadays of probationary hospital treatment, under two skilled psychiatrists, in two such hospitals in that city. If patients were certifiable they were certified; if they were not certified they went home; their names were not reported to the General Board of Control. The hospitals always kept in touch with the Board of Control, who visited once in six months, and sent in an informal report to the Local Government Board, and in that way all authorities interested were acquainted with what was going on. Under the new Local Government Act of 1929 all this work would be

transferred to the municipal authority and there would be much plainer sailing ; it would be all part of local authority administration throughout the country. Early cases would be dealt with as infectious cases were and not certified. Nobody would ask why. Their cost would be met out of the rates without reference to the Lunacy grants.

One was glad to see a missionary in England arising, even at a late date, and he believed the Scotch had established much the same system which Dr. Lord had so eloquently described. No doubt adaptations and differences were involved, but Dr. Lord had shown the way. He was glad that advantage would be taken—as it certainly would—of the new Local Government Act in placing cases of incipient insanity on the same basis as ordinary diseases, and Dr. Lord had done well at this juncture in emphasizing this matter.

He must say one thing of a controversial character. All this might lead to the aggrandizement of the Medical Officer of Health, and an attempt on his part to control asylums, in the same way as he now controlled infectious diseases hospitals. He did not think members need be afraid of that. Dr. Lord's paper implied some adjustment of that relationship of a beneficial character. He was glad the paper had been contributed and would go on record.

It was a matter of great personal gratification to the speaker that Dr. Lord had been well and vigorous enough to seize this opportunity of laying down the basis for rational discussion of a new era in administrative psychiatry which was undoubtedly being entered upon, and to the further advance of which the paper they had just heard would largely contribute.

The PRESIDENT asked whether the patients in the Glasgow hospital referred to had full liberty to leave when they wished.

Dr. CARSWELL : Yes.

The PRESIDENT : Whatever their mental state ?

Dr. CARSWELL : If their mental state demanded it, they were certified ; there was no other way open.

Dr. C. A. MORTLOCK-BROWN (Braunton, N. Devon) said she wished to thank Dr. Lord for speaking clearly and for his frank exposition of the subject. His paper was so full of matter that she felt unable to comment on it efficiently in the space of a few minutes, but it seemed to her he rather assumed that everyone dealing with mental patients had complete knowledge of the disease process involved, and that all were actuated by the highest and most disinterested motives ; that all dealing with these cases were, in fact, endowed with supreme wisdom and an all-enveloping love of humanity. If that were the case why should any laws and rules be needed to prevent abuses ? As she had said, she could not attempt to comment on Dr. Lord's clever paper at all comprehensively, but would like to touch on two or three of the points he had raised.

As regards judicial intervention, she knew there was considerable disagreement on the question whether the same practice and procedure, in every particular, was to be adopted in case of both paying and rate-aided patients. She thought the most sensible compromise was that the magistrate's visit to the patient be optional in all cases.

Notification was no less a stigma than certification, but certification was preferable in that it entailed a personal guardian or protector whose duty it was to see that the patient was cared for and facilitated the safeguarding of the patient's possessions. Thus her objection to doing away with certification was that it left the patient unprotected. In her opinion it would be entirely wrong for a patient, whether non-volitional or involuntary, to be sent to a mental hospital without reference to his relatives, and continuation certificates should not be made without reference to the nearest relative.

She had not Dr. Lord's high opinion of local authorities, but thought that if laws were just these bodies would carry them out.

In conclusion she said she was opposed to legal insanity extending its present boundaries and to mental hospitals admitting those who were not legally insane, such as voluntary boarders. If institutions were desired for incipient cases she saw no reason why institutions could not be established for incipient cases and limited to them. She wished to thank the Association for permission to be present and to hear Dr. Lord's paper.

Dr. W. F. SAMUELS (Federated Malay States) remarked that Dr. Lord had thrown out the suggestion that the meeting might like to know what had been

done on this question in other countries. In the Federated Malay States years ago the procedure was that if a person did something extraordinary he was taken up by the police and brought handcuffed to the magistrates, and charged with being a lunatic. If there was a "lunatic ward" in the general hospital, he was remanded there. The medical officer might certify him on the next day and return him to the mental ward. If not he would again be put in the dock, still handcuffed, and the magistrate might, or might not have him certified. A man might in this way spend two or three weeks in going backwards and forwards from hospital to court, each time appearing in handcuffs, before he was *sentenced* to be looked after.

In 1922 an enactment was passed by which the intervention of the magistrate was done away with. The person was brought to a medical officer, and either certified as a case for care and treatment in a mental hospital, or as one needing care and observation at home or he was set free. By this alteration in procedure publicity was almost entirely avoided.

Friends could also bring a mentally afflicted person to the medical officer of the mental hospital for treatment without certification. If at the end of three months treatment was still considered necessary, the Board of Visitors sent a recommendation to that effect to the local magistrate, asking that the patient should have a further three months' treatment. The magistrate could, if he wished, visit the hospital and issue an order for detention.

The enactment also made possible the admission of voluntary boarders, and accordingly a number were admitted. It gave the superintendent authority to discharge a patient if he thought fit to do so, and the patient therefore did not have to remain in hospital until a meeting of the Board was held. The patient could also be discharged on trial.

So far the new procedure had worked very well, and patients' friends were now much more willing to bring their mentally ill relatives forward.

Dr. A. A. W. PETRIE (Banstead) said he was very much in agreement with Dr. Lord. Psychiatrists generally agreed with many of his points, and realized what a tremendous opportunity the new Local Government Act had given them for early treatment in the way to which both Dr. Lord and Dr. Carswell had referred. Obviously in a large administrative area it was easy for the local authority to make such provisions. In the later stages mental hospitals could provide the necessary treatment.

Dr. Lord had pointed out how half the problem was economic, and how broad the problem was, and how it was hoped that it would be more readily dealt with by the unification of control which the new Act gave, instead of that control being spread over a number of bodies and tackled piecemeal and in different ways as in the past.

Dr. Lord had said that the Local Government Act of 1929 gave psychiatrists many things they had been asking to be given by legislation. That was agreed. It was also agreed that one should aim at treatment without certification, which was putting it in the briefest way. That covered the voluntary case; and it was hoped that the law would permit them to deal with non-volitional cases in the same way. There was only one point in the application of that permission in which a little caution was necessary; it was that when the amenities of mental hospitals were known, it might be found that they would require to accommodate five times as many patients as at present. That, therefore, was a point which needed attention.

While he agreed to a large extent with all that Dr. Lord said about the Local Government Act, he believed that gentleman was asking for more than was likely to be granted. He, the speaker, favoured modesty in demands, and asking only for what was likely to be given, as lawyers had a great idea that they, the lawyers, should have a final say in these matters. It had been pointed out that one of the necessary things in connection with the admission of patients was the justice's order. He, the speaker, thought the compromise by which medicine could best approach the law when it demanded its rights, was that any patients or their relatives should be able to demand that the case be investigated by a justice and an appointed certifying medical officer. But if patients and their relatives did not demand that, the psychiatrists could continue to treat on voluntary lines as suggested by Dr. Lord. That would cover the voluntary case, as it was known to-day, and would also cover the non-volitional case. And one must remember the relatives because sometimes relatives, particularly in the involuntary or unwilling type of case, provided three-fourths of the objections and caused three-fourths

of the trouble. In fact if one were dealing with cases on a voluntary basis, whether they were voluntary or non-volitional, it was necessary to have these patients and their relatives satisfied. If this were stipulated, then Dr. Lord's scheme might prove successful. One could not have these legal investigations and inquiries *ad lib.*, because the paranoiac, for instance, would keep people indefinitely engaged. If an individual or his relatives stated that he was not in need of care and control as an in-patient, and if detention was not thought necessary, he would go free. He thought that the law would demand something, and what he had suggested was the simplest way of meeting the law's requirements.

Dr. ALEXANDER WALK (Epsom) said that the discussion on this interesting subject had been thrown open to two classes—those who had a wide experience, and those who had original ideas on the subject. That being so he was not sure whether he was in order in rising to speak—(Laughter)—but with the President's permission he would like to ask Dr. Lord's help in elucidating one or two points.

In so far as Dr. Lord had made proposals as to certification which were not common ground, which were not among the things this Association had asked for all along, he gathered there were two outstanding points. One was that Dr. Lord insisted on an increase in the local authority control of the admissions to in-patient treatment and afterwards for all time or at least during the first three years, rather than that this control should continue to be exercised by a central body as at present. But the speaker was not clear how that would be reconciled with the provisions of the new Act, which tended to diminish the local control and increase centralization. The Poor Law guardians disappeared, and the authority for all these purposes, outside the towns, was the county, which was a very large unit.

Dr. Lord mentioned care being exercised by local people who might know the patient intimately; it was almost impossible for that to happen when the unit was an entire county. It was true that in rural areas there would be Guardian sub-committees of the public assistance committee of the county council, but in London, as far as was known, there would be no such provision, and the entire care and treatment of the insane would fall on the Hospitals Committee of the London County Council. The infirmaries would not necessarily be associated with particular areas, they might not be on a territorial basis. Therefore he did not know in what way the new Act could be said to proceed in the direction indicated by Dr. Lord.

The other proposal was that instead of justices there should be a body of citizens of repute, who would interview the patient from time to time, and would confirm or continue the order for his temporary detention. The speaker submitted that justices of the peace, as at present constituted, were such a body of repute; they were not persons who had been chosen for their legal training, nor were they high judicial personages sitting on an Olympian bench; at present they were persons chosen from both sexes and from all classes, and most nearly corresponded to the kind of body which Dr. Lord evidently had in mind.

The alternative would be to give these functions to the local authorities themselves, *i.e.*, members of the same authorities as were controlling institutions for the insane—in other words, the visiting committees. If justices of the peace and members of the visiting committees were excluded, he did not know where one would find the "reputable citizens."

Another point was that Dr. Lord spoke about the necessity for these continuation orders for the first three years, after which there would be something corresponding to certification, which Dr. Lord appeared to regard as a more or less permanent measure. It was true that the popular idea of certification was that patients were certified once for all and put away, but was it wished that this view should go out as being held by this Association? Surely the certificate, as at present, would be a temporary document lasting for a year and having to be renewed from time to time by some authority, whether that body were the Board of Control or some other. Therefore he wanted to know how the renewal at the end of the three years would differ from the periodical renewal of the certificate which was given at present.

Dr. LORD, in reply, said he could only deal with some of the points raised in the discussion. Regarding Dr. Walk's remarks, he, the speaker, thought he had made it clear that the objection to justices interfering in the admission

to in-patient treatment was that it associated mental disease with police-court work and wrong-doing. Similar action in physically sick cases did not involve any such association; neither was such association involved in the admission of voluntary cases of mental disorder. If some public sanction was required in the admission of the involuntary case—and in his opinion it could not be denied that there were grounds for such sanction—let it by all means be free from this taint. The panel of "approved citizens" he had suggested, or *per contra* for public assistance cases, and if the local authority was so minded, the visiting committee of the hospital or a panel of selected members of the mental hygiene or appropriate committee with, if necessary, co-opted members, might, and probably would, be composed of some magistrates, but they would not act in a judicial capacity; others, whether justices or not, might be doctors, lawyers, parsons, butchers, bakers or farmers, or any citizen of common sense and good repute in whom the local authority and the public had trust and confidence to deal fairly and justly in such circumstances. They were for the purpose of seeing fair play before admission of the unwilling case. They had to satisfy themselves that the patient's liberty was not being unduly sacrificed and the human side not forgotten in the stress of professional zeal. They would be guided, but not dominated by the medical opinion.

He was glad Dr. Walk had called attention to this point, for it had given him the opportunity of clearing up any misunderstanding. As to sanction for detention of involuntary cases after admission, he really wanted those who gave this sanction in both public and private mental hospitals to be as interested in these cases at the end of the tenth year as they were when first brought in contact with the case after admission. But one had to be practical and not suggest something which could not be carried out. That was why he had limited the endorsement of the medical opinion after four months to once a year for three years. Furthermore, clinical experience had shown the mental state at the end of that period to be commonly such that from the point of view of the necessity for continued detention, it would be foolish to enact anything which would demand frequent sanctions for the remainder of the patient's days in hospital. The importance of these first three years from this point of view was undoubted, and he wanted to emphasize this fact to ensure that every effort should be made to prevent cases slipping unnoticed into chronicity. After three years the present procedure with suitable alteration of the necessary document should suffice. There was, however, another point of view, *i.e.*, the passing out of sight of chronic patients and a severance of all touch with the community, *i.e.*, those without friends or neglected by them. It was partly for the purpose of preventing this that he had instituted his system of voluntary hospital visitors, but he thought something more could be done officially by establishing some procedure whereby the representatives of the local authority could, from time to time, give some special attention to these cases, perhaps find people to visit them and take an interest in their welfare.

He, the speaker, was adverse to the multiplication of lunacy documents—the fewer the better was in the interest of all. The original medical statement, signed by one or two doctors, as the case might be, that the patient was in need of in-patient treatment, together with the statement of particulars, general report by the public assistance officer or in a private case by the medical attendant, should be the basic document of all actions taken. There should be endorsements to be deleted or retained, according to the type of case (voluntary detention, "non-volitional," and involuntary detention cases, the last to be signed prior to admission by a member of the panel of "approved citizens," except in a case of grave emergency), and endorsements for sanctions or discharge after admission.

The document would need to be prepared in duplicate, except in voluntary cases, one being sent to the local authority as a notification, the other to accompany the patient to hospital. The Board of Control would determine what information they wanted, so he had no need to go into that. An alternative was a document ordering discharge not later than a fixed date (say four months after admission) after which it would become null and void if not endorsed otherwise. He, the speaker, thought the former was more appropriate.

With regard to administrative areas for local government purposes, these were counties and county boroughs. The County Council took over all areas which were not within the confines of the county boroughs. All these areas could be split up as many times as was wished for public assistance work under public

assistance sub-committees in London, guardian committees or sub-committees in the provinces. The county or county borough council could appoint suitable people in these localities, on the panel of "approved citizens" who were willing to serve. It was a matter for administration only. For supervision by social workers, the mental health areas could be further split up into sub-areas.

As regards the occurrence of mental disorder, the person to take the first step necessary to place the sufferer under treatment would be his nearest relative. *That step was to send for the doctor.* It was the doctor who notified the local authority. If public assistance was required, a public assistance officer would be soon on the scene, and act, if necessary, as the relative or friend of the patient. This answered one of Dr. Mortlock-Brown's queries. He, the speaker, thought she would find ample reply to her other queries when she came to study his address in print.

With regard to Dr. Carswell's speech, it would be lacking in courtesy on his, the speaker's part, not to refer to the fact that Dr. Carswell was a pioneer in early treatment without certification. (Applause.) In this country Dr. Toogood was not far behind him at one of London's Poor Law infirmaries. According to the Scottish Board of Control, £13 was spent in the year 1927 in providing a special examination for patients who complained of wrongful detention. He, the speaker, did not know where the £13 came from, because he had been told that the Lunacy Act for Scotland made no provision for this expenditure.

Dr. CARSWELL: Don't ask.

Dr. LORD, continuing, said that another point concerned voluntary cases which became non-volitional. In England, as far as he, the speaker, knew, the Board of Control did not insist on either discharge or certification. If they did, some hospitals would have to close their doors to many patients.

With regard to the Scotch sheriffs, there was one with whom the speaker had had a long talk as to his duties. He found that that sheriff was a far better servant to the public in this respect than was commonly thought. In many cases he would send for the friends of the patients and for the doctor, and would go out of his way to make arrangements and offer suggestions as to what he considered the best to be done in the case, besides seeing that the committal documents conformed to the law. Hence in many cases certification was avoided.

As far as the Royal Mental Hospitals were concerned, one hospital at least had included in its new charter permission to retain certain cases without certification; that was at the Morningside Nursing Homes, Edinburgh. That was not legal in England, but the London County Council and the City of London had had special powers allowing them to admit voluntary patients, the former at the Maudsley, the latter at Stone, Dartford.

Dr. Carswell had spoken of about 10% of the "ins and outs" of mental wards of Poor Law institutions who gravitated to mental hospitals, but in London the proportion was much higher—more like 50%.

Referring again to Dr. Mortlock-Brown, the relatives in all mental cases certainly must have at least the chance of taking the responsibility for any action necessary; they had the responsibility of initiating proceedings, and nothing in respect of what he was proposing should be done without consulting them.

As to notification, the great point the lady made was that the stigma of notification might be as great as that attaching to certification. With that he, the speaker, did not agree. Notification (confidential) to a public body by a practitioner that a patient needed in-patient treatment for mental disorder had no more stigma attaching to it than a notification that a person had smallpox. Coming back to Dr. Carswell's speech, the objection to the non-notification of the Glasgow cases he mentioned was that there should be some way of collecting statistics on mental diseases for the information of responsible government departments, so that the mental ill-health of the community could be assessed.

Dr. CARSWELL: My Maudsley Lecture is full of that information, and reports are published every year.

Dr. LORD, continuing: If mental cases went in and out of general hospitals or clinics without such being required to furnish statistics to a local or a central authority, the extent of the work done and the state of the nation as regards mental disorder would never be known. Notification by individual names confidentially was not necessary unless there was detention, but there must be some statistical information gathered about all voluntary cases.

Dr. CARSWELL: I agree, and it is a scandal that there are so many private

institutions in England which never publish a report, and we know nothing of what they are doing. I think every fact—not names—in this matter should be public property.

Dr. LORD: With regard to the remarks of Dr. Samuels, he did not think anybody present would sympathize with his words more than he, the speaker. That gentleman went out to work in a State more backward in the treatment of mental complaints than Europe in the Middle Ages, and out of the jungle there he had created a magnificent institution which compared favourably with the best in this country. It was an educational centre and carried out the latest forms of treatment. And, as Dr. Samuels pointed out, there had been a total abolition of judicial intervention—a lesson to this country. He was very glad of this opportunity of paying Dr. Samuels that tribute.

Dr. Petrie was a colleague of his own, and he, the speaker, did not mind telling him that what psychiatrists should do was to ask for what they wanted and needed, and what their patients needed, and fight for it. It was of no use to go to Parliament or to a body of lawyers and say, "We only ask for what we think you will give us." That had been done too long. He thought the Royal Medico-Psychological Association should now take up this matter in a bold way; it was the representative body of psychiatry and Parliament would take notice of its views, as, indeed, it had done in the past. Notice would still be taken of its demands if sufficient courage were shown. Few members had not some influence with a member of Parliament, and much could be done by propaganda. Success lay in *proving* what was needed and what was necessary for the patient, not in *estimating* what one was likely to get.

He thanked speakers very much for listening to him so patiently and for the helpful views they had put forward. His paper and discussion would appear in the *Journal of Mental Science*, and might be issued as a pamphlet.

23. VOTES OF THANKS FOR HOSPITALITY.

Dr. J. R. LORD said it fell to his lot, as the Acting General Secretary, to ask members to conclude the agenda by agreeing that a letter be sent to those who had afforded the Association such a fine hospitality as they had done at this annual meeting. He referred to the reception by the Mayor of Westminster, and to the very happy function which members enjoyed on the previous afternoon, by favour of the Visiting Committee of Springfield Mental Hospital.

Dr. FLOURNOY (Switzerland) seconded, and it was carried.

Dr. FLOURNOY added: I would like, as a foreign guest, to say a few words. When the President of the Swiss Society, Dr. Forel, asked me to be a delegate to this meeting, I accepted without hesitation, because I was sure it would be a very great pleasure for me to be among you. If Switzerland has the advantage of being a country which has frontiers abutting on France, Germany, and Italy, the Swiss are equally anxious to keep in close contact with their friends further away, especially with those in Great Britain. We know how much we are indebted to you; we know how much the Royal Medico-Psychological Association has done, and will do, for the advancement of modern psychiatry. With regard to the birth, so to speak, of this branch of medicine, I should like to pay a tribute of gratitude to the memory of that great and wise citizen of York, William Tuke, who took the first steps towards mental hygiene and the care of the insane, and who did it without the help of any medical or scientific training, guided simply by his heart and by his love for mankind, which inspires your work also. It is an honour for me to have this opportunity of expressing the feelings of admiration which Swiss psychiatrists have for you. As to my own part, I must say I certainly shall not forget the wonderful mental hospitals which I have seen in these last few days in London, and the extremely interesting communications which I have heard at the meeting. I speak also in the names of the representatives from Holland and from Germany, whose opinion is the same. I also express my heartiest thanks to the President and to the General Secretary for their invitation and for their cordial welcome. (Applause.)

The PRESIDENT: I am sure we are very grateful indeed for the kind remarks our friend has just made on his visit to our annual meeting. I envy him his good English. If I were to go as a delegate to his country, I am afraid I should not be

able to express my thoughts in the same lucid way. We are delighted to see him and the other foreign delegates, and I hope that on a future occasion we shall see them once more.

[*The Annual Meeting then concluded.*]

APPENDIX I.

REPORT OF THE MOTT MEMORIAL COMMITTEE TO THE COUNCIL.

The publication of the Mott Memorial Book under the title of *Contributions to Psychiatry, Neurology and Sociology, dedicated to the late Sir Frederick Mott, K.B.E., etc.*, was reported to the May meeting of the Council, and now that the Committee appointed by the Council has almost concluded its labours it is fitting that an account of them should be put on record in the minutes of the Council.

The Memorial Book was published on May 16, 1929, and its reception by the Press was all that could be desired. The Committee trusts that members will not delay purchasing a copy, as it desires to close the account with the publishers as soon as possible.

The facts of the book's inception and publication are as follows: The death of Sir Frederick Mott on June 8, 1926, cast a shadow over the Opening Session of the Eighty-fifth Annual General Meeting of the Royal Medico-Psychological Association on July 13 of that year, and Dr. Frederick Lucien Golla spoke of a pretty custom abroad whereby all who so desired could contribute to a publication some fragment of appreciation or some useful piece of work inspired by the master they wished to honour or commemorate.

The new President, captivated by Dr. Golla's suggestion, took such steps as were necessary to carry it out.

The Council, in February, 1927, readily acquiesced in the issue of a preliminary circular letter (in English and French) inviting those at home and abroad who had been Sir Frederick's pupils or colleagues, or in some way associated with him in his work, or who felt grateful for the help of his writings, to contribute something to a memorial book which would be a fitting recognition of all Sir Frederick had done for medical science, especially in regard to mental and nervous disorders and the physiology and pathology of the nervous system. Contributions might take the form of original articles of neurological or psychiatric interest, or commentaries or treatises on some aspect of his life's work or career.

A Mott Memorial Committee, composed of Sir Hubert Bond, *K.B.E.*, Drs. F. L. Golla, Douglas McRae, Thomas Beaton and J. R. Lord, *C.B.E.* (Hon. Secretary) came into existence to see the matter through, and such was the response to this initial circular that a general appeal was issued in January, 1928, and a Mott Memorial Fund was opened with Dr. James Chambers as Treasurer.

Dr. J. R. Lord was appointed Editor and the collection of materials from colleagues, friends, pupils and other admirers of Sir Frederick to be included in the Memorial volume commenced immediately. The order in which the articles appear was suggested by Lady Mott, who has taken a keen interest in the book from its inception. Articles written by a few of Sir Frederick's oldest and closest friends come first, after which the authors are in alphabetical order.

Subscribers were promised that many of the papers would be records of original work and important contributions to psychiatry, neurology and sociology, and that the book would be well illustrated, and the Committee feel that both these promises have been well kept.

Lady Mott has expressed her gratitude and satisfaction.

The Committee wish to thank most cordially the authors for their valuable contributions.

Through the generosity of Dr. Winkler no cost whatever fell on the book in respect of his fine illustrations. Other authors supplied the blocks for their illustrations as far as they were able.

The impress on the book of the long-established firm of medical publishers, Messrs. H. K. Lewis & Co., was guarantee of its value, and the Committee beg to thank Mr. H. L. Jackson, the senior Director, for the great personal interest he took in every stage of its publication.

By a happy coincidence Messrs. Adlard & Son were entrusted with the printing—a firm whose connection with the *Journal of Mental Science* dates from 1861. The thanks of the Committee are also due to Dr. J. Chambers, the Treasurer of the Association, for kindly undertaking like duties for the Mott Memorial Fund.

Dr. Alexander Walk rendered great assistance in preparing the manuscripts and illustrations for the press and correcting the proofs, and Dr. Douglas McRae kindly revised the final proofs. To both these gentlemen and to the Editor the Committee desire to express their warmest thanks.

The Committee's work will continue until the financing of the whole production has been satisfactorily completed.

J. R. LORD,
Hon. Sec.

APPENDIX II.

REPORT OF THE ASSOCIATION'S DELEGATE TO THE CONGRESS OF FRENCH-SPEAKING ALIENISTS AND NEUROLOGISTS, BARCELONA, MAY, 1929.

The above Congress, the thirty-third of the series, was held at Barcelona from May 21 to May 26.

In addition to over 150 members from the French-speaking countries and from Spain, there were present official delegates from Belgium, Canada, Czecho-Slovakia, Esthonia, Holland, Italy, Norway, Poland, Portugal and Switzerland.

At the opening session I conveyed to the meeting the greetings of the President and members of the Association, and an expression of esteem in which the Congress is held by psychiatrists and neurologists in this country. At the closing luncheon I returned thanks on behalf of the Association to the Spanish Government and the local authorities for their magnificent hospitality.

In addition to the scientific sessions, visits were paid to the following institutions: The mental hospital at St. Baudilio, the Pedro Matas Institute at Reus, and the unfinished buildings of the new Psychiatric Clinic of Barcelona.

Official receptions were given by several authorities, including the Provincial Councils of Barcelona and Tarragona, the Municipal Council of Barcelona and the Committee of the Barcelona Exhibition. A visit was paid to the Exhibition on the last day of the Congress.

The most cordial hospitality was offered throughout, and the visitors and delegates were given every consideration. In common with the other official delegates, I had the honour of being called upon to take the chair at one of the sessions.

I am preparing a short account of the proceedings for publication in the *Journal of Mental Science*, and abstracts of the more important papers read at the Congress will appear later.

I wish to thank the Council for the opportunity given me of attending this very interesting gathering.

A. WALK.

SCOTTISH DIVISION.

THE SPRING MEETING of the Scottish Division was held at Dykebar Mental Hospital, Paisley, on Tuesday, June 25, 1929. Twenty-five members were present.

Drs. Joshua Ferguson and Hugh G. Donald, of the hospital consulting staff, and Dr. McLachlan, interim-director of the Scottish Western Asylums Research Institute, were present as visitors.

Dr. C. C. Easterbrook, Divisional Chairman, presided.

The minutes of last Divisional Meeting were read and approved, and authorized to be signed by the Chairman.

The Secretary submitted a letter of acknowledgment from Mrs. Mitchell, thanking the Division for its kind letter of sympathy.

Apologies for absence were intimated from Drs. Dods Brown, Patrick Steele, John Keay, C. J. Shaw, S. R. Macphail, Henry Carre, Angus Macniven and Sir Arthur Rose.

Dr. R. B. Campbell and Dr. Neil T. Kerr were unanimously elected Representative Members of Council for 1929-30, and Dr. Wm. M. Buchanan was unanimously elected Divisional Secretary.

Dr. R. B. Campbell was unanimously elected Chairman of the Division for the year 1929-30.

The following candidates after ballot were admitted as ordinary members of the Association :

WILLIAM RONALD DODDS FAIRBAIRN, M.A., M.B., Ch.B.Edin., Dipl.Psych., Lecturer in Psychology, Edinburgh University; Psychologist, Jordanburn Nerve Hospital: 18, Lansdowne Crescent, Edinburgh.

Proposed by Prof. G. M. Robertson, Drs. Neil T. Kerr and Wm. M. Buchanan.

GWYNETH DUNCAN LOVE, M.B., Ch.B.Edin., Resident Clinical Assistant, Royal Edinburgh Hospital for Mental Disorders, Morningside, Edinburgh.

Proposed by Prof. G. M. Robertson, Drs. D. M. B. Lothian and M. E. McLaren.

DOUGLAS ROBERT MACCALMAN, M.B., Ch.B.Glasg., Assistant Medical Officer, Argyll and Bute District Mental Hospital, Lochgilphead.

Proposed by Drs. Donald Ross, Neil T. Kerr and Wm. M. Buchanan.

The changes in lunacy and mental deficiency administration arising out of the Local Government (Scotland) Act, 1929, were considered, and after some discussion it was agreed to leave the whole matter in the hands of the Divisional Committee of Management, with a watching brief. It was further agreed that in the event of any local authority putting forward administrative proposals of an unsatisfactory nature, members would at once communicate the facts to the Divisional Secretary.

The Secretary submitted a letter from the General Secretary intimating that the Mental Nursing Advisory Committee to the General Nursing Councils should be reappointed annually. It was unanimously agreed that the Scottish section of this Committee should be reappointed, *viz.*, Prof. G. M. Robertson, Drs. John Keay, T. C. Mackenzie, Douglas McRae and Wm. M. Buchanan.

Members were shown over the hospital by Dr. Hotchkis and his assistant.

Members were kindly entertained to lunch at the hospital, and on the motion of Dr. Campbell, the Renfrew District Board of Control and Dr. Hotchkis were cordially thanked for their hospitality and for the arrangements made in connection with the meeting.

On the meeting reassembling, Dr. Peters gave a *résumé* of the results of treatment of general paralysis at Dykebar by malaria and tryparsamide and demonstrated illustrative cases. An interesting discussion followed, in which Drs. D. K. Henderson, C. C. Easterbrook, W. McAlister, W. D. Chambers, W. McWilliam, J. H. Skeen, Aidan Thomson and McLachlan took part.

A vote of thanks to the Chairman terminated the business of the meeting, after which members were kindly entertained to tea at Mid-Dykebar by Dr. and Mrs. Hotchkis.

IRISH DIVISION.

THE SUMMER QUARTERLY and Clinical Meeting of the Irish Division was held at Limerick Mental Hospital, by kind invitation of Dr. P. J. Irwin, on Thursday, July 4, 1929.

Fourteen members were present. Dr. R. R. Leeper, Chairman of the Division, presided.

Apologies for unavoidable absence were received from Lt.-Col. W. R. Dawson, M.D., Drs. J. O'Connor Donelan, D. L. Kelly, J. C. Martin, T. A. Greene, H. R. C. Rutherford, Alexis FitzGerald and O. Felix McCarthy.

Members assembled before luncheon at Dr. Irwin's house and a party was formed to visit the Shannon works. An expert guide conducted members over the whole of this colossal undertaking.

At the luncheon Dr. Irwin, the host, in a speech welcomed the guests to Limerick Mental Hospital and City.

Immediately after the luncheon Dr. Leeper was presented with a silver

salver from the members of the Irish Division, "to mark their affection and esteem on the conclusion of a long period as Hon. Secretary and upon his election as first Chairman of the Division." In making the presentation Dr. M. J. NOLAN said that it was with more than ordinary feelings of pleasure that, on behalf of the Irish Division of the Royal Medico-Psychological Association, he had the privilege to ask Dr. LEEPER—their late Secretary and their first Chairman—to accept a token of their affectionate regard and high esteem. Like those remarkable persons whom the newspapers recorded as having lived through three or four reigns, he, the speaker, could look back on the reigns of four secretaries of the Irish Division; Drs. Maziere Courtenay, Arthur Finegan, W. R. Dawson and R. R. LEEPER, and had seen the advent of the latter's successor. Sitting in that Hospital where they were that day he could look back to forty-six years ago, when Dr. Courtenay was Superintendent there. From being a junior colleague of Sir James Crichton-Browne at the West Riding of York Asylum Dr. Courtenay had come to Limerick as the pioneer of much-needed reform in the administration of the lunatic asylums of this country. Many of those present knew and appreciated how much Dr. Courtenay did as an Inspector of Lunatics. It was there that he, the speaker, gained from Dr. Courtenay his first knowledge of insanity; and whatever measure of success he had had was due in no small degree to his instruction, advice and example. Dr. Finegan was Secretary at a period when a small body of men tried to stir up not only in the ranks of the profession, but in the lay mind, a wider knowledge of the insane and of the need for betterment in their conditions. He was indeed a Victorian pioneer. Then came Dr. W. R. Dawson, who had consolidated and increased the activities of the Division in a very marked degree, handing it over to Dr. LEEPER in a state of Edwardian prosperity. All present know how that happy state was dispelled by the war years of extrinsic and intrinsic upheaval—a never-to-be-forgotten period of vicissitudes. Then it was that they had the good fortune to have in Dr. LEEPER a Secretary who took up arms to lead them through a sea of troubles. When the springs of interest in the affairs of the Division seemed about to dry up, Dr. LEEPER had replenished them by the steady, constant stream of his endeavour—a generous source which had never failed. No one was better fitted for the task which then faced him. He had done the collar-work of a long hill-climb, and so rendered splendid service to the Irish Division, and consequently to the Royal Medico-Psychological Association as a whole. They all appreciated his tireless zeal; they had experienced the benefit of his wide sympathy in their varied interests, and they had enjoyed above all that radiant buoyancy which constituted his genial personality. They were fortunate, too, that in all that concerned the well-being of the Division, he had had the valuable and willing help of Mrs. LEEPER, who had been their charming hostess on many occasions. To her they owed, and willingly tendered, their expression of grateful appreciation.

Dr. LEEPER, in replying, said that he was quite unable to express adequately his feelings of gratitude for the kindness he had received. He referred to the periods of stress through which their country had passed, and stated that, were it not for the unflinching help and encouragement he had always received from the members, the Division could not have held together.

Dr. J. MILLS proposed a vote of thanks to Dr. Irwin for the generous hospitality they had received, and this was seconded by Dr. KEENE.

The members then proceeded to the Mental Hospital for the Quarterly, following which was a Clinical Meeting.

The minutes of the last meeting were read, approved and signed by the Chairman.

The following candidate was duly elected an ordinary member of the Association:

ELIZABETH MAUD MAHONY, M.B., B.Ch., B.A.O., N.U.I.

Proposed by Dr. T. P. Conlon, *seconded* by Dr. D. L. Kelly and Dr. Stanley Blake.

The CHAIRMAN then gave an account of the visit of the Deputation of the Association to the General Nursing Council of England and the views which they placed before that body. He regretted that their efforts had been unsuccessful, and that the English General Nursing Council still refused to recognize, for Registration, the Association's Nursing Certificate. Nevertheless there was a steady increase in the number of nurses taking the Royal Medico-Psychological Nursing Certificate. He felt that all this was only of passing interest to the Irish Division as, happily, the Irish General Nursing Council had recognized the Association's certificate for registration.

Dr. P. GRACE said that in his experience eligible nurses frequently refused to pay the £2 2s. fee necessary for registration.

Other members spoke in similar strain with regard to the attitude of the English General Nursing Council, but it was the feeling of the meeting that the Division need not take further action in this matter.

The CHAIRMAN then informed the meeting of the death of one of their number—Dr. Christopher Costello—since the last meeting of the Division. A motion of sympathy was passed in silence, the members standing. The Secretary was instructed to convey the sympathy of the Division to the relatives in their sad bereavement.

Following upon a discussion, it was agreed to hold the next Quarterly and Clinical Meeting in the Royal College of Physicians, Kildare Street, Dublin, on Thursday, November 7, 1929, and it was urged that an effort should be made to provide clinical material or papers, so that all these meetings should maintain their clinical status.

Dr. MILLS then kindly invited the Division to Ballinasloe for the Spring Meeting to be held in April, 1930.

This terminated the proceedings.

DIVISIONAL CLINICAL MEETINGS.

Limerick Mental Hospital.

A Clinical Meeting of the Irish Division was held at the above hospital on Thursday, July 4, 1929. Dr. R. R. Leeper, Chairman of the Division, presided.

Dr. C. B. MOLONY read the clinical record of the case of a moral defective with a history of encephalitis lethargica.

Female patient, C. M.—, æt. 13, admitted June 18, 1929.

History of acute attack of encephalitis.—The patient, living in the south of Ireland, was taken ill on February 18, 1921, when aged 5, with shivering, drowsiness and headache, most intense behind her eyes. She was seen (by Dr. D. Corboy) on February 21, when her temperature was 102.6° F., the pulse 120. She was asleep, and could only be roused with difficulty; when the eyes were open the conjunctivæ were seen to be injected—the typical pink eye of influenza. She was very constipated, necessitating enemata, but had no incontinence of urine. There was a watery discharge from the nose. She had muscle twitchings—very marked in the eyelids. When roused she answered questions slowly but intelligently, but was profoundly asleep again within a few minutes. Her temperature fell to 99° F. and her pulse to 95 by February 24, but the lethargy seemed to increase, the patient only being awake when roused to take food. Dr. W. M. Crofton was then consulted, and 1½ million *B. influenza* antigen were given on the morning of March 2 under the skin of the hip; her temperature was then 99° and the pulse 95. She was asleep again a short time after the injection. At the end of six hours she woke up quite bright and cheerful; the temperature had fallen to 97.4° and the pulse to 76. She remained awake four hours. On March 4 she remained awake from 9 a.m. to 6 p.m. The drowsiness then gradually increased again until, on March 10, she was given 2½ million. She slept for three hours and woke up bright and gay. Next day, however (March 11th), a reaction appeared. She slept a good deal. She complained of headache. The temperature rose to 99.4° F., the pulse to 115. The discharge from the nose came on again, and the conjunctivæ were injected. These symptoms passed away by the next day, and she remained normal in every way. She was given a few more increasing doses of antigen.

The rapid relief after the first dose, just as significant diagnostically as the focal and general reaction after the second dose, makes it certain to our minds that the influenza bacillus was the causative organism. Unfortunately, owing to the distance from a laboratory no satisfactory bacteriological examination of the nasal discharge could be made.

The antigen used was made from a recent growth on human blood-agar which was not killed by heat, so that nothing was done which would in any way reduce its potency.

Additional points in history of acute stage of encephalitis : Mother states she did not have diplopia, but had strabismus.

History after acute attack of encephalitis had subsided.—Her mother states she woke up quite suddenly from the "sleepy sickness" and, for a short time, seemed normal in every way. Quite soon, however, she noticed that, whereas heretofore she had been neat and tidy, and kept her dollies perfectly, as most female children do, she subsequently became very untidy and, in a vicious manner, tore up a doll given her; in fact, she showed a perverse tendency to tear up everything she could lay her hands on. She used to exchange her own new clothes for the more worn and tattered ones of poorer children in the village, and any dresses they would refuse to take from her she would tear up and hang the fragments on bushes. She began to steal things, but would usually throw or give them away immediately afterwards, e.g., she would steal her brothers' and sisters' toys just to annoy them. She became a pathological liar, simply could not tell the truth—in fact it seemed as if she preferred to tell lies, and she would brazen out the most palpable untruths. Seemed to be unable to distinguish between right and wrong, and even to do wrong from choice. She became very wild, was continually fighting and quarrelling with her brothers and sisters; used to get into most violent tempers, during which, as her mother said, she would "eat" her fingers and, on one occasion, bit her little brother. There were times when she got depressed, cried and said she wished she were dead. In one such outburst she threatened to cut her throat, taking up a carving knife to do so; on her mother coming to take the knife from her she made a most determined attempt to stab her with it—this was the immediate circumstance which led to her being certified and sent to Limerick Mental Hospital. Chastisement at the hands of her father had but the most temporary effect and was forgotten almost immediately. This is the characteristic feature of all post-encephalitic perversions of character, namely, the failure to influence them by reproof or punishment.

She began to ramble all over the country. Her mother would lock the front and back doors, putting the keys in her pocket. "Berry" (her nickname), at an opportune moment, would suddenly become docile and affectionate, throw one arm round her mother's neck and with the other hand steal the keys out of her pocket, secrete them, and the moment her mother's back was turned open a door and slip out in search of adventure. The next performance was to steal her father's cob and ride into town, where she would do all kinds of queer things. On one such "joy ride" she came up with a band of tinkers on the road. She immediately proceeded to make herself at home with the tribe. One of them, with characteristic business instinct, offered to buy her pony. The deal was made for half-a-crown. Then Berry, apparently as an after-thought, suggested they might like to see the pony gallop. Very shortly Berry and the half-crown were on the gipsies' horizon. She was sent to school, but most of the time she spent in Limerick, either not turning up at school at all, or escaping at play-hour and walking along the railway line. After a while she found the road the better way to travel, as it was so easy to get a lift. The Earl of Dunraven and the Superintendent of the Civic Guards were amongst those "held up" by this precocious little lady.

From November 10, 1927, to June 6, 1928, she was in an industrial school in Cashel, co. Tipperary. But the industrial school was not able to hold her, for she used to get on the roof and climb down the rain-pipe. Once she ran away to Fethard, stopping a motor cyclist *en route* and getting up on the pillion. After this indiscretion the nuns refused to be responsible for her and sent her home.

The only education she acquired was during the seven months in the industrial school and the two years' desultory attendance she put in at a National School from her eighth to her tenth year, yet she was remarkably bright and intelligent and picked up reading and writing in an extraordinarily brilliant fashion—her mother said she was years ahead of her brothers and sisters at their corresponding ages. Another interesting point was that her mother was positive she got worse at the change of the moon, and was worse in summer than in winter. There had been no disturbance of sleep-rhythm (so common in other post-encephalitis cases), but she had been noticed to be jerky and restless when asleep.

An interesting episode in the history of this case occurred last May, when her mother decided to have her vaccinated, this not having been done in infancy. Ten days after vaccination she had another attack, in miniature, of acute encephalitis lethargica—she complained of feeling bad, and was very feverish,

sleepy and drowsy, just as in the original attack eight years previously. This time, however, she was ill for only four hours, but her mother is certain she became more wayward and "difficult" afterwards. Her harassed parents never knew where she was or what devilment she was up to and had to resort to the disagreeable expedient of chaining her legs together to keep her from wandering. She bore the marks of this chain on both insteps when admitted on June 18, after having run wild, climbed on to the roofs of houses and attacked her mother with a carving-knife. She was also extensively bruised from attempts to check her violence.

These post-vaccinal phenomena are all the more interesting in view of recent reports of untoward sequelæ of vaccination in older children and adults. Several deaths have followed vaccination, and there was the striking case in England recently of quite a young child who cut its throat after vaccination—it had previously had encephalitis lethargica, but recovered. It is important to distinguish clearly two types of cases, the one occurring in those who have previously suffered from frank encephalitis lethargica (the child in England and the little girl belong to this class), and the other a distinct encephalomyelitis arising *de novo* from vaccination, and now recognized to have nothing whatever to do with "sleepy sickness" or infantile paralysis. The theory is that in both cases the vaccinal lymph lights up some infection which was lying dormant in the patient—in the one series it is justifiable to assume that the activated virus must be that of encephalitis lethargica, while in the other we must assume an entirely new and hitherto unrecognized brain poison.

To revert to our little patient, her history since admission has been comparatively uneventful. A thorough examination failed to reveal any neurological abnormalities. Dr. Irwin thought there was a suggestion of spasticity about her gait. Extrinsic and intrinsic eye muscles normal in action. She complained of difficulty in reading, that things got blurred and of a constant pain across her forehead—this was probably due to eyestrain from an error of refraction. She also complained of various other aches, but we find gooseberries, a piece of cake, or sweets very good cures for these. She was giddy and pert, and "smart" in her answers, but was otherwise not very abnormal in her conduct until June 28, when she became depressed, silent, sullen and sulky. That night she got excited and pulled another patient by the hair.

The CHAIRMAN and many of the members expressed their pleasure at hearing such an interesting case-history, and they expressed their thanks to Dr. Molony for the great care he had obviously taken to set before them all the relevant facts.

Dr. MOLONY then pointed out that this patient required dental treatment and that they were greatly handicapped in the county mental hospitals by lack of this, and he urged the Division to use its influence with the Committees of Management to bring into being dental schemes for the mental hospitals.

Dr. NOLAN, Dr. MILLS and Dr. DWYER stated that visiting dentists had already been appointed to the hospitals they represented, and the CHAIRMAN stated that Cork was similarly situated.

After further discussion it was agreed that the Division should seek the advice of the Inspector of Mental Hospitals before proceeding further.

A PSYCHIATRIC VISIT TO VIENNA.

By HENRY HARRIS, M.D., D.P.M.

I SUBMIT a number of facts, impressions and suggestions resulting from a visit to Vienna, and especially to its psychiatric clinics and institutions.

I do so in the hope of inducing others to visit what Dr. J. R. Lord aptly calls "the Mecca of psychiatrists," and in the hope that I may be of some slight assistance to those who speak English only or German with little confidence.

I propose to give—

- (a) A few suggestions on travel and language.
- (b) My impressions of clinics and institutions :
 1. Of psychiatric interest.
 2. Of general medical interest.
 3. Of social interest.
- (c) Some tentative suggestions on the art of living in Vienna.

As to *travel*, the journey to Vienna is not as formidable as it sounds One's

actual travelling hours can be—with a little foreknowledge—as interesting as the rest of the trip. By the quickest second-class route one leaves Victoria at 10 a.m. and arrives at Vienna—*via* Ostend, Brussels and Nuremberg—at 9.40 p.m. next day. By boat one travels first class. The difference in comfort is out of all proportion to the difference in cost.

A porter from train to ship or *vice-versa* is worth while even with small luggage; especially so at fiscal boundaries, or when one travels by a route for the first time.

The "sleeper" is also worth while. One need only book to Nuremberg, and from Nuremberg on the way back. The cost is then £3 instead of £5 for the double journey; this in addition to the second class return fare, which is under £12. The attendant is well worth the 10% tip which you will give him, and will pass you on to a porter at Nuremberg, who will transfer you and your luggage to a window seat in one of the roomy second-class carriages.

Food on the train is good, but it is more amusing to take at least some of one's meals on the platform at the longer stops of fifteen to thirty minutes. Here one stretches one's legs and one dines on hot coffee, fresh fruit and lyric sausages—twin Frankfurters—served hot on dainty paper trays, in the one corner a mound of sweet mustard.

"Travel-anxiety" is common on a new route, or when one is diffident about the language or excited by the journey. A few medinal or sandoptal tablets may make a world of difference. One at night will give refreshing sleep despite the transition from bed to "sleeper." For some reason there still survives a superstitious fear of hypnotics, although Sir Maurice Craig in this country and many others have pointed out that the newer barbitone derivatives may prevent much discomfort and do no harm.

Silk underwear is convenient for travelling. A coloured silk or almost-silk handkerchief will see one a long way. Shoes, hats and clothing that must be bought in any case might well be bought immediately before travelling. They give additional prestige when one needs it most.

As to language, almost everyone seems to speak English in Vienna. MacCallum, who gives English lessons on the radio, is said to be as popular as any tenor at the opera, and that is saying much. Almost all the professors and teachers instruct post-graduates in English. And yet one naturally benefits tremendously from even a slight knowledge of German, especially if one is studying psychiatry.

The simplest way is to buy a linguaphone set on the instalment plan. A few hours devoted to this—just before one sets out, and when the inducement to learn is greatest—will prove a splendid investment. Some naturally learn better and faster than others, but even with the dullest ears one derives some benefit. Moreover the accent one acquires—be it good or bad—is a cultured one. *The Briton in Germany*, published by Hill at 1s. 6d., is a phrase-book which contains a useful *précis* of the grammar in a few pages. A few intensive Berlitz lessons may help some; but the mere sojourn in Vienna is in itself the strongest inducement to learn a language which no psychiatrist can afford to ignore. It is a pity and a handicap to us that on the Continent they know our medical literature better than we know theirs.

As to *finding one's way in Vienna*, the most convenient pocket guide is Grieben's, obtainable for 3s. at the Austrian Federal Railways, 25, Cockspur Street, Trafalgar Square. By means of an ingenious device one can consult it unobtrusively in any part of Vienna, and in a few moments find out exactly where one is.

With the help of Grieben's guide and the officials at the above address one may choose one's hotel and one's locale.

Most American and English doctors make their first stay at the Hotel Hammarand, situated between the clinics and central Vienna. Bed alone costs upward of 5s. 3d. a night and is quite luxurious. If one stays for any length of time pensions are cheaper, and if one speaks a little German one can live very cheaply indeed.

It is more interesting and more sociable to have all one's meals in cafés and restaurants.

Buy Grieben's guide but borrow Mahan's *Vienna* and *The Vienna that's not in the Baedeker* by Hirschfeld. They will enhance one's appreciation of the charm and the amenities of Vienna.

As to clinics, institutions and laboratories, first I will discuss those of psychiatric interest.

Post-graduate work in all languages but English is organized by the post-graduate school of the medical faculty, whose headquarters are at the Kursbüro der Wiener Medizinischen Fakultät, Schlüsselgasse 22, Vienna VIII. A subscription of 6s. entitles one to a variety of privileges, including the right to attend the organized courses and a 5% to 10% reduction at certain pensions and restaurants in the hospital district. Here I was given much valuable assistance by the lady secretary, who did some vigorous telephoning on my behalf.

Courses in English are organized through the American Medical Association of Vienna, and it is essential for all English-speaking graduates to join this. It is a large organization publishing a yearly "Blue Book" and housed commodiously at the Café Edison, just opposite the "Allgemeines Krankenhaus."

The "Allgemeines Krankenhaus" is the great central hospital of Vienna. Close by, in Lazarettgasse, are some of the newer clinics, among these the famous Wagner-Jauregg Clinic.

Clinics begin at 8, so one must rise early. When first I stumbled into the Wagner-Jauregg Clinic, the first to come to my rescue was a genial, youngish doctor. Soon I found that my rescuer was Dr. Otto Kauders, who, with Prof. Schilder, has written the most authoritative modern work on hypnosis, and whose work I had already known by repute. With Dr. Kauders I had several interesting chats, and he was continuously kind and helpful to me throughout my stay.

Later I met Prof. Pözl, who has recently succeeded Prof. Wagner-Jauregg, and who comes from Prague, where he occupied the Chair of Psychiatry. A finely built man of intellectual type, his speech has the precise drawl of the "Oxford" accent, but this, I am told, derives from Prague. As he speaks he shades his eyes with his left hand as a student would, and he has a mannerism of drawing his left hand over his forehead and head and down by his left ear and neck. Although much of Prof. Pözl's work has been neurological, on such topics as aphasia, the optic centres and so on, he is and has always been extremely sympathetic to the psychiatric and to the psycho-analytic approach to the study of mental disorder.

With Prof. Gerstmann I saw the neurological bed cases. The clinic has over 200 beds, the greater number being for psychiatric cases. Prof. Gerstmann, a pupil of Wagner-Jauregg since 1919, has continued his researches into the pyrexial—more especially the malarial—treatment of general paresis. The second edition of his book, *Die Malaria-behandlung der Progressiven Paralyse*, published in 1928, with a preface by Wagner-Jauregg, presents his conclusive opinions, and badly needs translating into English.

Dr. Dattner, in out-patients, demonstrated to me his lumbar puncture needle. A modification of Antoni's needle, it consists of a double cannula. The outer one pierces skin, tissues and interspinous ligaments; the inner one is then pushed on to make a tiny hole in the dura mater. The result is a valve-like opening which tends to prevent leakage of cerebro-spinal fluid. The small amount of leakage, the thinness of the needle, the lessened amount of local meningeal irritation and the slowness of the flow—all these factors apparently permit the patient to get up and walk home after an operation which causes no more disturbance than a skilful hypodermic injection, and which he will not mind having repeated on himself as often as is considered necessary.

This "ambulatory lumbar puncture" is naturally more difficult to learn than the usual method, seeing that you deal with a thinner, less fool-proof needle. Once learned it is easy and neat. It is not intended for resistive patients, but combined with tact and sedatives it can be so used.

The ease and convenience of this method in skilled hands has enabled the clinic to do punctures on a large number—perhaps all—of its patients. It is obvious that any method which facilitates early diagnosis of general paresis is important.

Gerstmann, Dattner and others have pointed out, over and over again, that the degree of success in malarial therapy depends on the stage of the disease at which treatment begins. This is presumably why the clinic is comparatively optimistic about the results of malarial therapy, whereas mental hospitals are as a rule pessimistic.

Dattner's needle seems to be a useful aid and likely to facilitate a study in cerebro-spinal fluid findings, and their relationship to the different clinical stages of the disease, to malarial therapy and to prognosis.

I had no time to study the technique employed in malarial therapy. I observed, however, that the malaria is usually terminated after eight rigors. There is also

a tendency to advocate a prophylactic malaria—in the early stages of syphilis—as well as a therapeutic malaria.

Dr. Hartmann—tall, of an elegant profile, with brushed-back hair and a cigar dangling from his lips—is the one member of the clinic who is directly associated with the orthodox Freudian movement. He is a fascinating talker and obviously a fine clinician.

One novelty to me was the "Gitterbett," which I saw in the wards. This is a bed with a tall, box-shaped metal framework, to which is fixed a netting of thin rope. It acts as a restraint for patients who are restless, but not violent.

At the *Neurological Institute*, Schwarzsplanerstrasse 17, lectures are given in systematic neurology, and much research in experimental neurology is carried out. I was shown round the various departments by Dr. Ernst Spiegel, who has written a number of authoritative volumes. To Dr. Spiegel, whom I first consulted on my arrival in Vienna, I owe much for the smoothing of my path. I am also extremely indebted to Dr. J. R. Lord, who, in his capacity of Chairman of the Research and Clinical Committee of the R.M.P.A. and of its Study Tour Sub-Committee, gave me a letter of introduction to Dr. Spiegel.

Perhaps the best way of skimming the cream of Viennese psychiatry is to attend one of the twice-yearly courses in neurology and psychiatry which Dr. Spiegel organizes for English-speaking post-graduates. These are held in January and October, and last six weeks. Considering that one gets almost individual tuition from the best medical teachers and psychiatrists in the world, the fee of £31 is remarkably cheap. I believe the Royal Medico-Psychological Association issues a leaflet giving details.

The great mental hospital for all Vienna is the institution "*Am Steinhof*," where Wagner-Jauregg superintended until lately, and where much of his malaria work was carried out. Here are nearly 4,000 patients, with 24 resident doctors. Dr. Schulhof, a senior medical officer, showed me round. Despite the unwieldy size of the institution it is beautifully organized. Mental defectives as well as the insane are housed here. From Dr. Schulhof I learnt much of the wisdom that I shall try to impart in the third part of this paper.

The Maria-Theresienschlüssel Hospital—endowed by the Rothschild family for over 100 cases—is a well-equipped private institution of great interest. Prof. Redlich, the Director, was on holiday and I was allowed to see the work of the hospital by his assistant, Dr. Josef Wilder, and several courteous medical officers.

Neurological cases are on one floor, psychiatric on another. There are fine laboratories in which neurological research is carried out. Psychotherapy is eclectic and favours no particular school. At the moment I noticed that some of the asthenic underweight patients were having small doses of insulin to increase their appetite and weight.

My visit was made in September, just before the opening of the academic session, when many of the professors and teachers were on holiday. There was at the moment little activity in psycho-analytic circles; but I was fortunate enough to meet—besides Dr. Hartmann, whom I have already mentioned—Dr. Helene Deutsch and Dr. Wilhelm Stekel.

Dr. Helene Deutsch is the most important woman pupil of Freud, and organizes psycho-analytic tuition in Vienna. As the authoress of almost the only significant work on feminine sexuality I expected to meet a shrill-voiced, tubby spinster. It was refreshing to meet instead a charming, capable married lady who insisted on speaking English in her very musical voice. I should have no hesitation in entrusting myself to Dr. Deutsch as a patient were the need to arise.

Dr. Stekel allowed me to attend one of his English classes, and graciously changed the subject to the prophylactic aspects of psycho-analysis, in which I professed my interest. Dr. Stekel speaks English fluently, has a fine presence, and is eminently common-sensical. It would be delightful to hear him speak in England.

His natural gift for exposition has exposed him to the charge of journalism, and this he laughingly admits.

Although Stekel's work is derived from Freud, his common-sense application of Freudian theory commands respect everywhere. His views on masturbation, homosexuality and impotence—as expressed in the second and fourth volumes of his encyclopædic eleven-volume work on psychopathology—are especially important and of practical significance. He has had the rare courage to state clearly

and explicitly the logical social consequences of certain psycho-analytic findings.

To have met Prof. Freud and Dr. Wilhelm Reich would have been a great privilege; unfortunately both were on holiday.

Dr. Reich is the author of *Die Funktion des Orgasmus*—a provocative contribution to the study of the relationships between sex-life and maladjustment. Most maladjustments have, if not a sexual cause, then at any rate a sexual consequence. In either case help and treatment are necessary. Dr. Reich has realized—as most psychiatrists eventually do—that an ounce of prevention is worth a hundredweight of psychotherapy. He has, therefore, organized “Sexualberatungsstellen,” or sexual advice clinics for workers. There they can have advice on any sexual matters that worry them.

One's general impression of the pioneer Viennese psycho-analysts from the little one saw was of their charm, tolerance and unorthodoxy, especially in comparison with their more “dour” English colleagues.

Of psychiatric interest are the medical and educational *arrangements made for mental defectives*.

As far as I could ascertain, no state institutions have been exclusively devoted to certifiable subnormals. Those in the Vienna area are housed in the “Steinhof.”

The educational authorities have provided eleven special schools or “Hilfschulen” for the city of Vienna. This in addition to “L” (langsam) classes in the ordinary schools for pupils who are educationally retarded and require special coaching.

Permission to visit schools is obtained at the “Stadtschulrat,” Burggring 9. The courtesy I received here was unusual even for Vienna. It was arranged by telephone that I should meet Schulrat Karl Gnam next day. Next morning Herr Gnam—who is actively interested in all movements which concern subnormal children—conducted me to one of the schools, where an interpreter was in readiness in case of need.

Accommodation for subnormal pupils is not provided for a definite percentage of the total school population. Actually 14% of the children are in “Hilfschulen” as compared to London, which allows special training, I understand, for 14%.

The special schools are separate self-contained schools with six standard grades, several facultative grades, and arrangements by which certain children can receive additional private coaching. Food is provided from the municipal kitchens, and where necessary it is free. Where no playground is available the parks are used.

I was struck by the large airy rooms and the efficient teaching, but most of all by the parental attitude of the teachers. The attitude here, and in most of the children's institutions subsequently visited, was remarkably free of that “spinstery” discipline that one often meets in institutions.

The pedagogical methods used are based on a three-years' research in the “Hilfschulen.” They are closely related to pedagogical theories which have been elaborated in Austria in recent years, and which have attracted much attention. They resemble Swiss and Belgian methods in insisting that everything taught must bear an immediate relationship to the practical needs of everyday life. In the “Hilfschulen” emphasis is also placed on the training in manual dexterity, so that the subnormal child is prepared for the demands of a simple vocation.

Specifically Austrian methods of mental testing have, I believe, been elaborated. A method which seems to be attracting attention at the moment is the “psychological profile” of Prof. Rossolimo of Moscow, and its modified application to subnormals by Bartsch, of Leipzig.

Clinics of *general medical interest* that I visited I can only mention by name: Wenckebach's Medical Clinic, Meller's Eye Clinic, the Surgical Clinic of Eiselsberg, the Gynaecological and Obstetrical Clinic of Peham, the Ear, Nose and Throat Clinic of Hajek, the Pirquet Children's Clinic, with its remarkable roof garden for tuberculous children. At the Pirquet Clinic I met Prof. Lazar, who is specially interested in curative pedagogy for subnormal and abnormal children.

Each clinic has its own remarkably equipped lecture theatres, where the Viennese undergraduate is systematically taught the principles of medicine with the aid of electrical devices, models, operations on animals and so on. Unlike his English colleague, he begins with much theory and little practice, which tends to breed obsession and doubt. Only when he graduates does he really begin to learn,

and then he does so with a precision and exactitude that in England would almost be considered "bad form."

In England we wade into the practical work often before we have any theoretical conception of what we are doing. Sometimes we never lose the habit of somehow muddling through. Perhaps a judicious combination of both methods would be nearer the ideal.

A few words on *speech clinics and laboratories*: In justification may I suggest that speech can be one of the most delicate indicators of maladjustment, and must therefore be of interest to every psychiatrist.

At Dr. Hugo Stern's Speech Clinic—a part of the larger Hajek Clinic—I spent some delightful hours. Dr. Stern has been a neurologist and an amateur singer for many years, so that his knowledge of speech is not merely academic.

Here I saw among other things the laryngo-stroboscope. The theory of this instrument could not be explained here, even if I understood it. Roughly speaking it is a device by which light rays from an electric bulb are interrupted in such a way that a tuning-fork whose frequency is, for example, 256 when held in front of the stroboscope will seem to vibrate at the rate of one or two vibrations a second. When such a light is reflected from a head-mirror into the larynx, the vibrating cords seem to vibrate extremely slowly, and one can observe and study the surface of the vibrating cords at one's leisure.

At the Phonetic Institute, Strudelhofgasse 4, I visited the laboratories of Prof. Scripture, the famous authority on the physiology and neurology of speech. Prof. Scripture was in England, but his assistant, Dr. Appel, demonstrated with enthusiasm the instruments of extreme precision which are used for the graphic recording of speech.

Later, in England, I visited Prof. Scripture's laboratory at the West End Hospital for Nervous Diseases, Welbeck Street. There, with his assistant, Miss Janvrin, he is carrying out further researches into the recorded speech findings in various organic nervous ailments, and the possibility of diagnosing such ailments from the speech records. The rationale of this type of work is explained in Scripture's paper, "Grundbegriffe der Sprachneurologie" (Fundamental Concepts of Speech Neurology), *Archiv für Psychiatrie und Nervenkrankheiten*, 1926.

It would be interesting to study such findings in the psychoses and in various affective states. Even if they did not surpass the trained diagnostic sense of the clinician, they might still be useful as a confirmatory objective record. One might, for example, investigate the retarded speech of the melancholic, possibly even the emotionally "blocked" speech of the schizophrenic or dementia præcox patient if this has not already been done.

As to *clinics and institutions of mainly social interest*, Vienna is the only metropolis with a Socialist government. The latter seems, however, to have governed well, for despite the economic straits of Austria, Vienna has become one of the cleanest and most beautiful cities in the world, with fine public buildings, well-kept streets, a great area of open and completely used parks, fine public baths and an excellent water supply. In all branches of public service ambitious plans have been successfully carried out.

Everywhere one meets blocks of municipal dwellings of startling beauty and remarkable conveniences, designed by the best architects of the day. Slums I could not find, but I believe they exist. They are said, however, to be nothing like the slums of London. At what price and sacrifice all this has been achieved I do not profess to know.

Socialistic legislation in Vienna provides for the individual from before birth until death.

Every child born destitute receives help from the municipality. A child under six whose parents are unable to look after it through disease or poverty is sent to the Children's Reception Office in Bastiengasse. Here it is observed for several weeks under ideal conditions before it is sent to a suitable hospital or institution. This home is well worth a visit.

One of the institutions to which such children may be sent is the "Wilhelminen-berg," once a Hapsburg palace. Here one could not help remarking the absence of the usual institutional spirit and the rather superior type of nurse.

Next were visited two institutions for the treatment of delinquent and psychopathic children from the courts and the clinics. One at Kaiser-Ebersdorf was still in the process of building when I visited it and its administrative arrangements

were only temporary. The other at Eggenburg—an hour's journey from Vienna by fast train—was shown me by the director, Herr Heeger, who is obviously an enthusiast on the subject of curative pedagogy and who has worked hard and achieved much. Unfortunately I had planned my time badly, and I had to hurry away without doing Eggenburg anything like justice.

Lastly I visited the municipal "Eheberatungsstelle," or Marriage Advice Clinic. Here Dr. Karl Kautsky, who has directed the clinic since its opening in 1922, gives free advice to adults who are married or about to marry, or who have sexual worries or troubles of any kind.

The clinic is purely advisory. It utilizes information obtained from other clinics or from private physicians, and may subsequently redirect the patient to such agencies for further specific treatment or help.

In Germany there are already, I believe, a number of such clinics. Undoubtedly they will eventually arise in England.

The present tendency in psychiatry is towards the use of prophylactic advice at all stages in the life of man. Habit clinics, child guidance clinics, sexual advice clinics, marriage advice clinics—all these are expressions of the conviction that prevention may be difficult, but that cure is certainly much more so.

Permission to visit most of the places I have mentioned can be obtained at the municipal offices of Prof. Tandler at Rathausstrasse 9.

A few hints on the art of living in Vienna, based unfortunately on an intensive rather than an extensive experience, and on some knowledge of spoken German.

Vienna, Paris and Dublin have been grouped as feminine cities, and contrasted with London, Berlin and New York, which are said to be more masculine. When one but glimpses the fermenting social activities of Vienna, one wonders how they will eventually modify the feminine charm of the city.

Central Vienna is contained in the famous "Ringstrasse," an irregular hoop, whose north-eastern quadrant is bounded by the Danube canal. Just outside the ring to the north-west is the "Allgemeines Krankenhaus." Around this is centred the medical life of the city.

The Ringstrasse is—one can hardly doubt it—the most beautiful boulevard in the world. Prince's Street in Edinburgh is almost as beautiful, but its beauty is more episodic, and contingent on its flaunting hill-top dominated by the Castle. Ringstrasse—especially between the Opera and the University—presents a continuous flow of beauty in which are exquisitely blended architectures of widely different style.

Characteristic of Vienna is the "Kaffeekhaus," which is more "intimate" than the Parisian café. Viennese coffee with cream must be seen to be believed. Served on a tray with a tiny sugar bowl and a glass of ice-cold water the overflowing cream is sometimes difficult to negotiate.

Newspapers—foreign and local—are brought to you "tethered to bamboo frames"; only foreigners seem to buy newspapers. When your coffee is finished it is replaced by a fresh tray with two tumblers of ice-cold water. This makes it evident that no moral pressure is being exerted to make you shorten your stay.

The Opern-Café and the Bristol Café—both near the Opera—are quite pleasant. There is also a café in the middle of the Graben, which is the "Leicester Square" of Vienna; here you sip your coffee with the traffic swirling around the point of your elbow.

Restaurants are both cheap and good. In many of the better ones, such as the Opern-Restaurant or the Imperial Restaurant, you may ask to be directed to the "Gastzimmer" or "die Schwemme." Here, in a less ostentatious setting, you will be served with the same food at a smaller cost, by three courteous waiters instead of five unctuous lackeys, and in the company of the true Viennese. A meal with beer will cost you about 3 schillings; incidentally a schilling is seven pence and contains 100 groschen. If you are at a loss what to order you will always be safe with Wiener Schnitzel, which is veal cutlet à la Viennoise.

Tipping is simple and satisfactory only when you know the technique. Ten per cent. will always give satisfaction, but on a small sum one naturally gives more. But the tip must be distributed. In a restaurant one tips three people. For a meal costing 3 schillings, one might give 2 dimes (10 groschen pieces) directly to the pay-waiter, a dime or two is left on the table for the food-waiter, and a dime is left on the plate on which beer or wine is served for the beer-boy. The

right amount of small money is always contained in your change, and to tip a single large sum is to reveal your ignorance of Viennese custom.

In a café one gives a dime to the pay-waiter and leaves another for the food-waiter. If pastry is purchased, the pastry-waiter is paid on the spot and is also tipped with a dime. To get your bill you call out "Zahlen" or "Bezahlen."

The *money* seems complicated. Only when one travels by 'bus or tram does one realize the convenience of reserving one pocket for schillings, another for dimes, and another for 1- and 2-groschen pieces.

The *opera and concert halls* are unrivalled. At the Opera one can see well and cheaply in the fourth gallery. For the young, the restless and the indigent there are "Stehplätze," where one may stand.

Theatres are interesting only if one knows German well. The Viennese are traditionally devoted to "shushing," and woe betide the man who seeks his seat or whispers overloudly in the middle of an act or aria. For he will surely be shrivelled up by the concentrated "shush" that is focused on him from all parts of the house.

Theatres and operas end at 10, and Vienna goes to bed early. For those who will not go with her there are *cabarets* which begin at 9 or 10 and end at 4. They are amusing, inexpensive and melodious. Until midnight there are cabaret "turns," linked up by the witty philosophy of a "conferencier." From midnight one may dance.

One of the most interesting public personalities in Vienna is Fritz Grünbaum, comedian and cabaret "conferencier." Exaggeratedly Jewish, and affecting a strong Jewish accent, his meek and hopelessly imbecilic expression and attitude contrast with the mordant wit, acute insight and deep philosophy of his repartee. Like Charlie Chaplin, he exploits the "inferiority complex," and in his own way he is as much a genius as Chaplin with his more universal pantomimic mode of expression. He offers a running commentary on contemporary Viennese trends that should not be missed.

Of the *museums*, the History of Art Museum and the Natural History Museum, opposite one another in the Burgring, should at least be walked through. One might spend here half a morning or half a year. Schönbrunn Palace—at the end of a tram journey—is modelled after Versailles; to my mind it is less formal and more charming. These are only a few of the places worth visiting.

Vienna is not only beautiful, but is beautifully situated. Those who must hustle should spend at least a char-à-banc half-day in the "Wienerwald" or Vienna Forest. Also a day on the trip to Semmering; close by one will ascend the Rax Alp (over 6,500 ft. high) by cable railway. From one little tin box in the clouds he may see if lucky, as I was, the timid chamois on its native rocks.

Then an evening, preferably a Sunday, in the Wurstelprater or "Coney Island" of Vienna. Perhaps on to Coblenz, high up on a hill, with its restaurant and its illuminated panorama of Vienna by night. On the way back an hour or so at a "Heuriger" in Grinzing. Here the vintners sell this year's wine, and Viennese of all classes come out by tram to hear the genuine old Viennese melodies.

A pleasant characteristic of the Viennese is his "Höflichkeit," which is similar to English "courtesy," but less formal and more sincere than the "politesse" of the French. The police are almost as courteous as in London.

Animals are treated considerably, yet one is astounded to find that all dogs must wear muzzles, and are not allowed on trams, in shops or in cafés.

A point one might criticize is the attitude towards the Jew, which in Austria seems to have become badly entangled with party politics. Although 75% of the associate professors and university teachers—a not inactive majority—are said to be Jews, not even a Sigmund Freud is permitted to occupy a chair. This despite the admitted loyalty of the Jew, and the very superior type of academic Jew one meets.

Perhaps Austria, in her growing appreciation of the English and the English view-point, will become increasingly inclined to adopt the English attitude towards the Jew, which is the most tolerant in the world.

Vienna, with her beautiful streets, her comparative absence of slums, her medicine, her music and her countryside, is—despite her economic straits—a city to live in. It is not difficult to become intoxicated with her charm, to become "Wien-betrunken."

In conclusion I must apologize for obvious defects in my paper, partly because

of the hurry in which it had to be written. Undoubtedly had it been written at my leisure I should have changed and consolidated many of the opinions expressed—some of them possibly indiscreet.

Actually it makes little material difference. My aim is to persuade English psychiatrists to test and correct these impressions for themselves. In token of the courtesy that was extended to me I shall gladly give individual and more specific advice to anyone who wishes it.

I have deliberately emphasized Vienna's various charms as the jam which may induce English psychiatrists to swallow the very "edifying" pill which Viennese psychiatry can offer.

I have no doubt who visits once will visit again.

EDUCATIONAL NOTES.

The Maudsley Hospital, Denmark Hill, S.E. 5 (University of London).—Lectures and Practical Courses of Instruction for a Diploma in Psychological Medicine, Course XIII, 1930.

Part I (January and February), commencing on January 7, 1930.

(1) Twelve lectures on the Physiology of the Nervous System. By F. Golla, F.R.C.P.

Four lectures and demonstrations on Physiological Psychology. By F. Golla, F.R.C.P.

Four lectures and demonstrations on the Bio-Chemical Aspects of Mental Disorders. By S. A. Mann, B.Sc.Lond., F.I.C.

(2) Twelve lectures on the Anatomy of the Nervous System. By G. Elliot Smith, M.A., Litt.D., D.Sc., M.D., F.R.C.P., F.R.S.

Practical Instruction and Demonstrations. Demonstrator, Charles Geary.

(3) Eight lectures on Psychology. By Henry Devine, M.D., F.R.C.P. Followed by Course of Practical Instruction.

Part II (March to May inclusive).

Eight lectures on the Psychoneuroses. By Bernard Hart, M.D., F.R.C.P.

Twelve lectures on Morbid Psychology. By Edward Mapother, M.D., F.R.C.P., F.R.C.S.

Four lectures on the Pathology of Mental Diseases. By F. Golla, F.R.C.P. Followed by Four Demonstrations in Pathological Anatomy. By Charles Geary.

Four lectures on the Legal Relationships of Insanity and Treatment. By Sir Hubert Bond, K.B.E., LL.B., D.Sc., M.D., F.R.C.P.

Six lectures on the Practical Aspect of Mental Deficiency. By F. C. Shruballs, M.D., F.R.C.P.

Six lectures on Crime and Insanity. By W. Norwood East, M.D., M.R.C.P.

Three lectures on Therapeutics. By A. A. W. Petrie, M.D., F.R.C.S., M.R.C.P., D.P.M.

Six demonstrations in Clinical Psychiatry. By Edward Mapother, M.D., F.R.C.P., F.R.C.S.

Twelve clinical demonstrations in Neurology. By F. Golla, F.R.C.P., and F. M. R. Walshe, D.Sc., M.D., F.R.C.P.

Two lectures on Abnormalities of the Fundus Oculi. By R. Foster Moore, M.A., B.Ch., F.R.C.S.

Two demonstrations in Laboratory Methods, including the Examination of the Blood and Cerebro-spinal Fluid. By S. A. Mann, B.Sc.Lond., F.I.C.

Posts as voluntary clinical assistants at the Maudsley Hospital may be granted without fee to practitioners of both sexes specializing in Psychological Medicine. These appointments can be either for whole or part-time work in wards, outpatient department or laboratories as desired. They can be held in conjunction with attendance at either part of the course for the Diploma in Psychological Medicine. Such an appointment will satisfy the requirements of the various examining bodies in respect of clinical experience of mental disorders for the Diploma in Psychological Medicine or for the M.D. in Psychological Medicine; its necessary duration depends on whether it is whole or part-time. There are various other opportunities for clinical study, also without fee, to all attending the course.

Applications and inquiries regarding these clinical facilities should be made to the Medical Superintendent of the Hospital.

Fees: For the whole course of Parts I and II, £15 15s.; for Part I separately, £10 10s.; for Part II separately, £10 10s.; for a single series of lectures in Part I, £4 4s.; for a single series of lectures in Part II, £2 2s.; for a single series of demonstrations only, £1 1s.

Inquiries as to Lectures, etc., should be addressed to "The Director of the Central Pathological Laboratory," Maudsley Hospital, Denmark Hill, S.E. 5. Applications for admission to the course should be made on an accompanying form, which must be filled up and forwarded with remittance as directed. The Fellowship of Medicine, 1, Wimpole Street, W., will collect fees from, and issue admission tickets to, medical men and women intending to take the course who are introduced by the Fellowship.

The Maudsley Hospital, Denmark Hill, S.E. 5 (University of London).—A series of Clinical Lectures (illustrated by cases) will be given, commencing on October 28, 1929.

On "Mental Symptoms and their Genesis," by A. J. Lewis, M.B., M.R.C.P. Mondays at 2.30 p.m.

On "The Nervous Disorders of Children," by T. Tennent, M.B., D.P.H., D.P.M. Tuesdays at 2.30 p.m.

On "Neurotic and Psychotic Syndromes," by Edward Mapother, M.D., F.R.C.P., F.R.C.S. Wednesdays at 2.30 p.m.

On "The Relations of Mental Disorder to Physical Conditions," by J. S. Harris, M.D., M.R.C.P., D.P.M. Thursdays at 2.30 p.m.

On "The Pathology of Mental Disorders and Physiological Psychology," by F. L. Golla, M.B., F.R.C.P.; on "Laboratory Methods and their Place in Diagnosis," by S. A. Mann, B.Sc., F.I.C.; on "The Pathology of the Nervous System," by C. Geary. Fridays at 2.30 p.m.

In addition a discussion on cases in the hospital is held in the wards every Monday, Tuesday and Thursday at 12 noon. Lectures and discussions are open to medical practitioners without fee.

The Course of Lectures and Practical Instruction for the Diploma in Psychological Medicine will be held, beginning in January next. The lectures and demonstrations are given in series, and either group can be attended separately. Inquiries should be addressed to "The Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E. 5."

The Tavistock Square Clinic for Functional Nervous Disorders, 51, Tavistock Square, W.C. 1.—A Short Course of Lectures on Functional Nervous Disorders for practitioners and students will be given at the Clinic, November 11–23, 1929. Lecturers: W. John Adie, M.D., F.R.C.P., Edward A. Bennet, M.B., D.P.M., Charles Berg, M.D., D.P.M., C. M. Bevan Brown, M.B., Ch.B., W. Langdon Brown, M.D., F.R.C.P., Leonard F. Browne, M.D., C. L. C. Burns, L.R.C.P., M.R.C.S., H. Crichton-Miller, M.D., Henry V. Dicks, M.B., M.R.C.P., John Freeman, M.D., R. G. Gordon, M.D., F.R.C.P., E. A. Hamilton-Pearson, M.B., Ch.B., Alice M. Hutchison, M.D., M.R.C.P., J. R. Rees, M.D., Isabel G. H. Wilson, M.D., D.P.M., James Young, M.D.

Fee for the Course: Medical practitioners, £2 2s.; medical students (*i. e.*, unqualified), 10s. 6d. Tickets for the Course can be obtained in advance from the Hon. Lecture Secretary at the Clinic.

The National Council for Mental Hygiene and the Tavistock Square Clinic.—A Conference on Mental Health will be held in The Central Hall, Westminster, London, S.W. 1, on October 30, 31, November 1, 2, 1929. Applications for tickets should be addressed to The Secretary, The National Council for Mental Hygiene, 78, Chandos House, Palmer Street, London, S.W. 1, but tickets can also be obtained at the door before each meeting.

National Hospital, Queen Square, Bloomsbury, London, W.C. 1.—A Post Graduate Course of Lectures and Demonstrations will be given from October to November, 1929, as follows: (1) Out-patient Clinics, Mondays, Tuesdays, Thursdays and Fridays, 2 p.m. (2) Clinical Lectures and Demonstrations, Mondays, Tuesdays, Thursdays and Fridays, 3.30 p.m. (3) Lectures on the Pathology of the Nervous System on Mondays at 12 noon. (4) Lectures on the Anatomy and Physiology

of the Nervous System (if sufficient Applicants) on Fridays at 12 noon. (5) Clinical Demonstrations on Methods of Examination (if sufficient Applicants), Tuesdays and Thursdays at 12 noon.

For further information and syllabus apply to J. G. Greenfield, Dean of the Medical School.

JOINT BOARD OF RESEARCH FOR MENTAL DISEASES.

CITY AND UNIVERSITY OF BIRMINGHAM.

Annual Report of the Laboratory for the Year ending March 14th, 1929.

[Abridged.]

There have been no changes in the staff during the year.

General.—Work during the past year has centred around chronic infections of the nasal sinuses and intestinal tract. The relation of these to local damage of the nervous system and endocrine imbalance *via* a disturbed pituitary have been investigated, histologically by the careful examining and sectioning of *post-mortem* sinus material, bacteriologically by the agglutination reaction, chemically by determinations of the basal metabolism during sleep and of the chloride content of the cerebro-spinal fluid as indicative of low-grade meningitis.

Bacteriological.—Of 328 bacteriological examinations of faeces and urine we have recovered two typical and one atypical Dysentery Y organisms. Also on 15 occasions we have found Salmonella organisms differing only by absence of agglutination or in some other minor points from pathogenic paratyphoid organisms. *B. Friedländer* has occurred 29 times and *B. faecalis alkaligines*, *B. alkalescens* and *B. proteus* each four times. Much work has been done on nasal sinus bacteriology, the specimens all being collected personally by the Director at operations for irrigation of suspected sinuses. 790 specimens (including swabs and controls) have been examined from 73 cases. 68/104 sphenoids, 60/97 ethmoids and 68 90 antra gave organisms, the remainder being sterile. *Staphylococcus albus* and *aureus* totalled 103, diphtheroids were common, *B. Hofmann* being present in no less than 52 instances. In 37 specimens organisms of the intestinal group were isolated, and streptococci from 73.

As in previous years, a large proportion of new admissions give positive agglutination to the para-typhoid group of organisms. Of 549 new admissions, 112 gave positive results, *i.e.*, 20.4%. Since it has been shown that the agglutination titre disappears much more rapidly in mental hospital patients than normal, the above figures indicate even more strongly the importance of gastro-intestinal infection in the early stages of mental disorder, and, therefore, in the aetiology of mental disease. Of 176 specimens from the Monyhull Colony 30 were positive, *i.e.*, 17%, which points to a possible aetiological relationship of gastro-intestinal infection in early life to mental deficiency. Of a total 877 Widal examinations 243 were positive. This does not include vaccinated subjects, but does include a few repeats of the same cases. Of 968 Wassermann reactions, 217, *i.e.*, 22.4%, were positive, and of these 5/167 were from the Monyhull Colony (*i.e.*, 3%, which is low in comparison with the very varied published results for mental defectives). Of 95 throat swabs for K.L.B. only 3 were positive. Work on the bacteriology of the intestinal tract of animals with sinus infections is in progress.

Many positive serological reactions have been followed by repeat examinations. One case of high Gaertner was about 250 Oxford units on each of 18 occasions examined. 16 positives remained positive on subsequent examinations. There was usually, however, an extraordinary variation in the quantitative titre; 33 positives afterwards became negative, and 7 originally negative, examined for other purposes, later were positive. The further investigation of such cases is somewhat complicated owing to the vaccine treatment by T.A.B. being often employed on account of its clinical value.

Histological.—As has been previously found, about half of the number of sphenoidal sinuses examined *post-mortem* show gross macroscopic inflammatory

changes of the mucosa (22/51). 124 specimens of cerebro-spinal fluid have been examined cytologically to assist the correlation of changes in the permeability of the brain membranes and to follow the results of treatment. Experiments are in progress in order to detect areas of pathological change by injection of dyes into the cerebro-spinal system.

Chemical.—The investigation of basal metabolism during sleep has been continued. Although this has involved much work, we are not yet in a position to correlate the findings. The investigation of the permeability of the brain membranes has been continued and supplemented by similar investigations of animals under treatment. A method has been evolved for the estimation of the oxygen content of the blood, using an apparatus of the Haldane type which we have modified for greater sensitivity and use with small quantities of blood. 10 specimens of human and 20 of animal bloods have so far been investigated. The Fleischl-Meischl hæmoglobinometer has been used to check the hæmoglobin content of the blood in each case. The cholesterol content of the blood and differential fat analysis of the adrenals are being investigated in animals following injection of a paratyphoid vaccine. By modifying the technique of existing methods a satisfactory process of analysis of cerebro-spinal fluid for chloride requiring only 0.15 c.c. of fluid has been evolved, and so far 40 specimens have been examined. The results are as follows (normal 725–750 mgrm. per 100 c.c.): Average of our results (40 specimens)—718. Only one specimen was high (780 mgrm.), 34 were below 725 (lowest 684). These findings corroborate the theoretical consideration upon which the research was undertaken, that a low-grade meningitis is very common in mental hospital patients.

Post-mortem Technique for the Examination of Nasal Sinuses.

Apparatus required: Skull coronet, fine tenon saw, large trephine not less than 2 in. diameter, brace or large handle for ditto, wooden or metal guide for ditto, hammer, straight chisel, stout knife curved on the flat, Hobbies' treadle fretsaw.

The brain is removed with the minimum amount of damage.

The trephine guide is fixed so that the anterior part of the pituitary fossa is roughly central. By means of the trephine a circular saw-cut can then be made about 1½ in. deep. The occipital bone is chiselled through at the base of the saw-cut, the chisel passing deeply, as horizontal as possible, under the sphenoid block. By additional chiselling the other bony attachments are cut through and the soft parts severed by the curved knife. The block can then be removed and placed into Kaiserling solution. After fixation it is divided by a medial saw-cut with the fretsaw, thus exposing the sphenoidal sinuses.

The ethmoidal sinuses are opened by the above procedure, and should be examined both on the sphenoid block and that left behind in the skull (usually a part of the posterior ethmoidal cells comes away with the sphenoid block).

The frontal sinuses are opened by chiselling into the corner of the anterior fossa opposite the root of the nose.

The trephine is re-inserted into the hole and the circular cut continued down to the hard palate. After removal of central *débris* the antra can be examined and a note made of the condition of the mucosa.

By suitable chiselling into the temporal bone, the portion containing the middle ear can be wrenched away with lion forceps and examined.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION AND THE GENERAL NURSING COUNCIL FOR ENGLAND AND WALES: MENTAL NURSES AND STATE REGISTRATION.

An interesting debate took place at the 15th Annual Meeting of the National Asylum Workers' Union at Blackpool on the stalemate position between our Association and the General Nursing Council for England and Wales in regard to the recognition of the Association's mental nursing certificate for State registration.

It arose on the presentation of the Executive Council's Report on July 10, and those interested will find it fully recorded in the *N.A.W.U. Magazine* for August, 1929.

The subject cropped up again on July 11 on a motion by the South-Eastern Federation, as follows :

That this Conference express its approval of the R.M.P.A. Certificate as a satisfactory proof of qualification for mental nursing, owing to the high standard of examination, its general acceptance by Authorities, the reasonableness of the cost of obtaining the same, and the fact that some Authorities would refuse to pay the fees and bonus, and would consider instituting examinations of their own rather than submit to the imposition of the General Nursing Council Certificate.

Mr. JOYCE (Park Prewett) : After Mr. Gibson's statement on this matter yesterday there is little I can say ; in other words, he has stolen my thunder, but being the sponsor of this resolution, I must re-tread the ground. The R.M.P.A. have a high standard of curriculum, being equivalent to two theoretical examinations and a practical test held at the institution by independent examiners. It is not necessary to travel long journeys and suffer other inconveniences, apart from expenses incurred, for the purpose of sitting examinations. The fees for the R.M.P.A. examinations are quite reasonable. The passing of the final examination is a sufficient guarantee of proficiency for all who require the services of a mental nurse, whether for private or institutional nursing. It has come to my knowledge that several institutions do not pay the stipulated sums of two and three guineas, which amounts are required to cover the examination fees payable to the G.N.C. I have also been informed that several L.C.C. committees have suggested that rather than pay the amount mentioned, which in their case would run into a total of several thousand pounds per annum, they would prefer to institute an examination of their own and pay their own doctors. The R.M.P.A. examinations fulfil all requirements, and with that body they are fully satisfied. We must support one body, and this Conference should finally decide whose colours they are going to fly. With the R.M.P.A. there are cheapness, convenience and status on the one hand, and with the G.N.C. high examinations fees, the inconvenience and expenses of travelling, and a degree of autocracy on the other. I venture to ask the Conference to give a final decision on the subject.

Mr. ROBSON (Colchester) seconded.

[The resolution was carried.]

ROYAL MEDICAL BENEVOLENT FUND CHRISTMAS GIFTS.

To the Editor of the 'Journal of Mental Science.'

DEAR SIR,—It has been the practice of the Royal Medical Benevolent Fund for many years to give a Christmas gift to each annuitant, and some of the most necessitous of the grantees.

Both the annuitants, who are over 60 years of age, and the grantees are deprived of those little amenities of life which the more fortunate of us enjoy.

Many of our beneficiaries are alone in the world, as their friends and relations have passed over, and consequently they will not receive any gift or extra comfort this Christmas.

Last year the Fund gave to each 30s.; this meant an expenditure of £500. Many readers will wish that the recipients of this gift in former years should not be deprived of it this year.

But unless I am favoured by a generous response to this appeal our Funds will not allow of this gracious and friendly act.

Will every reader of this letter please consider if he or she cannot send to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W. 1, a Xmas donation?

I shall be grateful whether the donation be large or small.

Yours faithfully,
(Signed) THOMAS BARLOW,
President.

OBITUARY.

DAVID BOWER, M.D., C.M.Aberd.,

Medical Superintendent of Springfield House, near Bedford. Ordinary member since 1877; Chairman of the Parliamentary Committee, 1907-10; Chairman of the South-Eastern Division since April, 1929.

Dr. David Bower, who had been in failing health since the beginning of the year, died on June 17 from heart disease. His final illness was of only five days' duration.

Dr. Bower was born on November 16, 1853, at Inverkeilor, Forfarshire. He studied at Aberdeen and Edinburgh Universities, and graduated M.B. and C.M. (both with honours) in 1876, and M.D.Aberdeen in 1878. He became a member of the Royal Medico-Psychological Association as far back as 1877. He was also a Fellow of the Royal Medical Society of London, a member of the British Medical Association, and of the Bedford Medical Society.

Fifty years ago he went to Springfield House, Bedford, as Medical Superintendent, having previously been Resident Medical Superintendent of Saughton Hall Private Asylum, Edinburgh. Springfield House under his management and proprietorship was several times enlarged, and its grounds extended. Its success as a high-class private mental hospital has been very largely due to his energy, business capacity, tact and judgment. He took an interest in local affairs, and for twenty-five years was a member of the Bedfordshire County Council, and for many years chairman of the local Conservative Association and an active supporter of the County Cricket Club and sports generally. He was also a prominent Freemason and Past Provincial Grand Warden for Bedfordshire. By his death yet another of the pioneers in the evolution and educational development of the Royal Medico-Psychological Association has been removed. He was for many years on the committee of its South-Eastern Division, of which he was one of the founders, and he also served on the Council of the Association. Quite recently the South-Eastern Division did him honour by electing him first Chairman of the Division. Moreover he filled the office for several years of Secretary to the Parliamentary Committee of the Association and was subsequently for three years (1907-1910) Chairman of that Committee. He also took an active interest in the After-Care Association. Beneath a somewhat bluff exterior, David Bower had a heart brimful of human kindness and sympathy, and those who knew him well valued his friendship highly and often sought his opinion. He will be sadly missed at the meetings and annual dinners of the Association. He leaves a widow and a son, Dr. Cedric Bower, who has been his partner for several years past and succeeds him at Springfield House.

ERNEST W. WHITE.

PATRICK O'DOHERTY, B.A., M.B., B.Ch., R.U.I.,

Resident Medical Superintendent, District Mental Hospital, Sligo. Ordinary member since 1903.

Patrick O'Doherty, we regret to announce, died on July 19 (at the residence of his brother-in-law, Dr. Nicholas Donnelly, West Wickham, Kent) at the age of 51 years. The news of his death caused deep feelings of regret to a large circle of friends. His outstanding professional ability, coupled with a kind, unobtrusive and considerate nature and charming personality endeared him to all with whom he came in contact. He was appointed Assistant Medical Officer in Omagh District Asylum (Tyrone and Fermanagh counties) on June 12, 1902, and served in that capacity till he was appointed Resident Medical Superintendent in Sligo District Asylum (Sligo and Leitrim Counties) on December 13, 1921. Although for a long time in failing health, he never complained or slackened in his work, his one great aim in life being the advancement of his patients' interests. He was untiring in his efforts on their behalf and never relaxed in the diligent discharge of his duties, thus infusing a spirit of energy into those who worked with him. The medical profession and mental hospital service are the poorer by the loss of a thorough Irish gentleman and a conscientious physician. To his

bereaved wife and family we extend our heartfelt sympathy. His remains were removed from England and buried at Killyclogher on July 21, the large and representative cortège (including members of the staffs of Omagh and Sligo District Mental Hospitals) bearing testimony to the esteem in which "Paddy O'Doherty" was justly held.

J. C. MARTIN.

NOTICES BY THE HONORARY LIBRARIAN.

The following journals are circulated from the Library :

American Journal of Psychiatry.
The Psychological Review.
Journal of Neurology and Psychopathology.
L'Encéphale.
International Journal of Psycho-Analysis.
Journal of Abnormal Psychology.
Mental Hygiene.
Journal of Nervous and Mental Diseases.
Revue Neurologique.
Archives of Neurology and Psychiatry.
Journal of Comparative Psychology.

Members are requested to return all long-outstanding books to the Library as soon as possible for the purpose of cataloguing. It appears that in a number of instances in the past there has been a failure to register the loans. Six members are thanked for returning books which have been lost sight of for years.

In response to the invitation issued to members to make gifts to the Library to assist in building up a historical collection of psychiatric works from the seventeenth century onwards, Dr. J. Whitwell has presented the following books :

The Positive Philosophy of Auguste Comte, Harriet Martineau, 1898.
The Idea of the Soul, A. E. Crawley, 1909.
The Blot on the Brain, W. W. Ireland, 1893.
Through the Ivory Gate, W. W. Ireland, 1899.

Others are promised from the same source.

In selecting books for presentation, members are advised to consult first the Library Catalogue (Messrs. J. & A. Churchill, price 2s. post free), to see what books the Library possesses and those it is desirable it should possess.

The new accommodation for the Library at the B.M.A. House will shortly be available for use, when there will be ample room for the expansion of the Association's collection of books.

NOTICES BY THE REGISTRAR.

Bronze Medal and Prize for 1930.

Dissertations for the Association's Bronze Medal and Prize must be delivered to the Registrar by April 30, 1930.

Divisional Prizes for 1930.

Papers certified as eligible for this competition must be forwarded to the Registrar not later than April 30, 1930.

Gaskell Medal and Prize.

The following Regulation has been rescinded on the authority of the Annual General Meeting (Wakefield), 1928 :

"(3) A thesis based on original research, if of sufficient merit, may be accepted by the examiners in place of either the written or the clinical examination or both."

The examination for the Gaskell Medal and Prize and the examination for the Certificate in Psychological Medicine will be held at the Maudsley Hospital, Denmark Hill, London, in May, 1930.

Applications for entry to each examination to be made to the Registrar, St. Andrew's Hospital, Northampton.

There is no fee for entrance to the Gaskell Prize Examination.

The entrance fee for the examination for the Certificate in Psychological Medicine is three guineas.

The Nursing Badge.

This Badge, founded at the Annual Meeting (Wakefield), July 11, 1928, can now be obtained from the Registrar. The application must be made on a special form and accompanied by 6s., which includes the cost of engraving the name and registration number of the holder.

The badge is issued for general use, but especially for occasions when the nursing medal is inconvenient or inappropriate. It is fitted with a brooch-pin for women and a crescent-shaped button-hole stud for men.

For full particulars of the Association's Medals and Prizes and the Certificate in Psychological Medicine see "Year Book" prefacing the January number of the Journal.

NOTICES BY THE GENERAL SECRETARY.

Deaths.

CHRISTOPHER COSTELLO, May 27, 1929.

PATRICK O'DOHERTY, July 19, 1929.

FLETCHER BEACH, August 18, 1929.

BAGENAL CROSBIE HARVEY, October 26, 1929.

Appointments.

K. C. L. PADDLE, M.C., M.R.C.S., L.R.C.P., D.P.M., to be Senior Medical Officer at Caterham Mental Hospital.

H. FREIZE STEPHENS, M.R.C.S., L.R.C.P., to be Medical Superintendent, Birmingham Certified Institution, Coles Hill, Warwickshire.

NOTICES OF MEETINGS.

Quarterly Meeting.—February 4, 1930. Members are invited to send to the General Secretary any suggestion they care to make as to place of meeting.

South-Eastern Division.—October 14, 1929, at the Flower House, Beckenham Lane, Catford. Spring Meeting at the City Mental Hospital, Hellesdon, Norwich—date not yet fixed.

South-Western Division.—October 24, 1929, at the Somerset Co. Mental Hospital, Wells.

Northern and Midland Division.—October 24, 1929, at the Warwick Co. Mental Hospital, Hatton.

Scottish Division.—November 15, 1929, at Murray Royal, Perth. Special Meeting, December 6, 1929, Royal College of Physicians, Edinburgh.

Irish Division.—November 3, 1929, at the Royal College of Physicians, Dublin; April 3, 1930, at Ballinasloe District Mental Hospital.

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