



Über dieses Buch

Dies ist ein digitales Exemplar eines Buches, das seit Generationen in den Regalen der Bibliotheken aufbewahrt wurde, bevor es von Google im Rahmen eines Projekts, mit dem die Bücher dieser Welt online verfügbar gemacht werden sollen, sorgfältig gescannt wurde.

Das Buch hat das Urheberrecht überdauert und kann nun öffentlich zugänglich gemacht werden. Ein öffentlich zugängliches Buch ist ein Buch, das niemals Urheberrechten unterlag oder bei dem die Schutzfrist des Urheberrechts abgelaufen ist. Ob ein Buch öffentlich zugänglich ist, kann von Land zu Land unterschiedlich sein. Öffentlich zugängliche Bücher sind unser Tor zur Vergangenheit und stellen ein geschichtliches, kulturelles und wissenschaftliches Vermögen dar, das häufig nur schwierig zu entdecken ist.

Gebrauchsspuren, Anmerkungen und andere Randbemerkungen, die im Originalband enthalten sind, finden sich auch in dieser Datei – eine Erinnerung an die lange Reise, die das Buch vom Verleger zu einer Bibliothek und weiter zu Ihnen hinter sich gebracht hat.

Nutzungsrichtlinien

Google ist stolz, mit Bibliotheken in partnerschaftlicher Zusammenarbeit öffentlich zugängliches Material zu digitalisieren und einer breiten Masse zugänglich zu machen. Öffentlich zugängliche Bücher gehören der Öffentlichkeit, und wir sind nur ihre Hüter. Nichtsdestotrotz ist diese Arbeit kostspielig. Um diese Ressource weiterhin zur Verfügung stellen zu können, haben wir Schritte unternommen, um den Missbrauch durch kommerzielle Parteien zu verhindern. Dazu gehören technische Einschränkungen für automatisierte Abfragen.

Wir bitten Sie um Einhaltung folgender Richtlinien:

- + *Nutzung der Dateien zu nichtkommerziellen Zwecken* Wir haben Google Buchsuche für Endanwender konzipiert und möchten, dass Sie diese Dateien nur für persönliche, nichtkommerzielle Zwecke verwenden.
- + *Keine automatisierten Abfragen* Senden Sie keine automatisierten Abfragen irgendwelcher Art an das Google-System. Wenn Sie Recherchen über maschinelle Übersetzung, optische Zeichenerkennung oder andere Bereiche durchführen, in denen der Zugang zu Text in großen Mengen nützlich ist, wenden Sie sich bitte an uns. Wir fördern die Nutzung des öffentlich zugänglichen Materials für diese Zwecke und können Ihnen unter Umständen helfen.
- + *Beibehaltung von Google-Markenelementen* Das "Wasserzeichen" von Google, das Sie in jeder Datei finden, ist wichtig zur Information über dieses Projekt und hilft den Anwendern weiteres Material über Google Buchsuche zu finden. Bitte entfernen Sie das Wasserzeichen nicht.
- + *Bewegen Sie sich innerhalb der Legalität* Unabhängig von Ihrem Verwendungszweck müssen Sie sich Ihrer Verantwortung bewusst sein, sicherzustellen, dass Ihre Nutzung legal ist. Gehen Sie nicht davon aus, dass ein Buch, das nach unserem Dafürhalten für Nutzer in den USA öffentlich zugänglich ist, auch für Nutzer in anderen Ländern öffentlich zugänglich ist. Ob ein Buch noch dem Urheberrecht unterliegt, ist von Land zu Land verschieden. Wir können keine Beratung leisten, ob eine bestimmte Nutzung eines bestimmten Buches gesetzlich zulässig ist. Gehen Sie nicht davon aus, dass das Erscheinen eines Buchs in Google Buchsuche bedeutet, dass es in jeder Form und überall auf der Welt verwendet werden kann. Eine Urheberrechtsverletzung kann schwerwiegende Folgen haben.

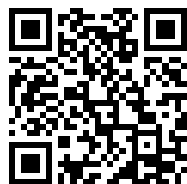
Über Google Buchsuche

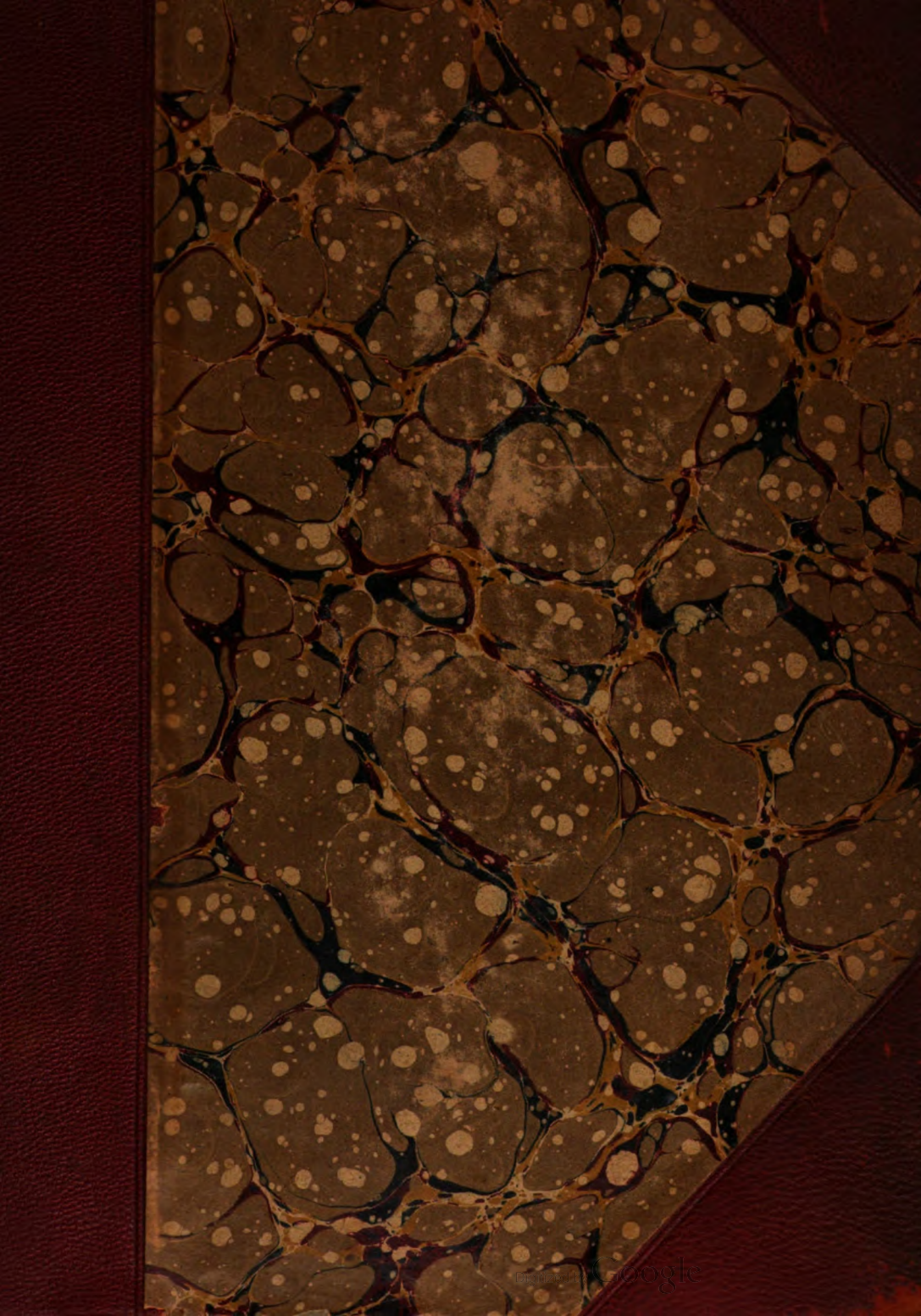
Das Ziel von Google besteht darin, die weltweiten Informationen zu organisieren und allgemein nutzbar und zugänglich zu machen. Google Buchsuche hilft Lesern dabei, die Bücher dieser Welt zu entdecken, und unterstützt Autoren und Verleger dabei, neue Zielgruppen zu erreichen. Den gesamten Buchtext können Sie im Internet unter <http://books.google.com> durchsuchen.

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google™ books

<https://books.google.com>





~~6400~~
6400
503

Library of



Princeton University.

Elizabeth Foundation.

THE JOURNAL
OF
MENTAL SCIENCE.

EDITORS :

Henry Rayner, M.D. **A. R. Urquhart, M.D.**
Conolly Norman, F.R.C.P.I.

ASSISTANT EDITORS :

J. Chambers, M.D. **J. R. Lord, M.B.**

VOL. LII.



LONDON :

J. & A. CHURCHILL,
7, GREAT MARLBOROUGH STREET.

MDCCCVI.

"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 J. C. Bucknill, M.D., F.R.S.*

THE
**MEDICO-PSYCHOLOGICAL ASSOCIATION
 OF GREAT BRITAIN AND IRELAND.**

THE COUNCIL AND OFFICERS, 1905-6.

PRESIDENT.—T. OUTTERSON WOOD, M.D.

PRESIDENT ELECT.—ROBERT JONES, M.D.

EX-PRESIDENT.—R. PERCY SMITH, M.D.

TREASURER.—H. HAYES NEWINGTON, F.R.C.P. Ed.

EDITORS OF JOURNAL. { HENRY RAYNER, M.D.
 A. R. URQUHART, M.D.
 CONOLLY NORMAN, F.R.C.P.I.
 JAMES CHAMBERS, M.D.

ASSISTANT EDITOR (not Member of Council).—JOHN R. LORD, M.B.

DIVISIONAL SECRETARY FOR SOUTH-EASTERN DIVISION.—R. H. STEEN, M.D.

DIVISIONAL SECRETARY FOR SOUTH-WESTERN DIVISION.—H. T. S. AVELINE, L.R.C.P.

DIVISIONAL SECRETARY FOR NORTHERN AND MIDLAND DIVISION.
 BEDFORD PIERCE, M.D.

DIVISIONAL SECRETARY FOR SCOTLAND.—LEWIS C. BRUCE, M.D.

DIVISIONAL SECRETARY FOR IRELAND.—W. R. DAWSON, M.D.

GENERAL SECRETARY.—ROBERT JONES, M.D., B.S., F.R.C.S.

SECRETARY OF EDUCATIONAL COMMITTEE.—MAURICE CRAIG, M.D. (appointed by Educational Committee, but with seat on Council).

REGISTRAR.—ALFRED MILLER, M.B.

MEMBERS OF COUNCIL.

REPRESENTATIVE.

DAVID BOWER
 DAVID G. THOMSON } S.E. Div.
 JOHN TURNER }
 ERNEST W. WHITE }
 P. W. MACDONALD } S.W. Div.
 H. C. MACBRYAN }
 SAMUEL EDGERLEY } N. & M. Div.
 CHAS. K. HITCHCOCK }
 RICHARD J. LEGGE }
 ADAM R. TURNBULL } Scotland.
 DAVID YELLOWLEES }

REPRESENTATIVE.

MICHAEL J. NOLAN } IRELAND.
 THOMAS DRAPES }

NOMINATED.

FLETCHER BEACH
 THOMAS S. CLOUSTON
 WILLIAM GRAHAM
 GEORGE H. SAVAGE
 FRED. R. P. TAYLOR
 ARTHUR A. D. TOWNSEND

[The above form the Council.]

AUDITORS. { F. H. EDWARDS, M.D.
 J. B. SPENCE, M.D.

EXAMINERS.

ENGLAND { THEO. B. HYSLOP, M.D.
 ROBERT JONES, M.D.

SCOTLAND { JOHN CARSWELL, L.R.C.P.
 W. A. PARKER, M.B.

IRELAND { M. J. NOLAN, L.R.C.P.I.
 THOS. DRAPES, M.B.

Examiners for the Nursing Certificate of the Association:
 C. MERCIER, M.B.; A. R. TURNBULL; E. B. WHITCOMBE.

PARLIAMENTARY COMMITTEE.

FLETCHER BEACH (*Secretary*).
 G. F. BLANDFORD.
 DAVID BOWER.
 L. C. BRUCE.
 J. CARSWELL.
 D. M. CASSIDY.
 T. S. CLOUSTON.
 A. D. O'C. FINEGAN.
 H. GARDINER HILL.
 C. K. HITCHCOCK.
 T. B. HYSLOP.
 J. CARLYLE JOHNSTONE.
 ROBERT JONES.
 H. ROOKE LEY.
 J. G. McDOWALL.
 C. MERCIER.

CONOLLY NORMAN.
 EVAN POWELL.
 H. RAYNER.
 G. H. SAVAGE.
 R. PERCY SMITH.
 J. B. SPENCE.
 D. G. THOMPSON.
 T. SEYMOUR TUKE.
 A. R. URQUHART.
 L. A. WEATHERLY.
 E. B. WHITCOMBE.
 ERNEST W. WHITE (*Chairman*).
 J. WIGLESWORTH.
 T. O. WOOD.
 OSCAR WOODS.
 D. YELLOWLEES.

EDUCATIONAL COMMITTEE.

FLETCHER BEACH.
 L. C. BRUCE.
 T. S. CLOUSTON.
 MAURICE CRAIG (*Secretary*).
 W. R. DAWSON.
 W. GRAHAM.
 J. G. HAVELOCK.
 T. B. HYSLOP.
 J. CARLYLE JOHNSTONE.
 ROBERT JONES.
 W. S. KAY.
 P. W. MACDONALD.
 S. R. MACPHAIL.
 T. W. McDOWALL.
 H. G. MARR.
 W. F. MENZIES.
 C. MERCIER (*Chairman*).
 W. F. MICKLE.
 G. E. MOULD.
 H. HAYES NEWINGTON.
 M. J. NOLAN.

CONOLLY NORMAN.
 B. PIERCE.
 H. RAYNER.
 G. M. ROBERTSON.
 E. C. ROGERS.
 J. RORIE.
 G. H. SAVAGE.
 T. CLAYE SHAW.
 R. PERCY SMITH.
 J. B. SPENCE.
 T. S. TUKE.
 A. R. TURNBULL.
 I. A. WEATHERLY.
 E. B. WHITCOMBE.
 ERNEST W. WHITE.
 J. R. WHITWELL.
 J. WIGLESWORTH.
 J. KENNEDY WILL.
 OSCAR T. WOODS.
 T. O. WOOD.
 D. YELLOWLEES.

LIBRARY COMMITTEE.

FLETCHER BEACH.
 ROBERT H. COLE

HENRY RAYNER.
 T. OUTTERSON WOOD.

LIST OF CHAIRMEN.

1841. Dr. Blake, Nottingham.
 1842. Dr. de Vitre, Lancaster.
 1843. Dr. Conolly, Hanwell.
 1844. Dr. Thurnam, York Retreat.
 1847. Dr. Wintle, Warneford House, Oxford.
 1851. Dr. Conolly, Hanwell.
 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., County Asylum, Hanwell.
 1859. Sir Charles Hastings, D.C.L.
 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 Edinburgh Asylum.
 1864. Henry Munro, M.D., Brook House, Clapton.
 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., County Asylum, Wells.
 1871. Henry Maudsley, M.D., The Lawn, Hanwell.
 1872. Sir James Cox, M.D., Commissioner in Lunacy for Scotland.
 1873. Harrington Tuke, M.D., Manor House, Chiswick.
 1874. T. L. Rogers, M.D., County Asylum, Rainhill.
 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.
 1879. J. A. Lush, M.D., Fisherton House, Salisbury.
 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., County Asylum, Hanwell.
 1885. J. A. Eames, M.D., District Asylum, Cork.
 1886. Geo. H. Savage, M.D., Bethlem Royal Hospital.
 1887. Fred. Needham, M.D., Barnwood House, Gloucester.
 1888. T. S. Clouston, M.D., Royal Edinburgh Asylum.
 1889. H. Hayes Newington, M.R.C.P., Ticehurst, Sussex.
 1890. David Yellowlees, M.D., Gartnavel Asylum, Glasgow.
 1891. E. B. Whitcombe, M.R.C.S., City Asylum, Birmingham.
 1892. Robert Baker, M.D., The Retreat, York.
 1893. J. Murray Lindsay, M.D., County Asylum, Derby.
 1894. Conolly Norman, F.R.C.P.I., Richmond Asylum, Dublin.
 1895. David Nicolson, M.D., C.B., State Criminal Lunatic Asylum, Broadmoor.
 1896. William Julius Mickle, M.D., Grove Hall Asylum, Bow.
 1897. Thomas W. McDowall, M.D., Morpeth, Northumberland.
 1898. A. R. Urquhart, M.D., James Murray's Royal Asylum, Perth.
 1899. J. B. Spence, M.D., Burntwood Asylum, nr. Lichfield, Staffordshire.
 1900. Fletcher Beach, M.B., 79, Wimpole Street, W.
 1901. Oscar T. Woods, M.D., District Asylum, Cork, Ireland.
 1902. J. Wigglesworth, M.D., F.R.C.P., Rainhill Asylum, near Liverpool.
 1903. Ernest W. White, M.B., City of London Asylum, Dartford, Kent.
 1904. R. Percy Smith, M.D., F.R.C.P., 36, Queen Anne Street, Cavendish Square, London, W.
 1905. T. Outterson Wood, M.D., F.R.C.P. Edin., 40, Margaret Street, Cavendish Square, W.

HONORARY MEMBERS.

1896. Allbutt, T. Clifford, M.D., F.R.C.P., Regius Professor of Physic, Univ. Camb., St. Radegund's, Cambridge.
 1881. Benedikt, Prof. M., Franciskaner Platz 5, Vienna.
 1900. Blumer, G. Alder, M.D., L.R.C.P. Edin., Butler Hospital, Providence, U.S.A. (*Ord. Mem.*, 1890.)
 1900. Bresler, Johannes, M.D., Kraschnitz, Schlesien, Germany. (*Corr. Mem.*, 1896.)
 1881. Brosius, Dr., Bendorf-Sayn, near Coblenz, Germany.
 1876. Browne, Sir J. Crichton-, M.D. Edin., F.R.S., Lord Chancellor's Visitor, New Law Courts, Strand, W.C. (*PRESIDENT*, 1878.)
 1902. Brush, Edward N., M.D., Sheppard and Enoch Pratt Hospital, Towson, Maryland, U.S.A.
 1887. Chapin, John B., M.D., Pennsylvania Hospital for the Insane, Philadelphia, U.S.A.
 1902. Coupland, Sidney, M.D., F.R.C.P. Lond., Commissioner in Lunacy, 16, Queen Anne Street, Cavendish Square, London, W.
 1872. } Courtenay, E. Maziere, A.B., M.B., C.M.T.C.D., M.D., Inspector of
 1891. } Lunatics in Ireland, Lunacy Office, Dublin Castle. (*Secretary for Ireland*, 1876-87.)
 1879. Echeverria, M. G., M.D.
 1892. Féré, Dr. Charles, 22, Avenue Bugeaud, XVI^e Arrt., Paris.
 1895. Ferrier, David, M.D., 34, Cavendish Square, London.

1872. Fraser, John, M.B., C.M., F.R.C.P.E., Commissioner in Lunacy, 19, Strathearn Road, Edinburgh.
1868. } Gairdner, Sir William T., K.C.B., M.D.Edin., F.R.S., formerly Professor
1888. } of Medicine in the University of Glasgow. Physician to H.M. the King
in Scotland, 32, George Square, Edinburgh. (PRESIDENT, 1882.)
1898. Hine, George T., F.R.I.B.A., 35, Parliament Street, London, S.W.
1881. Hughes, C. H., M.D., St. Louis, Missouri, United States.
1897. Lentz, Dr., Asile d'Aliénés, Tournai, Belgique.
1898. MacDonald, A. E., M.D., Columbia Court, 431, Riverside Avenue, cor. 115th Street, New York, U.S.A.
1898. Magnan, V., M.D., Asile de Ste. Anne, Paris.
1866. } Mitchell, Sir Arthur, M.D.Aberd., LL.D., K.C.B., late Commissioner in
1871. } Lunacy for Scotland; 34, Drummond Place, Edinburgh.
1897. Morel, M. Jules, M.D., States Lunatic Asylum, Mons, Belgium.
1880. Motet, M., 161, Rue de Charonne, Paris.
1889. Needham, Frederick, M.D.St. And., M.R.C.P.Edin., M.R.C.S.Eng., Commissioner in Lunacy, 19, Campden Hill Square, Kensington, W. (PRESIDENT, 1887.)
1891. O'Farrell, Sir G. P., M.D., M.Ch.Univ. Dubl., Inspector of Lunatics in Ireland, 19, Fitzwilliam Square, Dublin.
1881. Peeters, M., M.D., Gheel, Belgium.
1873. Pitman, Sir Henry A., M.D.Cantab., F.R.C.P.Lond., Registrar of the Royal College of Physicians, Enfield, Middlesex.
1900. Ritti, Ant., Maison Nationale de Charenton, St. Maurice, Paris. (*Corr. Mem.*, 1890.)
1887. Schüle, Heinrich, M.D., Illenau, Baden, Germany.
1881. Tamburini, A., M.D., Reggio-Emilia, Italy.
1901. Toulouse, Dr. Edonard, Directeur du Laboratoire de Psychologie expérimental à l'École des Hautes Études Paris et Médecin en chef de l'Asile de Villejuif, Seine, France.
1904. Tuke, Sir John Batty, M.D., M.P., 20, Charlotte Square, Edinburgh.

CORRESPONDING MEMBERS.

1896. Bianchi, Prof. Leonardo, Manicomio Provinciale di Napoli.
1904. Bierão, Caetano, 48, Rua Formosa, Lisbonne, Portugal.
1897. Buschan, Dr. G., Stettin, Germany.
1904. Caroleù, Wilfrid, Manicomia de Sta. Crur, St. Andreo de Palamar, Barcelona, Spain.
1896. Cowan, F. M., M.D., 107, Perponcher Straat, The Hague, Holland.
1902. Estense, Benedetto Giovanni Selvatico, M.D., 116, Piazza Porta Pia, Rome.
1904. Koenig, William Julius, Deputy Superintendent, Dalldorf Asylum, Berlin.
1880. Kornfeld, Dr. Hermann, Gleiwitz, Silesia, Germany.
1889. Kowalowsky, Professor Paul, Kharkoff, Russia.
1895. Lindell, Emil Wilhelm, M.D., Sweden.
1901. Manheimer-Gommès, Dr., 32, Rue de l'Arcade, Paris.
1897. Nücke, Dr. P., Hubertusberg Asylum, Leipzig.
1886. Parant, M. Victor, M.D., Toulouse.
1890. Régis, Dr. E., 54, Rue Huguerie, Bordeaux.
1893. Semelaigne, Dr. René, Secrétaire des Séances de la Société Médico-Psychologique de Paris, 16, Avenue de Madrid, Neuilly, Seine, France.

MEMBERS OF THE ASSOCIATION.

Alphabetical List of Members of the Association, with the year in which they joined. The Asterisk means Members who joined between 1841 and 1855.

1900. Abbott, Arthur J., M.D., B.Ch., B.A.O., T.C.Dublin, Hants County Asylum, Fareham.
1900. Abbott, Henry Kingsmill, M.D.Dublin, D.P.H.Ireland. Hants County Asylum, Fareham.
1891. Adair, Thomas Stewart, M.D., C.M.Edin., Storthes Hall Asylum, Kirkburton, near Huddersfield.
1868. Adams, Josiah O., M.D.Durh., F.R.C.S.Eng., Brooke House, Upper Clapton, London.
1886. Agar, S. Hollingsworth, jun., B.A.Cantab., M.R.C.S., Glendossil, Henley-in-Arden.
1901. Ahern, John M., M.B., B.Ch., L.R.C.P.&S.I., Assistant Medical Officer, H.M. Prison, Liverpool.
1905. Alcock, Benjamin James, M.B.Aberd., Ch.B., James Murray's Royal Asylum, Perth.
1869. Aldridge, Chas., M.D.Aber., L.R.C.P., Plympton House, Plympton, Devon.
1905. Alexander, Edward Henry, M.B., M.R.C.S., Physician Superintendent, Ashbourne Hall Asylum, Dunedin, New Zealand.
1899. Alexander, Hugh de Maine, M.D., The Hospital, Royal Asylum, Aberdeen.
1890. Alexander, Robert Reid, M.D.Aber., Medical Superintendent, Hanwell Lunatic Asylum, Hanwell, London, W.
1905. Allen, Robert George, L.R.C.P.&S.I., Little Byrham Vicarage, Grantham.
1882. Alliot, A. J., M.D., Rosendal, Sevenoaks.
1899. Allmann, Dorah Elizabeth, M.B., B.Ch., B.A.O.R.U.I., Assistant Medical Officer, District Asylum, Armagh.
1885. Amsden, Geo., M.B., Medical Supt., County Asylum, Brentwood, Essex.
1900. Anderson, John Sewell, M.R.C.S., L.R.C.P., Hull City Asylum, Willerby, near Hull.
1901. Anderson, William C., M.B., C.M., Fife and Kinross District Asylum, Cupar, Fife.
1894. Andriezen, W. Lloyd, M.D.Lond., 7, Apsley Terrace, Acton, W.
1894. Angus, Charles, M.B., C.M., Medical Superintendent, Kingseat Asylum, Newmachar, Aberdeen, N.B.
1904. Archdale, Mervyn Alex., M.B., B.S.Dur., East Riding Asylum, Beverley, Yorks.
1905. Archdall, Mervyn Thomas, L.S.A.Lond., L.R.C.P.&S.Edin., Resident Licensee, Bishopstone House, Bedford.
1891. Aveline, Henry T. S., M.R.C.S., L.R.C.P., M.P.C., Medical Superintendent, County Asylum, Cotford, near Taunton, Somerset.
1903. Bailey, William Henry, M.B., M.R.C.S., L.S.A., Featherstone Hall, Southall, Midd.
1894. Baily, Percy J., M.B.Edin., Senior Assistant Medical Officer, London County Asylum, Hanwell, W.
1878. Baker, H. Morton, M.B.Edin., Assistant Medical Officer, Leicester Borough Asylum, Humberstone, Leicester.
1888. Baker, John, M.D., Deputy Superintendent, State Asylum, Broadmoor, Berks.
1876. Baker, Robert, M.D.Edin., 2, The Crescent, Blossom Street, York. (PRESIDENT, 1892.)
1904. Barham, Guy Foster, M.B., B.A., B.C., M.R.C.S., L.R.C.P., Claybury Asylum, Woodford Bridge, Essex.
1901. Barnett, Horatio, M.B., B.C.Cantab., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Stretton House, Church Stretton, Salop.
1895. Barraclough, Herbert, M.B., The Asylum, Porirua, nr. Wellington, New Zealand.
1878. Barton, James Edward, L.R.C.P.Edin., L.M., M.R.C.S., Medical Superintendent, Surrey County Lunatic Asylum, Brookwood, Woking.

1904. Barton, Samuel J., M.D.Dubl., Physician to the Norfolk and Norwich Hospital, Surrey Street, Norwich.
1901. Barwell, Francis R., M.R.C.S.Eug., L.R.C.P.Lond., Darenth Asylum, near Dartford, Kent.
1901. Baskin, J. Lougheed, L.R.C.P.&S.Edin., L.F.P.S.Glas., Assistant Medical Officer, County Asylum, Exminster, Devon.
1902. Baugh, Leonard D. H., M.B., C.M., Gartloch Asylum, Gartcosh, Glasgow, N.B.
1864. Bayley, Joseph, M.R.C.S., Medical Superintendent, St. Andrew's Hospital, Northampton.
1893. Bayley, Joseph Herbert, M.B., C.M.Edin., Assistant Medical Officer, St. Andrew's Hospital, Northampton.
1874. Beach, Fletcher, M.B., F.R.C.P.Lond., formerly Medical Superintendent, Darenth Asylum, Dartford; Winchester House, Kingston Hill, Surrey, and 79, Wimpole Street, W. (*General Secretary*, 1889—1896. *PRESIDENT*, 1900—1901.)
1892. Beadles, Cecil F., M.R.C.S., L.R.C.P., Assistant Medical Officer, Colney Hatch Asylum.
1902. Beale-Browne, Thomas Richard, M.R.C.S.Eng., L.R.C.P.Lond., Berrywood, Northampton.
1896. Beamish, George, L.R.C.S.I., L.R.C.P.E., L.M., Medical Officer's House, H.M. Prison, Wandsworth, London, S.W.
1899. Bereaford, Edwyn H., M.R.C.S. & M.R.C.P.Lond., Tooting Bec Asylum, Tooting, S.W.
1894. Bernard, Walter, M.D., F.R.C.P.I., M.R.C.S.Eug., 14, Queen Street, Londonderry.
1894. Blachford, James Vincent, M.D., B.S.Durham, Assistant Medical Officer, Bristol Asylum, Fishponds, near Bristol.
1898. Blair, David, M.A., M.D., C.M., County Asylum, Lancaster.
1883. Blair, Robert, M.D., Braefort, Crookston, Paisley.
1901. Blake, Thomas Frederick Hillyer, L.R.C.P.&S.Edin., 12, Lower Banter Street, Bury St. Edmunds.
1904. Blakesley, Henry John, F.R.C.S.Eng., L.R.C.P.Edin., 56, London Road, Leicester.
1902. Blakiston, Frederick C., M.R.C.S., L.R.C.P., 6, Leigham Street, Plymouth, Devon.
1857. Blandford, George Fielding, M.D.Oxon., F.R.C.P.Lond., 48, Wimpole Street, W. (*PRESIDENT*, 1877.)
1897. Blandford, Joseph John Guthrie, B.A., D.P.H.Camb., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, County Asylum, Whittingham, Preston, Lancs.
1904. Bodvel-Roberts, Hugh Frank, M.A.Cantab., M.R.C.S., L.R.C.P., County Asylum, Hatton, Warwick.
1900. Bolton, Joseph Shaw, M.D., B.S., B.Sc.Lond., County Asylum, Rainhill, Liverpool.
1892. Bond, Charles Hubert, D.Sc., M.D., Ch.M.Edin., Medical Superintendent, The Colony, Ewell, Surrey.
1877. Bower, David, M.D.Aber., Springfield House, Bedford.
1877. Bowes, John Ireland, M.R.C.S.Eng., L.S.A., Medical Superintendent, County Asylum, Devizes, Wilts.
1893. Bowes, William Henry, M.D.Lond., Assistant Medical Officer: Plymouth Borough Asylum, Ivybridge, Devon.
1900. Bowles, Alfred, M.R.C.S., L.R.C.P., 10, South Cliff, Eastbourne.
1896. Boycott, Arthur N., M.D.Lond., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Herts County Asylum, Hill End, St. Albans, Herts.
1898. Boyle, A. Helen A., M.D., 3, Palmeira Terrace, Hove, Brighton.
1883. Boys, A. H., L.R.C.P.Edin., Chequer Lawn, St. Albans.
1891. Braine-Hartnell, George, M. P., L.R.C.P.Lond., M.R.C.S.Eng., Medical Superintendent, County and City Asylum, Powick, Worcester.

1893. Bramwell, John Milne, M.B., C.M.Edin., 33, Wimpole Street, W.
1904. Branthwaite, Robert Welsh, M.D. (Inspector under the Inebriates Act),
Home Office Chambers, 55, Whitehall, S.W.
1881. Brayn, R., L.R.C.P.Lond., Medical Superintendent, Broadnoor Asylum,
Crowthorne, Berks.
1895. Briscoe, John Frederick, M.R.C.S.Eng., Resident Medical Superintendent,
Westbrooke House Asylum, Alton, Hants.
1892. Bristowe, Hubert Carpenter, M.D.Lond., Wrington, R.S.O., Somerset.
1903. Broom, Henry, M.B., C.M.Glas., County Asylum, Dorchester, Dorset.
1905. Brown, Harry Egerton, M.D., M.P.C., The Asylum, Pretoria, S. Africa.
1904. Brown, Josephine, M.B.Lond., St. Michel Cottages, Glencoe Road, Bushey,
Herts.
1893. Bruce, Lewis C., M.D.Edin., Druid Park, Murthly, N.B.
* Brushfield, Thomas N., M.D.St. And., The Cliff, Budleigh Salterton, Devon.
1896. Bubb, William, M.R.C.S., L.R.C.P.Lond., Second Assistant Medical
Officer, Worcester County Asylum, Powick, near Worcester.
1892. Bullen, Frederick St. John, M.R.C.S.Eng., 12, Pembroke Road, Clifton,
Bristol.
1904. Burrell, Arthur Ambrose, M.B., B.Ch., St. Edmundsbury, Lucan, Co.
Dublin.
1891. Caldecott, Charles, M.B., B.S.Lond., M.R.C.S., Medical Superintendent,
Earlwood Asylum, Redhill, Surrey.
1889. Calcott, James T., M.D., Medical Superintendent, Borough Asylum, New-
castle-on-Tyne.
1874. Cameron, John, M.D.Edin., Medical Superintendent, Argyll and Bute
Asylum, Lochgilphead.
1902. Campariele, Paul Clem, M.B., C.M.Ed., Junior Assistant Medical Officer,
County Asylum, Melton, Suffolk.
1894. Campbell, Alfred Walter, M.D.Edin., General Post Office, Sydney, New
South Wales.
1880. Campbell, Patrick E., M.B., C.M., Senior Assistant Medical Officer,
District Asylum, Caterham.
1897. Campbell, Robert Brown, M.B., C.M.Edin., Medical Superintendent,
Inverness District Asylum, Inverness.
1897. Cappe, Herbert Nelson, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical
Officer, Surrey County Asylum, Brookwood.
1905. Carre, Henry, L.R.C.P., L.M., Woodilee Asylum, Lenzie, Glasgow.
1891. Carswell, John, L.R.C.P.Edin., L.F.P.S.Glasg., Certifying Medical Officer,
Barony Parish, 5, Royal Crescent, Glasgow.
1896. Cashman, James P., M.B., B.Ch., B.A.O.Royal Univ. Irel., Assistant
Medical Officer, Cork District Asylum.
1902. Cassells, Alexander Henderson, M.B., Ch.B.Glasg., 34, Gay Street,
Glasgow.
1874. Cassidy, D. M., M.D., C.M.McGill Coll., Montreal, D.Sc. (Public Health)
Edin., F.R.C.S.Edin., Medical Superintendent, County Asylum,
Lancaster.
1888. Chambers, James, M.D., The Priory, Roehampton.
1865. Chapman, Thomas Algernon, M.D.Glas., L.R.C.S.Edin., Betula, Reigate.
1880. Christie, J. W. Stirling, L.R.C.P.Edin., Medical Superintendent, County
Asylum, Stafford.
1878. Clapham, Wm. Crochley S., M.D., M.R.C.P., The Five Gables, Mayfield,
Sussex.
1879. Clarke, Henry, M.D.Durh., L.R.C.P.Lond., H.M. Prison, Wakefield.

1905. Clarke, Henry Minchin, L.R.C.P.&S.I., L.M., West Riding Asylum, Wakefield.
1901. Cleland, William Lennox, M.B., B.Ch.Edin., Park Side, Adelaide, South Australia.
1862. Clouston, T. S., M.D.Edin., F.R.C.P.Edin., F.R.S.E., Physician Superintendent, Royal Asylum, Morningside, Edinburgh. (*Editor of Journal, 1873—1881.*) (PRESIDENT, 1888.)
1900. Coffey, Patrick, L.R.C.P.&S.I., District Asylum Limerick, Ireland.
1892. Cole, Robert Henry, M.D.Lond., M.R.C.P.Lond., Moorcroft, Hillingdon, Uxbridge.
1900. Cole, Sydney John, M.A., M.D., B.Ch.Oxon., Wilts County Asylum, Devizes.
1896. Coles, Richard Ambrose, M.B., La Plaiderie, St. Peter Port, Guernsey.
1903. Collins, Michael Abdy, M.B., B.S., M.R.C.S. & P.Lond., London County Asylum, Bexley, Kent.
1888. Cones, John A., M.R.C.S., 2, Portland Place, Kemp Town, Brighton.
1895. Conry, John, M.D.Aber., Fort Beaufort Asylum, South Africa.
1878. Cooke, Edward Marriott, M.D., M.R.C.S.Eng., Commissioner in Lunacy, 69, Onslow Square, S.W.
1899. Cooke, J. A., M.R.C.S., L.R.C.P., Medical Officer and Co-Licencee, Tue Brook Villa, near Liverpool.
1905. Cooper, K. D., 482-4, Falkland Road, Tardeo, Bombay, India.
1903. Cormac, Harry Dove, M.B., B.S.Madras, Wilts County Asylum, Devizes.
1891. Corner, Harry, M.D.Lond., M.R.C.S., L.R.C.P., M.P.C., 37, Harley Street, W.
1905. Cotter, James, L.R.C.P.&S.E., L.F.P.S.Glas., Down District Asylum, Downpatrick.
1897. Cotton, William, M.A., M.D.Edin., D.P.H.Cantab., 231, Gloucester Road, Bishopston, Bristol.
1893. Cowen, Thomas Philip, M.D., B.S.Lond., Assistant Medical Officer, County Asylum, Lancaster.
1884. Cox, L. F., M.R.C.S., Medical Superintendent, County Asylum, Denbigh.
1878. Craddock, F. H., M.A.Oxon., M.R.C.S.Eng., L.S.A., Medical Superintendent, County Asylum, Gloucester.
1893. Craig, Maurice, M.A., M.D., B.C.Cantab., M.R.C.P.Lond., Assistant Medical Officer, Bethlem Royal Hospital, Southwark.
1904. Crawford, William Thomson, M.B.Lond., M.R.C.S., L.R.C.P., East Sussex Asylum, Hellingly, Sussex.
1897. Cribb, Harry Gifford, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, London County Asylum, Cane Hill, Coulsdon, Surrey.
1898. Crookshank, F. G., M.D.Lond., M.R.C.S., L.R.C.P., 27, The Terrace, Barnes, S.W.
1904. Cross, Harold Robert, L.S.A., Storthes Hall Asylum, Kirkburton, near Huddersfield.
1894. Cullinan, Henry M., L.R.C.P.I., L.R.C.S.I., Senior Assistant Medical Officer, Richmond District Asylum, Dublin.
1904. Cullum, Sydney John, M.B., B.Ch.Dubl., Crichton Royal Institution, Dumfries.
1905. Cummins, Edmund Joseph, L.R.C.P.&S.Edin., Kingsdown House, Box, Wilts.
1902. Curran, Michael, M.A., M.B., B.Ch., R.U.I., 35, Harcourt Street, Dublin
1905. Darbyshire, Harold Stewart C., M.R.C.S.Eng., L.R.C.P.Lond., Nottingham City Asylum, Mapperley, Nottingham.
1899. Daunt, Elliot, M.R.C.S., L.R.C.P., D.P.H., The Glen, Bursledon, Hampshire.

1896. Davidson, Andrew, M.D., C.M.Aber., Callan Park, Sydney, N.S.W.
1905. Davidson, George Adam, M.A., M.B., Ch.B.Edin., Somerset and Bath Asylum, Cotford, Taunton.
1891. Davis, Arthur N., L.R.C.P., L.R.C.S.Edin., Medical Superintendent, County Asylum, Exminster, Devon.
1894. Dawson, William R., M.D., B.Ch.Dubl., F.R.C.P.I., Medical Superintendent, Farnham House Asylum, Finglas, Dublin.
1869. Deas, Peter Maury, M.B. and M.S.Lond., Medical Superintendent, Wonford House, Exeter.
1900. Despard, Rosina C., M.D.Lond., The Dell, Colden Common, Winchester.
1883. De Lisle, Samuel Ernest, L.R.C.P., L.R.C.S.I., Three Counties Asylum, Stotfold, Herts.
1901. De Steiger, Adèle, M.B.Lond., County Asylum, Brentwood, Essex.
1905. Devine, Henry, M.B., B.S., M.R.C.S., L.R.C.P.Lond., London County Asylum, Cane Hill, Coulsdon, Surrey.
1904. Devon, James, L.R.C.P. & S.Edin., 6, Cathedral Square, Glasgow.
1876. Dickson, F. K., F.R.C.P.Edin., Wye House Lunatic Asylum, Buxton, Derbyshire.
1903. Dickson, Thomas Graeme, L.R.C.P. & S.Edin., Assistant Superintendent, Wye House, Buxton.
1905. Dixon, J. Francis, M.D., B.Ch., B.A.O., B.A.Dubl., Three Counties Asylum, Arlesley, Hitchin.
1879. Dodds, William J., M.D., D.Sc.Edin., Valkenburg, Mowbray, near Cape Town, South Africa.
1886. Donaldson, Robert Lockhart, B.A., M.D., B.Ch.Univ. of Dubl., M.P.C., Senior Medical Officer, District Asylum, Monaghan.
1889. Donaldson, William Ireland, B.A., M.D., B.Ch.Univ. of Dubl., Medical Superintendent, County of London Manor Asylum, Epsom, Surrey.
1892. Donelan, John O'Connor, L.R.C.P.I., L.R.C.S.I., M.P.C., Deputy Superintendent, Portrane Asylum, Donabate, co. Dublin.
1899. Donelan, Thomas O'Connor, L.R.C.P. & L.R.C.S.I., Middlesex County Asylum, Napsbury, near St. Albans, Herts.
1890. Douglas, William, M.D. Queen's Univ. Irel., M.R.C.S.Eng., Brandford, Goudhurst.
1905. Dove, Augustus Charles, M.D.Durh., M.B., B.S., "Brightside," Crouch End Hill, N.
1897. Dove, Emily Louisa, M.B.Lond., The School, Durham.
1903. Dow, William Alex., M.D.Durh., M.R.C.S.&P.Lond., H.M. Prison, Lewes.
1905. Drake-Brockman, Henry George, M.R.C.S., L.R.C.P., Middlesborough Asylum, Cleveland, Yorks.
1884. Drapes, Thomas, M.B., Medical Superintendent, District Asylum, Ennis-corthy, Ireland.
1905. Drew, Charles Milligan, M.A., M.B., Ch.B.Glas., Stirling District Asylum, Larbert, N.B.
1902. Dudgeon, Herbert Wm., M.D.Durh., M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer to the Egyptian Asylum, Ahsassié, Cairo, Egypt.
1899. Dudley, Francis, L.R.C.P.&S.I., Senior Assistant Medical Officer, County Asylum, Bodmin, Cornwall.
1905. Dunlop, James Craufurd, M.D.Edin., L.R.C.P.Edin., M.R.C.S.E., Superintendent of Statistical Department, H.M. General Registry of Births, Marriages, and Deaths, Scotland, 33, Chester Street, Edinburgh.
1903. Dunston, John Thomas, M.D., B.S.Lond., The Asylum, Pretoria.
1899. Eades, Albert I., L.R.C.P. & S.I., North Riding Asylum, Clifton, Yorks.
1903. Eady, George John, M.D., M.R.C.P.Edin., M.R.C.S.Eng., 78, Drayton Gardens, S. Kensington, S.W.

1874. Eager, Reginald, M.D.Lond., M.R.C.S.Eng., Northwoods, near Bristol.
1873. Eager, Wilson, L.R.C.P.Lond., M.R.C.S.Eng., Northwoods, Winterbourne, Bristol.
1881. Earle, Leslie, M.D.Edin., 108, Gloucester Terrace, Hyde Park, W.
1891. Earle, James Henry, M.D., M.Ch., 104, Donore Road, South Circular Road, Dublin.
1903. East, Guy Rowland, M.B.Durh., Northumberland County Asylum, Morpeth.
1895. Easterbrook, Charles C., M.A., M.D., M.R.C.P.Ed., Medical Superintendent, Ayr District Asylum, Glengall, Ayr, N.B.
1904. Edison, John Edwin, M.D.Ed., 6, Park Square, Leeds.
1895. Edgerley, Samuel, M.D., M.A., C.M.Edin., Assistant Medical Officer, West Riding Asylum, Menston, nr. Leeds.
1900. Edridge-Green, Frederic W., M.D., F.R.C.S., Hendon Grove, Hendon.
1897. Edwards, Francis Henry, M.D.Bru.x., M.R.C.P.Lond., Medical Superintendent, Cumberwell House, S.E.
1901. Elgee, Samuel Charles, L.R.C.P., L.R.C.S.I., Horton Manor Asylum, Epsom, Surrey.
1889. Elkins, Frank Ashby, M.D., Medical Superintendent, Metropolitan Asylum, Leavesden.
1898. Ellerton, Henry B., M.R.C.S., L.R.C.P., Leavesden Asylum, King's Langley R.S.O., Herts.
1873. Elliot, G. Stanley, M.R.C.P.Edin., F.R.C.S.Edin., 31, Belvedere Road, Upper Norwood, S.E.
1890. Ellis, William Gilmore, M.D.Bru.x., Superintendent, Government Asylum, Singapore.
1899. Ellison, F. C., M.D., B.Ch., T.C.D., Assistant Medical Officer, District Asylum, Castlebar.
1901. Erskine, Wm. J. A., M.D., C.M., Senior Assistant Medical Officer, City Asylum, Nottingham.
1895. Eurich, Frederick Wilhelm, M.D., C.M.Edin., 7, Lindum Terrace, Manningham, Bradford, Yorks.
1894. Eustace, Henry Marcus, M.D., B.Ch., B.A.T.C.D. Assistant Physician, Hampstead and Highfield Private Asylum, Glasnevin, Dublin.
1901. Evans, James Wm., M.R.C.S., L.S.A., Lieut.-Col. Indian Medical Service (retired), East India United Service Club, 16, St. James's Square, S.W.
1897. Everett, William, M.D., Assistant Medical Officer, County Asylum, Chart-ham Downs, Kent.
1891. Ewan, John Alfred, M.A., M.D., Medical Superintendent, Kesteven County Asylum, Sleaford, Lincs.
1884. Ewart, C. T., M.D., C.M.Aberd., Claybury Asylum, Woodford Bridge, Essex.
1894. Farquharson, William F., M.D.Edin., Medical Superintendent, Counties Asylum, Garlands, Carlisle.
1901. Fee, Wm. George, L.R.C.P. and L.R.C.S.Edin., Assistant Medical Officer, Brooke House, Upper Clapton, N.E.
1903. Fennell, Charles Henry, M.A., M.D.Oxon, M.R.C.P.Lond., Assistant Medical Officer, East Sussex Asylum, Hellingly, Sussex.
1905. Ferris, William, M.D., B.S.Lond., Middlesex County Asylum, Tooting, S.W.
1897. Fielding, James, M.D., Victoria Univ., Canada, M.R.C.S.Eng., L.R.C.P. Edin., Medical Superintendent, Bethel Hospital, Norwich.
1873. Finch, John E. M., M.D., Medical Superintendent, Borough Asylum, Leicester.
1889. Finch, Richard T., B.A., M.B.Cantab., Resident Medical Officer, Fisherton House Asylum, Salisbury.
1867. Finch, W. Corbin, M.R.C.S.Eng., Fisherton House, Salisbury.

1882. Finegan, A. D. O'Connell, L.R.C.P.I., Medical Superintendent, District Asylum, Mullingar, Ireland. (*Hon. Secretary for Ireland.*)
1889. Finlay, David, M.D.Glasg., County Asylum, Bridgend, Glamorgan.
1903. Fitzgerald, Alexis, L.R.C.P. & S.I., L.M., District Asylum, Waterford.
1894. Fitzgerald, Charles E., M.D., F.R.C.S.I., Surgeon-Oculist to the King in Ireland, 27, Upper Merrion Street, Dublin.
1888. Fitz-Gerald, G. C., M.D., B.C.Cantab., M.P.C., Medical Superintendent, Kent County Asylum, Chartham, nr. Canterbury.
1899. Fitzgerald, James J., M.D., B.Ch., B.A.O.R.U.I., Assistant Medical Officer, Cork District Asylum, Carlow.
1901. Fitzgerald, John J., M.D.Bru.x., L.R.C.P.&S.Edin., Assistant Medical Officer, District Asylum, Cork.
1904. Fleming, Wilfrid Louis Remi, M.R.C.S., L.R.C.P., Suffolk House, Pirbright, Surrey.
1899. Flemming, Arthur L., M.R.C.S.Eng., L.R.C.P.Lond., 34, Alma Road, Clifton, Bristol.
1894. Fleury, Eleonora Lilian, M.D., B.Ch., R.U.I., Assistant Medical Officer, Richmond Asylum, Dublin.
1902. Forde, Michael J., M.D., M.Ch., R.U.I., Assistant Medical Officer, Richmond Asylum, Donabate, Dublin.
1902. Forster, Hermann Julius, L.R.C.P.I., L.S.A., Assistant Medical Officer, Sussex County Asylum, Hayward's Heath.
1861. Fox, Charles H., M.D.St. And., M.R.C.S.Eng., 35, Heriot Row, Edinburgh.
1896. France, Eric, M.B., B.S.Durh., No. 7, First Floor, 6, Church Square, Cape Town, South Africa.
1881. Fraser, Donald, M.D., 3, Orr Square, Paisley.
1901. French, Louis Alexander, M.R.C.S., L.R.C.P., Love Lane, Wakefield, Yorks.
1902. Fuller, Lawrence Otway, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Darenth Asylum, Dartford, Kent.
1904. Garden, W. Sim, M.B., County Asylum, Upton, near Chester.
1893. Garth, Henry C., M.B., C.M.Edin., 4, Harrington Street, Calcutta, India.
1890. Gaudin, Francis Neel, M.R.C.S., L.S.A., M.P.C., Medical Superintendent, The Grove, St. Lawrence, Jersey.
1885. Gayton, Francis C., M.D., Brookwood Asylum, Woking, Surrey.
1896. Geddes, John W., M.B., C.M.Edin., Medical Superintendent, County Borough Asylum, Middlesborough, Yorks, Berwick Lodge, near Middlesborough, Yorks.
1892. Gemmel, James Francis, M.B.Glasg., Assistant Medical Officer, County Asylum, Whittingham, Preston.
1904. Gibb, James Alex., M.B., Ch.B., Dorset County Asylum, Dorchester.
1889. Gibbon, William, L.R.C.P.I., L.F.P.S.Glasg., Senior Assistant Medical Officer, Joint Counties Asylum, Carmarthen.
1899. Gilfillan, Samuel James, M.A., M.B.Edin., London County Asylum, Coulsdon, Surrey.
1898. Gill, Frank A., M.D., C.M.Aber., Brockhall, Whalley, Lancs.
1889. Gill, Stanley, B.A., M.D., M.R.C.P.Lond., Shaftesbury House, Formby, Lancashire.
1904. Gillespie, Daniel, M.B. (R.U.I.), Wadsley Asylum, near Sheffield.
1897. Gilmour, John Rutherford, M.B., F.R.C.P.Edin., West Riding Asylum, Scalebor Park, Burley-in-Wharfedale, Yorks.
1878. Glendinning, James, M.D.Glasg., L.R.C.S.Edin., L.M., Medical Superintendent, Joint Counties Asylum, Abergavenny.

1898. Goldie-Scot, Thomas G., M.B., C.M.Edin., M.R.C.S., L.R.C.P., Junior Assistant Physician, Royal Asylum, Gartnavel, Glasgow.
1897. Good, Thomas Saxty, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, County Asylum, Littlemore, Oxford.
1889. Goodall, Edwin, M.D., B.S.Lond., M.P.C., Medical Superintendent, Joint Counties Asylum, Carmarthen.
1899. Gordon, James Leslie, M.B., Ch.B., Tooting Bec Asylum, Tooting, London, S.W.
- * Gordon, William S., M.A., M.B., T.C.D., District Asylum, Mullingar.
1905. Gordon-Munn, John Gordon, M.D., F.R.S.E., Heigham Hall, Norwich.
1901. Gostwyck, C. H. G., M.B., Ch.B., Scalebor Park, Burley-in-Wharfedale.
1899. Graham, Robert A. L., B.A., M.B., B.Ch., R.U.I., Assistant Medical Officer, District Asylum, Belfast.
1894. Graham, Samuel, L.R.C.P.Lond., Assistant Medical Officer, District Asylum, Antrim.
1888. Graham, Thomas, M.D.Glasg., 3, Garthland Place, Paisley.
1887. Graham, William, M.D., R.U.I., Medical Superintendent, District Lunatic Asylum, Belfast.
1904. Grant, Angus John, M.D, B.Sc., L.R.C.P.E., Ennerdale, Haddington, N.B.
1902. Green, Philip A. M., M.R.C.S., L.R.C.P., London Hospital, E.
1896. Greene, Thomas Adrian, L.R.C.P., L.R.C.S., Assistant Medical Officer, District Asylum, Ennis, Ireland.
1886. Greenlees, T. Duncan, M.D., Medical Superintendent to the Grahams-town Asylum, Cape of Good Hope.
1904. Griffin, Ernest Harrison, B.A.Cantab., L.S.A.Lond., Camberwell House, Peckham Road, S.E.
1901. Grills, Galbraith Hamilton, M.D., B.Ch., Assistant Medical Officer, County Asylum, Chester.
1900. Grove, Ernest George, M.R.C.S., L.R.C.P., Bootham Park, York.
1894. Gwynn, Charles Henry, M.D.Edin., co-Licentee, St. Mary's House, Whitchurch, Salop.
1879. Gwynn, Samuel T., M.D., St. Mary's House, Whitchurch, Salop.
1905. Hallett, H. G., M.R.C.S., L.R.C.P.Lond., Darenth Asylum, Dartford, Kent.
1894. Halstead, Harold Cecil, M.D.Durh., Assistant Medical Officer, Peckham House, Peckham.
1903. Hanbury, Langton Fuller, M.R.C.S.Eng., L.R.C.P.Lond., West Ham Borough Asylum, Ilford, Essex.
1902. Hanbury, Saville Waldron, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, London County Asylum, Banstead, Surrey.
1896. Hanbury, William Reader, M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, West Ham Borough Asylum, Goodmayes, Ilford.
1903. Hankin, Chella Mary, M.B.Durh., Northumberland County Asylum, Morpeth.
1901. Hannay, Mary Baird, M.B., C.M., Gartloch Asylum, Gartcosh, Glasgow, N.B.
1901. Harding, William, M.D., M.R.C.P.Lond., Medical Superintendent, Northampton County Asylum, Berry Wood, Northampton.
1899. Harmer, W. A., L.S.A., Resident Superintendent and Licentee, Redlands Private Asylum, Tonbridge, Kent.
1904. Harper-Smith, George Hastie, M.R.C.S., L.R.C.P., B.A.Cantab., Clay-bury Asylum, Woodford Bridge, Essex.
1897. Harris, William, M.D.St. And., F.R.C.S.Edin., M.R.C.P.Edin., Medical Superintendent, City Asylum, Helledon, Norwich.

1898. Harris-Liston, L., M.D., M.R.C.S., L.R.C.P.Lond., L.S.A., Middleton Hall, Middleton St. George, Co. Durham.
1905. Hart, Bernard, M.B.Lond., M.R.C.S.Eng., Herts County Asylum, Hill End, St. Albans, Herts.
1886. Harvey, Bagenal Crosbie, L.R.C.P., L.R.C.S., Assistant Medical Officer, District Asylum, Clonmel.
1892. Haslett, William John, M.R.C.S., L.R.C.P., Resident Medical Superintendent, Halliford House, Sunbury-on-Thames.
1891. Havelock, John G., M.D., C.M.Edin., Physician Superintendent, Montrose Royal Asylum.
1890. Hay, Frank, M.B., C.M., Physician Superintendent, Ashburn Hall Asylum Dunedin, New Zealand.
1900. Haynes, Horace E., M.R.C.S., L.S.A., 32, Brunswick Terrace, Hove, Sussex.
1895. Hearder, Frederic P., M.D., C.M., Medical Superintendent, Yorkshire Inebriate Reformatory. Cattal, Whixley, near York.
1905. Hector, George W. K., M.D., L.R.C.P.&S., East Riding Asylum, Beverley.
1903. Heffernan, Patrick, M.B., B.Ch., B.A.O., R.U.I., District Asylum, Clonmel, co. Tipperary.
1905. Henderson, George, M.A., M.B., Medical Superintendent, Fisherton House, Salisbury.
1885. Henley, E. W., M.R.C.S., L.R.C.P., County Asylum, Barnwood, Gloucester.
1899. Herbert, William W., M.D., C.M.Edin., North Wales Counties Asylum, Denbigh, North Wales.
1877. Hetherington, Charles E., M.B., Medical Superintendent, District Asylum, Londonderry, Ireland.
1903. Hewitt, David Walker, M.B., B.Ch., R.U.I., Surgeon R.N.
1877. Hewson, R. W., L.R.C.P.Edin., Medical Superintendent, Coton Hill, Stafford.
1902. Higginson, John Wigmore, M.R.C.S., L.R.C.P., Resident Medical Officer, Hayes Park Asylum, Hayes Park, Middlesex.
1882. Hill, H. Gardiner, M.R.C.S., Medical Superintendent, Middlesex County Asylum, Tooting.
1900. Hill, J. R., M.R.C.S., L.R.C.P., Fenstanton, Christchurch Road, Streatham Hill, S.W.
1905. Hines, Arthur, M.B., County Asylum, Stafford.
1871. Hingston, J. Tregelles, M.R.C.S.Eng., Clifton, Kings Norton.
1881. Hitchcock, Charles Knight, M.D., Bootham Asylum, York.
1900. Holländer, Bernard, M.D., M.R.C.S., L.R.C.P., 62, Queen Anne Street, London, W.
1903. Hopkins, Charles Leighton, M.B., B.C.Cantab., Assistant Medical Officer, Kent County Asylum, Barming Heath, Maidstone.
1894. Hotchkiss, Robert D., M.A., M.D., Assistant Physician, Royal Asylum, Glasgow.
1900. Hughes, George Osborne, M.D. Virginia, M.R.C.S., L.R.C.P., 22, Overstrand Mansions, Prince of Wales' Road, S.W.
1900. Hughes, Percy T., M.B., Ch.M.Edin., London County Asylum, Bexley, Kent.
1904. Hughes, William Stanley, M.R.C.S., L.R.C.P., Claybury Asylum, Woodford Bridge, Essex.
1857. Humphry, John, M.R.C.S.Eng., Medical Superintendent, County Asylum, Stone, near Aylesbury, Bucks.
1897. Hunter, David, M.A., M.B., B.C.Cantab., West Ham Borough Asylum, Goodmayes, Ilford, Essex.
1904. Hunter, Percy Douglas, M.R.C.S., L.R.C.P.Lond., Durham County Asylum, Winterton, Ferryhill.

1905. Hutchinson, Joseph Armstrong, M.D., M.S.Durh., Northallerton, Yorkshire.
1882. Hyslop, James, D.S.O., M.D., Natal Government Asylum, Pietermaritzburg.
1888. Hyslop, Theo. B., M.D., C.M.Edin., M.R.C.P.E., M.P.C., Bethlem Royal Hospital, S.E.
1871. Ireland, William W., M.D.Edin., 1, Victoria Terrace, Musselburgh, N.B.
1904. Izard, Herbert Edward, M.R.C.S., L.R.C.P., Woodland View, Walton Dale, Preston, Lancs.
1905. Jackson, Arthur Molyneux, M.D.Oxon., Medical Superintendent, Notts County Asylum, Radcliffe-on-Trent.
1866. Jackson, J. Hughlings, M.D.St. And., F.R.C.P.Lond., F.R.S., Physician to the Hospital for Epilepsy and Paralysis, &c., 3, Manchester Square, London, W.
1904. Jeremy, Harold Rowe, M.R.C.S.Eng., L.R.C.P.Lond., 60, Friern Road, East Dulwich, S.E.
1905. Johnson, Smeeton, M.B.Lond., L.R.C.P., M.R.C.S., Rainhill Asylum, near Liverpool.
1893. Johnston, Gerald Herbert, L.R.C.S. and L.R.C.P.Edin., Beech Lawn, Belper, Derbyshire.
1905. Johnston, Thomas Leonard, L.R.C.P.&S.Edin., L.F.P.S.Glas., Bracebridge Asylum, Lincoln.
1905. Johnstone, George A., M.B., Ch.B.Aberd., Montrose Royal Lunatic Asylum.
1878. Johnstone, J. Carlyle, M.D., C.M., Medical Superintendent, Roxburgh District Asylum, Melrose.
1903. Johnstone, Thomas, M.D.Edin., M.R.C.P.Lond., Annandale, Ilkley, Yorks.
1880. Jones, D. Johnson, M.D.Edin., Medical Superintendent, Banstead Asylum, Surrey.
1866. Jones, Evan, M.R.C.S.Eng., Ty-mawr, Aberdare, Glamorganshire.
1882. Jones, Robert, M.D.Lond., B.S., F.R.C.S., Medical Superintendent, London County Asylum, Claybury, Woodford, Essex. (*Gen. Secretary from 1897.*)
1897. Jones, Samuel Lloyd, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, London County Asylum, Colney Hatch, N.
1898. Jones, W. Ernest, M.R.C.S.Eng., L.R.C.P.Lond., The Old Treasury Buildings, Spring Street, Melbourne.
1879. Kay, Walter S., M.D., Medical Superintendent, South Yorkshire Asylum, Wadsley, near Sheffield.
1886. Keay, John, M.D., Bangour Village, Uphall, Linlithgowshire.
1899. Keegan, Lawrence Edward, M.D., Medical Superintendent, Lunatic Asylum, St. John's, Newfoundland.
1902. Kelley-Patterson, Wm., M.D., M.Ch., R.U.I., Bally-Emond, Killowen, Dublin.
1898. Kemp, Norah, M.B., C.M.Glas., The Retreat, York.
1899. Kennedy, Hugh T. J., L.R.C.P.&S.I., L.M., Assistant Medical Officer, District Asylum, Enniscorthy, Wexford.
1902. Kennedy, Patrick Gabriel, L.R.C.P.&S.Edin., L.F.P.S.Glasg., Assistant Medical Officer, London County Asylum, Banstead, Surrey.
1897. Kerr, Hugh, M.A., M.D.Glasg., Assistant Medical Officer, Bucks County Asylum, Stone, Aylesbury, Bucks.
1902. Kerr, Neil Thomson, M.B., C.M.Ed., Medical Superintendent, Lanark District Asylum, Hartwood, Shotts, N.B.
1893. Kershaw, Herbert Warren, M.R.C.S.Eng., L.R.C.P.Lond., Dinsdale Park, near Darlington.
1897. Kidd, Harold Andrew, M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, West Sussex Asylum, Chichester.
1903. King, Frank Raymond, B.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Northumberland House, Finsbury Park, N

- 1897 Kingdon, Wilfred Robert, M.B., B.S.Durh., 55, Haverstock Hill, London, N.W.
1905. Kingsbury, William Neave, M.R.C.S., L.R.C.P., Middlesex County Asylum, Tooting, S.W.
1903. Kingsford, Arthur Beresford, M.R.C.S., L.R.C.P.Lond., D.P.H.Camb., 19, Upper George Street, Bryanston Square, W.
1902. King-Turner, A. C., M.B., C.M.Edin., The Retreat, Fairford, Gloucestershire.
1899. Kirwan, James St. L., M.B., Ch.B., T.C.D., Medical Superintendent, District Asylum, Ballinasloe, Ireland.
1903. Kough, Edward Fitzadam, M.B., B.Ch., County Asylum, Gloucester.
1898. Labey, Julius, M.R.C.S., Medical Superintendent, Public Asylum, Jersey.
1902. Langdon-Down, Percival L., M.A., M.B., B.C.Cantab., Dixland, Hampton Wick, Middlesex.
1896. Langdon-Down, Reginald L., M.A., M.B., B.C.Cantab., M.R.C.P.Lond., Normansfield, Hampton Wick.
1902. Laval, Evariste, M.B., C.M.Edin., Brislington House Asylum, near Bristol.
1898. Lavers, Norman, M.D., M.R.C.S., Medical Superintendent, The Asylum, Canterbury.
1899. Law, Charles D., L.R.C.P.&S.Edin., L.F.P.G.S., Crichton Royal Institute, Dumfries.
1892. Lawless, George Robert, F.R.C.S.I., Medical Superintendent, District Asylum, Armagh.
1870. Lawrence, Alexander, M.A., M.D., County Asylum, Upton, Chester.
1905. Lawson, William Wilfred James, M.B.Aberd., Ch.B., Berks County Asylum, Wallingford.
1883. Layton, Henry A., M.R.C.S.Eng., L.R.C.P.Edin., Cornwall County Asylum, Bodmin.
1899. Leeper, Richard R., F.R.C.S.I., Medical Superintendent, St. Patrick's Hospital, Dublin.
1905. Le Fann, Hugh, M.B., C.M.Aber., County Asylum, Prestwich, Manchester.
1883. Legge, Richard J., M.D., Medical Superintendent, County Asylum, Derby.
1894. Lentagne, John, B.A., F.R.C.S.I., Medical Visitor of Lunatics to the Court of Chancery, 5, Upper Merrion Street, Dublin.
1899. Lewis, H. Wolseley, M.D.Brux., F.R.C.S.Eng., Medical Superintendent, Kent County Asylum, Barming Heath, Maidstone.
1879. Lewis, William Bevan, M.R.C.S., L.R.C.P., West Riding Asylum, Wakefield.
1863. Ley, H. Rooke, M.R.C.S.Eng., 2, Lowther Terrace, Lytham, Lancs.
1859. Lindsay, James Murray, M.D.St.And., F.R.C.S. and F.R.C.P.Edin. Melbourne House, 53, Victoria Road, Aldershot. (PRESIDENT, 1893.)
1903. Logan, Thomas Stratford, L.R.C.P. & S.Edin., L.F.P.S.Glas., Epileptic Colony, Ewell.
1899. Longworth, Stephen G., L.R.C.P. L.R.C.S.I., County Asylum, Melton, Suffolk.
1898. Lord, John R., M.B., C.M., Heath Asylum, Bexley, Kent.
1904. Lyall, C. H. Gibson, L.R.C.P. & S.Edin., Cumberland and Westmoreland Asylum, Garlands, Carlisle.
1872. Lyle, Thomas, M.D.Glasg., 34, Jesmond Road, Newcastle-on-Tyne.
1899. Macartney, William H. C., L.R.C.P.&S.I., Riverhead House, Sevenoaks.
1880. MacBryan, Henry C., L.R.C.P. & S. Edin., Kingsdown House, Box, Wilts.

1902. McCarthy, Owen F., L.R.C.P.&S.I., District Lunatic Asylum, Cork, Ireland.
1900. McClintock, John, L.R.C.P. & L.R.C.S.Edin., Resident Medical Superintendent, Grove House, Church Stretton, Salop.
1900. McConaghey, John C., M.B., C.M.Edin., Parkside Asylum, Macclesfield, Cheshire.
1886. McCreery, James Vernon, L.R.C.S.I., Medical Superintendent, Hospital for Insane, Kew, Victoria.
1897. McCutchan, William Arthur, L.R.C.P.&S.Edin., Assistant Medical Officer, Cambridge County Asylum, Fulbourn, Cambs.
1901. Macdonald, James H., M.B., Ch.B.Glasg., Govan District Asylum, Hawkhead, Paisley, N.B.
1884. MacDonald, Peter W., M.D., C.M., Medical Superintendent, County Asylum, Herrison, Dorchester, Dorset. (*Hon. Sec. S.W. Division 1894 to 1905.*)
1905. MacDonald, William Fraser, M.B., Ch.B.Edin., Somerset and Bath Asylum, Cotford, Taunton.
1905. McDougall, Alan, M.D.Vict., M.R.C.S., L.R.C.P.Lond., The David Lewis Colony, Sandle Bridge, near Alderley Edge, Cheshire.
1876. McDowall, John Greig, M.D.Edin., Medical Superintendent, West Riding Asylum, Menston, near Leeds.
1870. McDowall, Thomas W., M.D.Edin., L.R.C.S., Medical Superintendent, Northumberland County Asylum, Morpeth. (*PRESIDENT, 1897.*)
1893. Macevoy, Henry John, M.D., B.Sc.Lond., M.P.C., 41, Buckley Road, Brondesbury, London, N.W.
1895. Macfarlane, Neil M., M.D.Aber., Medical Superintendent, Government Hospital, Thlotse Heights, Leribe, Basutoland, South Africa.
1883. Macfarlane, W. H., M.B. and Ch.B.Univ. of Melbourne, Medical Superintendent, Hospital for the Insane, New Norfolk, Tasmania.
1902. McGregor, John, M.B., Ch.B.Edin., Assistant Medical Officer, County Asylum, Bridgend, Glam.
1905. MacIlraith, W. Maclaren, L.R.C.P.E., L.F.P.S.Glasg., North Riding Infirmary, Middlesborough.
1899. McKelvey, Alexander Niel, L.&M.P.C.P.&S.I., The Asylum, Auckland, New Zealand.
1891. Mackenzie, Henry J., M.B., C.M.Edin., M.P.C., Assistant Medical Officer, The Retreat, York.
1903. Mackenzie, Theodore Charles, M.B., Ch.B.Edin., Royal Edinburgh Asylum, Morningside.
1899. Mackeown, William John, A.B., M.B., B.A., O.R.U.I., A.M.O., County Asylum, Fareham, Hants.
1873. Macleod, Murdoch D., M.B., Medical Superintendent, East Riding Asylum, Beverley, Yorks.
1901. Macleod, Neil, M.D., C.M.Edin., H.B.M. Consular Surgeon and Surgeon to the General Hospital, Shanghai, China, c/o A. and N. Stores, Victoria Street, and 12, Whangpoo Road, Shanghai.
1904. Macnamara, Eric Danvers, 45, Campden House Road, Kensington, W.
1898. Macnaughton, George W. F., M.D., 33, Lower Belgrave Street, Eaton Square, London, S.W.
1882. McNaughton, John, M.D., Medical Superintendent, Criminal Lunatic Asylum, Perth.
1882. Macphail, S. Rutherford, M.D.Edin., Derby Borough Asylum, Rowditch, Derby.
1896. Macpherson, Charles, M.D.Glas., Deputy Commissioner in Lunacy, 51, Queen Street, Edinburgh.
1886. Macpherson, John, M.D., F.R.C.P., 8, Darnaway Street, Edinburgh.
1901. McRae, G. Douglas, M.B., C.M.Edin., Assistant Physician, Royal Asylum, Morningside, Edinburgh.
1902. Macrae, Kenneth Duncan Cameron, M.B., Ch.B.Edin., Lynwood, Murrayfield, Edinburgh.
1894. McWilliam, Alexander, M.A., M.B., C.M.Aber., Medical Superintendent, Heigham Hall, Norwich.

1904. Manning, Ernest J., M.R.C.S., L.R.C.P.Lond., Broadmoor Asylum, Crowthorne, Berks.
1865. Manning, Henry J., B.A.Lond., M.R.C.S., Laverstock House, Salisbury.
1900. Manning, Herbert C., M.R.C.S., L.R.C.P., Powick Asylum, Worcester.
1903. Marnan, John, M.B., B.Ch., Assistant Medical Officer, City and County Asylum, Bristol.
1896. Marr, Hamilton C., M.D.Glasg.Univ., Medical Superintendent, Woodilee Asylum, Lenzie.
1897. Marshall, John, M.B., C.M.Glasg., 2, Dean Terrace, Bo'ness, N.B.
1905. Marshall, Robert Macnab, M.B., Ch.B., Woodilee Asylum, Lenzie, Glasgow.
1896. Martin, James Charles, L.R.C.S.I., L.M., L.R.C.P., Assistant Medical Officer, District Asylum, Donegal.
1904. May, George Francis, M.D., C.M. (McGill), L.S.A., Winterton Asylum, Ferryhill, Durham.
1890. Menzies, William F., M.D., B.Sc.Edin., Medical Superintendent, Stafford County Asylum, Cheddleton, near Leek.
1891. Mercier, Charles A., M.B.Lond., F.R.C.S.Eng., Lecturer on Insanity, Westminster Hospital; Flower House, Catford, S.E.
1877. Merson, John, M.A., M.D.Aber., Medical Superintendent, Borough Asylum, Hull.
1871. Mickle, William Julius, M.D., F.R.C.P.Lond., Medical Superintendent, Grove Hall Asylum, Bow, London. (PRESIDENT, 1896.)
1893. Middlemass, James, M.D., F.R.C.P., C.M., B.Sc.Edin., Borough Asylum, Ryhope, Sunderland.
1898. Middlemist, George Edwyn, M.B., Keelby, Brocklesby, Lincs.
1883. Miles, George E., M.R.C.P., &c., Medical Superintendent, Hospital for the Insane, Rydalmere, New South Wales.
1887. Miller, Alfred, M.B. and B.C.Dubl., Medical Superintendent, Hattor Asylum, Warwick.
1904. Miller, James Webster, Warneford Asylum, Oxford.
1898. Mills, John, M.B., B.Ch., and Diploma in Mental Diseases, R.U.I., District Asylum, Ballinasloe, Ireland.
1881. Mitchell, Richard B., M.D., Medical Supt., Midlothian District Asylum.
1885. Molony, John, F.R.C.P.I., J.P., Forkhill House, Forkhill, Dundalk.
1878. Moody, James M., M.R.C.S.Eng., L.R.C.P.&L.M.Edin., Medical Superintendent, County Asylum, Cane Hill, Coulsdon, Surrey.
1885. Moore, Edw. E., M.D.Dubl., M.P.C., Medical Superintendent, District Asylum, Letterkenny, Ireland.
1899. Moore, Wm. D., M.D., M.Ch., Medical Superintendent, Holloway Sanatorium, Virginia Water, Surrey.
1892. Morrison, Cuthbert S., L.R.C.P. and L.R.C.S.Edin., Medical Superintendent, County and City Asylum, Burghill, Hereford.
1896. Morton, W. B., M.D.Lond., Assistant Medical Officer, Brislington House, Bristol.
1896. Mott, F. W., M.D., B.Sc., B.S., F.R.C.P.Lond., F.R.S., 25, Nottingham Place, London, W.
1896. Mould, Gilbert E., M.B.C.S., L.R.C.P.Lond., The Grange, Rotherham, Yorks.
1862. Mould, George W., M.R.C.S.Eng., Cornist Hall, Flint, N. Wales. (PRESIDENT, 1880.)
1897. Mould, Philip G., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Royal Lunatic Hospital, Cheadle, Manchester.
1897. Mumby, Bonner Harris, M.D.Aber., D.P.H.Cantab., Medical Superintendent, Borough Asylum, Portsmouth.

1898. Murdoch, James William Aitken, M.B., C.M.Glasg., Medical Superintendent, Berks County Asylum, Wallingford.
1900. Murphy, Jerome J., M.R.C.S., L.R.C.P.Lond., Banstead Asylum, Sutton, Surrey.
1878. Murray, Henry G., L.R.C.P.I., L.M., L.R.C.S.I., Assistant Medical Officer, Prestwich Asylum, Manchester.
1905. Murrell, Christine Mary, M.D.Lond., B.S., Royal Free Hospital, 86, Porchester Terrace, Hyde Park, W.
1904. Nash, Arthur Charles, M.R.C.S., L.R.C.P.Lond., County Asylum, Mickleover, Derby.
1903. Navarra, Norman, M.R.C.S., L.R.C.P., City of London Asylum, Stone, Dartford.
1880. Neil, James, M.D., M.P.C., Medical Superintendent, Warneford Asylum, Oxford.
1903. Nelis, William F., M.D., Monmouthshire Asylum, Abergavenny.
1875. Newington, Alexander, M.B.Camb., M.R.C.S.Eng., Woodlands, Ticehurst.
1873. Newington, H. Hayes, F.R.C.P.Edin., M.R.C.S.Eng., The Gables, Ticehurst, Sussex. (PRESIDENT, 1889.) (*Treasurer.*)
1881. Newth, Alfred H., M.D., Ardin House, Haywards Heath, Sussex.
1904. Nicholl, Robert Campbell, L.R.C.P. & S.I., Hatton Asylum, nr. Warwick.
1869. Nicolson, David, C.B., M.D., C.M.Aber., M.R.C.P.Edin., F.S.A.Scot., Balgownie, Edgeborough Road, Guildford. (PRESIDENT, 1895.)
1899. Nixon, John C., M.B., West Riding Asylum, Menston, nr. Leeds.
1893. Nobbs, Athelstane, M.D., C.M.Edin., 339, Queen's Road, Battersea Park, S.W.
1888. Nolan, Michael J., L.R.C.P.I., M.P.C., Medical Superintendent, District Asylum, Downpatrick.
1880. Norman, Conolly, F.R.C.P.I., Medical Superintendent, Richmond-District Asylum, Dublin, Ireland. (*Hon. Secretary for Ireland, 1887—1894.*) (PRESIDENT, 1895.) (*Editor of Journal.*)
1885. Oakshott, James A., M.D., Medical Superintendent, District Asylum, Waterford, Ireland.
1903. O'Doherty, Patrick, B.A. and M.B.Irel., District Asylum, Omagh.
1904. O'Downey, Augustine Francis, L.R.C.P. & S. Edin., Salop and Montgomery County Asylum, Bicton Heath, nr. Shrewsbury.
1901. Ogilvy, David, B.A., M.D., B.Ch., L.M.Dub., Assistant Medical Officer, London County Asylum, Horton, nr. Epsom, Surrey.
1892. O'Mara, Francis, L.R.C.P.&S.I., District Asylum, Ennis, Ireland.
1886. O'Neill, Edward D., M.R.C.P.I., Medical Superintendent, The Asylum, Limerick.
1868. Orange, William, M.D.Heidelb., F.R.C.P.Lond., C.B., Oakhurst, Godalming, Surrey. (PRESIDENT, 1883.)
1902. Orr, David, M.B., C.M.Edin., Pathologist, County Asylum, Prestwich, Lancs.
1899. Osburne, Cecil A. P., F.R.C.S.Edin., L.R.C.P.Edin., The Grove, Old Catton, Norwich.
1890. Oswald, Landel R., M.B., M.P.C., Physician Superintendent, Royal Asylum, Gartnavel, Glasgow.
1899. Owen, Corbet W., M.B., C.M.Edin., 31, High Street, Bangor, North, Wales.
1905. Paine, Frederick, M.R.C.S., L.R.C.P., Claybury Asylum, Woodford Bridge, Essex.
1902. Parker, Charles Seymour, M.R.C.S.Eng., L.R.C.P.Lond., Launceston, Tasmania.
1898. Parker, William Arnot, M.B., C.M., Medical Superintendent, Gartloch Asylum, Gartcosh, N.B.

1899. Parsons, Laurence D., B.A., M.B., Ch.B., Assistant Colonial Surgeon and Port Medical Officer, Castle Road, Gibraltar.
1898. Pasmore, Edwin Stephen, M.D.Lond., M.R.C.P.Lond., Croydon Mental Hospital, Warlingham, Surrey.
1901. Pasmore, Wm. Edwin, L.S.A.Lond., Forest View, Woodford Bridge, Essex.
1899. Paton, Robert N., L.R.C.P., L.R.C.S.Edin., Medical Officer, H.M. Prison, Wormwood Scrubbs, London, W.
1899. Patrick, John, M.B., Ch.B., District Asylum, Belfast.
1892. Patterson, Arthur Edward, M.D., C.M.Aber., Senior Assistant Medical Officer, City of London Asylum, Dartford.
1905. Paul, Maurice Eden, M.D.Brux., M.R.C.S., L.R.C.P., Moorcroft, Parkstone, Dorset.
1903. Pearce, Francis H., M.B., B.C.Cantab., Earlswood Asylum, Redhill, Surrey.
1899. Pearce, G. Heneage, M.A., M.R.C.S., Borough Asylum, Humberstone, Leicester.
1903. Peebles, Alex. Spalding Mackie, M.B., Ch.B.Edin., Perth District Asylum, Murthly.
1893. Perceval, Frank, M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, County Asylum, Prestwich, Manchester, Lancashire.
1878. Philippe, Sutherland Rees, M.D., C.M. Queen's Univ. Irel., F.R.G.S., 60, Iverna Court, Kensington, W.
1875. Philipson, Sir George Hare, M.D. and M.A.Cantab., F.R.C.P.Lond., 7, Eldon Square, Newcastle-on-Tyne.
1905. Phillips, Norman Routh, M.D.Brux., M.R.C.S., L.R.C.P., Stone House, St. Martins, Canterbury.
1891. Pierce, Bedford, M.D.Lond., M.R.C.P., Medical Superintendent, The Retreat, York.
1888. Pietersen, J. F. G., M.R.C.S., Ashwood House, Kingswinford, near Dudley, Stafford.
1896. Planck, Charles, M.A.Camb., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, East Sussex County Asylum, Haywards Heath.
1889. Pope, George Stevens, L.R.C.P.&L.R.C.S.Edin., L.F.P.&S.Glasg., Medical Superintendent, Somerset and Bath Asylum, "Westfield," near Wells, Somerset.
1876. Powell, Evan, M.B.C.S.Eng., L.S.A., Medical Superintendent, Borough Lunatic Asylum, Nottingham.
1904. Pringle, Archibald Douglas, Government Asylum, Pietermaritzburg, Natal, South Africa.
1875. Pringle, Henry T., M.D.Glasg., Hawtree, Ferndown, Wimborne.
1901. Pugh, Robert, M.D.Edin., Ch.B., Medical Superintendent, Brecon and Radnor Asylum, Talgarth, S. Wales.
1904. Quin, Henry C. E., L.R.C.P., L.R.C.S.Edin., Camberwell House, Peckham Road, S.E.
1904. Race, John Percy, M.R.C.S., L.R.C.P., L.S.A., East Sussex Asylum, Hellingly, Sussex.
1899. Rainsford, F. E., M.D., B.A., Resident Physician, Stewart Institute, Palmerston, co. Dublin.
1894. Rambaut, Daniel F., M.D.Univ. Dubl., Salop and Montgomery Asylum, Bicton Heath, Shrewsbury.
1902. Ratray, A. Mair, M.B., C.M.Edin., City Asylum, Gosforth, Newcastle-on-Tyne.
1889. Raw, Nathan, M.D., F.R.C.S., Mill Road Infirmary, Liverpool.
1893. Rawes, William, M.D.Durh., F.R.C.S.Eng., Medical Superintendent, St. Luke's Hospital, Old Street, London, E.C.
1870. Rayner, Henry, M.D.Aberd., M.R.C.P.Edin., 16, Queen Anne Street, London, W. (PRESIDENT, 1884.) (*Late General Secretary.*) (*Editor of Journal.*)
1903. Read, George F., L.R.C.S., L.R.C.P.Edin., Hospital for the Insane, New Norfolk, Tasmania.

1899. Redington, John, F.R.C.S.&L.R.C.P.I., A.M.O., Richmond Asylum, Dublin.
1887. Reid, William, M.D., Physician Superintendent, Royal Asylum, Aberdeen.
1891. Renton, Robert, M.B., C.M.Edin., M.P.C., Glenthorne, Orpington, Kent.
1886. Revington, George, M.D. and Stewart Scholar Univ. Dubl., M.P.C., Medical Superintendent, Central Criminal Asylum, Dundrum, Ireland.
1903. Rhodes, John Milson, M.D.Brux., L.R.C.P.&S.Edin., Ivy Lodge, Barton Moor, Didsbury, Manchester.
1899. Rice, David, M.R.C.S., L.R.C.P., Cheddleton Asylum, nr. Leek, Staffs.
1897. Richard, William J., M.A., M.B., C.M.Glas., Medical Officer, Govan Parochial Asylum, Merryflats, Govan.
1899. Richards, John, M.B., C.M.Edin., Leicestershire and Rutland Asylum, Leicester.
1905. Ridley, Edward Hope, M.D.Edin., Ticehurst House, Ticehurst, Sussex.
1904. Rigden, Alan, M.D.Durh., Salop and Montgomery Asylum, nr. Shrewsbury.
1893. Rivers, William H. R., M.A., M.D.Lond., St. John's College, Cambridge University.
1903. Roberts, Norcliffe, M.B., B.S.Durh., London County Asylum, Cane Hill, Coulsdon, Surrey.
1871. Robertson, Alexander, M.D.Edin., 11, Woodside Crescent, Glasgow.
1905. Robertson, Constance C., M.D.Durh., B.S., Tue Brook Villa, Liverpool.
1887. Robertson, Geo. M., M.B., C.M. and F.R.C.P.Edin., M.P.C., Medical Superintendent, District Asylum, Larbert, Stirling.
1895. Robertson, William Ford, M.D., C.M., 9, Priestfield Road, Edinburgh.
1905. Robertson-Milne, Capt. Charles John, M.B., C.M.Aberd., Medical Superintendent, Punjaub Asylum, Lahore.
1900. Robinson, Harry A., M.D., Ch.B.Vict., 57, Canning Street, Liverpool.
1876. Rogers, Edward Coulton, M.R.C.S.Eng., L.S.A., County Asylum, Fulbourn, Cambridge.
1859. Rogers, Thomas Lawes, M.D.St. And., M.R.C.P.Lond., M.R.C.S.Eng., Eastbank, Court Road, Eltham, Kent. (PRESIDENT, 1874.)
1895. Rolleston, Lancelot W., M.B., B.S.Durh., Napsbury, near St. Albans.
1879. Ronaldson, J. B., M.D.St.And., F.R.C.S.&L.R.C.P.Edin., Medical Officer, District Asylum, Haddington, N.B.
1879. Roots, William H., M.R.C.S., Canbury House, Kingston-on-Thames.
1899. Rorie, George Arthur, M.B., C.M., Senior Assistant Medical Officer, Dorset County Asylum, Dorchester.
1860. Rorie, James, M.D.Edin., L.R.C.S.Edin., 4, Roxburgh Terrace, West Park Road, Dundee. (*Late Hon. Secretary for Scotland.*)
1888. Ross, Chisholm, M.D., Lunacy Department, Sydney, New South Wales.
1905. Ross, Sheila Margaret, M.B., Holloway Sanatorium, Virginia Water, Surrey.
1899. Rotherham, Arthur, M.A., M.B., B.C.Cantab., Medical Superintendent, Darenth Asylum, Dartford, Kent.
1902. Round, John, L.R.C.P., L.R.C.S., L.F.P.S., 57, Elvington Street, Plymouth.
1884. Rowe, Edmund L., L.R.C.P.&S.Edin., Medical Superintendent, Borough Asylum, Ipswich.
1883. Rowland, E. D., M.B., C.M.Edin., The Public Hospital, New Amsterdam, Berbice, British Guiana.

1902. Bows, Richard Gundry, M.D.Lond., M.R.C.S., L.R.C.P., Pathologist, County Asylum, Lancaster.
1877. Russell, Arthur P., M.B., M.R.C.P.Edin., The Lawn, Lincoln.
1866. Rutherford, James, M.D. Edin., F.R.C.P.Edin., F.F.P.S.Glasgow, Physician Superintendent, Crichton Royal Institution, Dumfries. (*Hon. Secretary for Scotland, 1878-86.*)
1896. Rutherford, James Mair, M.B., C.M.Edin., Assistant Physician, Royal Edinburgh Asylum, Morningside.
1896. Rutherford, Robert Leonard, M.D., Medical Superintendent, Digby's Asylum, Exeter.
1892. Rutledge, Victor J., M.B., District Asylum, Londonderry, Ireland.
1902. Sall, Ernest Frederick, M.R.C.S. Eng., L.R.C.P.Lond., Assistant Medical Officer, West Sussex County Asylum, Chichester.
1905. Salter, Charles Edward, M.D.Lond., B.S., F.R.C.S.E., Scarborough Hospital, 34, Prince of Wales Terrace, Scarborough.
1894. Sankey, Edward H. O., M.A., M.B., B.C.Cantab., Resident Medical Licensee, Boreatton Park Licensed House, Baschurch, Salop.
- * Sankey, R. Heurtley H., M.R.C.S. Eng., Medical Superintendent, Oxford County Asylum, Littlemore, Oxford.
1873. Savage, Geo. H., M.D.&F.R.C.P.Lond., 3, Henrietta Street, Cavendish Square, W. (*Late Editor of Journal.*) (PRESIDENT, 1886.)
1903. Savill, Thomas D., M.D.Lond., 60, Upper Berkeley Street, London, W.
1896. Scott, James, M.B., C.M.Edin., 19, Raleigh Gardens, Brixton Hill, London, S.W.
1889. Scowcroft, Walter, M.R.C.S., Medical Superintendent, Royal Lunatic Hospital, Cheadle, near Manchester.
1880. Seccombe, George S., M.R.C.S., L.R.C.P., The Colonial Lunatic Asylum, Port of Spain, Trinidad, West Indies.
1879. Seed, William Hy., M.B., C.M.Edin., The Poplars, 110, Waterloo Road, Ashton-on-Ribble, Preston.
1902. Serjeant, Robert, M.R.C.S., L.R.C.P., Camberwell House Asylum, Peckham Road, S.E.
1882. Seward, William J., M.B.Lond., M.R.C.S., Medical Superintendent, Colney Hatch Asylum, London, N.
1901. Shaw, B. Henry, M.B., B.Ch., B.A.O., R.M.I., Assistant Medical Officer, County Asylum, Stafford.
1905. Shaw, Charles John, M.B., Ch.B., M.R.C.P.E., Perth District Asylum, Murthly.
1891. Shaw, Harold B., B.A., M.B., D.P.H.Camb., Medical Superintendent, Isle of Wight County Asylum, Whitecroft, Newport, Isle of Wight.
1880. Shaw, James, M.D., 310, Kensington, Liverpool.
1904. Shaw, Patrick, L.R.C.P.&S.Edin., Ararat Hospital for the Insane, Ararat, Victoria, Australia.
- Shaw, T. Claye, M.D.Lond., F.R.C.P.Lond., 30, Harley Street, London, W.
1882. Sheldon, Thomas S., M.B., Medical Superintendent, Cheshire County Asylum, Parkside, Macclesfield.
1900. Shera, John E. P., M.D., Somerset and Bath Asylum, Wells, Somerset.
1898. Sherrard, David John, B.A., M.B., M.Ch.Dubl., 7, Bloomsbury Place, Brighton.
1877. Shuttleworth, George E., M.D.Heidelb., M.R.C.S. and L.S.A.Eng., B.A. Lond., late Medical Superintendent, Royal Albert Asylum, Lancaster; Ancaster House, Richmond Hill, Surrey.
1899. Sibley, Reginald Oliver, M.B.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer, London County Asylum, Cane Hill, Coulsdon, Surrey.
1901. Simpson, Alexander, M.A., M.D.Aber., Medical Superintendent, County Asylum, Winwick, Newton-le-Willows, Lancashire.
1905. Simpson, Edward Swan, M.B., Ch.B.Edin., East Riding Asylum, Beverley, Yorks.

1888. Sinclair, Eric, M.D.Glasg., Medical Superintendent, Gladesville Asylum, New South Wales.
1891. Skeen, James Humphry, M.B., C.M.Aber., Medical Superintendent, Glasgow District Asylum, Bothwell.
1898. Skeen, William St. John, M.B., C.M., County Asylum, Winterton, Ferryhill, Durham.
1900. Skinner, Ernest W., M.D., C.M.Edin., Bank House, Rye, Sussex.
1901. Slater, George N. O., M.D., Assistant Medical Officer, Essex County Asylum, Brentwood.
1897. Smalley, Herbert, M.D.Durh., L.R.C.P., M.R.C.S., Prison Commission, Home Office, Whitehall, S.W.
1906. Smith, George William, M.B., Holloway Sanatorium, Virginia Water, Surrey.
1899. Smith, John G., M.D., Herts County Asylum, Hill End, St. Albans, Herts.
1904. Smith, Peter Campbell, L.R.C.P.&S.Edin., 4, Upper Grosvenor Road, Tunbridge Wells.
1886. Smith, R. Percy, M.D., B.S., F.R.C.P., M.P.C., 36, Queen Anne Street, Cavendish Square, W. (*General Secretary*, 1896-7.)
1858. Smith, Robert, M.D.Aber., L.R.C.S.Edin., Phoenix Lodge, Montpellier Drive, Cheltenham.
1884. Smith, W. Beattie, F.R.C.S.Edin., L.R.C.P.Lond., 4, Collins Street Melbourne, Victoria.
1908. Smith, William Maule A., M.B., ChB.Edin., M.R.C.P.Edin., West Riding Asylum, Wakefield, Yorks.
1901. Smyth, Robt. B., M.A., M.D., Ch.B., Senior Assistant Medical Officer, County Asylum, Gloucester.
1899. Smyth, Walter S., M.B., B.Ch., R.U.I., Assistant Medical Officer, County Asylum, Antrim.
1886. Soutar, James Grieg, M.B., Barnwood House, Gloucester.
1883. Spence, John Buchan, M.D., M.C., The Asylum, Colombo, Ceylon.
1875. Spence, J. Beveridge, M.D., M.C. Queen's Univ., Medical Superintendent, Burntwood Asylum, near Lichfield. (*PRESIDENT*, 1899-1900, formerly *Registrar*.)
1898. Sproat, James Hugh, M.B.Lond., M.R.C.S., L.R.C.P., 47, Cavendish Drive, Rock Ferry, Birkenhead.
1891. Stansfield, T. E. K., M.B., C.M.Edin., The Heath Asylum Bexley, Kent.
1901. Starkey, William, M.B., B.Ch., B.A.O.Roy. Univ. Irel., Assistant Medical Officer, Lancashire County Asylum, Prestwich, near Manchester.
1898. Steen, Robert H., M.D.Lond., B.A., R.U.I., City of London Asylum, Stone, Dartford.
1906. Stevenson, William Edward, M.B., B.S.Durh., West Riding Asylum, Menston, Leeds.
1906. Stewart, Frederick William, B.A., M.B., B.Ch., B.A.O.I., Kent County Asylum, Barming Heath, near Maidstone.
1868. Stewart, James, B.A. Queen's Univ. Irel., F.R.C.P.Edin., L.R.C.S.Irel Dunmurry, Sneyd Park, near Clifton, Gloucestershire.
1884. Stewart, Robert S., M.D., C.M., Medical Superintendent, Angelton, Bridgend, Glamorgan.
1887. Stewart, Rothsay C., M.R.C.S., Medical Superintendent, County Asylum, Leicester.
1906. Stillwell, Henry Francis, L.R.C.P.&S.E., Barnwood House, Gloucester.
1862. Stilwell, Henry, M.D.Edin., M.R.C.S.Eng., Moorcroft House, Hillingdon, Middlesex.
1899. Stilwell, Reginald J., M.R.C.S., L.R.C.P., Moorcroft House, Hillingdon, Middlesex.
1864. Stocker, Alonso Henry, M.D.St. And., M.R.C.P.Lond., M.R.C.S.Eng., Medical Superintendent, Peckham House Asylum, Peckham.

1897. Stoddart, William Henry Butter, M.D., B.S.Lond., M.R.C.S.Eng., M.R.C.P.Lond., Bethlem Royal Hospital, London, S.E.
1905. Strathearn, John, M.B., Ch.B., Woodilee Asylum, Lenzie, Glasgow.
1903. Stratton, Percy Haughton, M.R.C.S., L.R.C.P.Lond., The Royal Societies Club, St. James's Street, S.W.
1885. Street, C. T., M.R.C.S., L.R.C.P., Haydock Lodge, Ashton, Newton-le-Willows, Lancashire.
1897. Stuart, Robert, M.R.C.S., L.R.C.P.Lond., 20, New Elvet, Durham.
1900. Sturrock, James Prain, M.A., M.B., C.M.Edin., Midlothian and Peebles Asylum, Rosslynlee, N.B.
1886. Suffern, Alex. C., M.D., Medical Superintendent, Ruberry Hill Asylum, near Bromagrove, Worcestershire.
1894. Sullivan, William C., M.D.R.U.I., 444, Camden Road, London, N.
1898. Sutcliffe, John, M.R.C.S., L.R.C.P., Royal Asylum, Cheadle, near Manchester.
1903. Sutherland, David, M.B., Ch.B.Edin., Pathologist, Wadsley Asylum, Sheffield.
1895. Sutherland, John Francis, M.D.Edin., Deputy Commissioner in Lunacy, 51, Queen Street, Edinburgh.
1877. Swanson, George I., M.D.Edin., The Pleasaunce, Heworth Moor, York.
1901. Sykes, Arthur, M.R.C.S., L.R.C.P., Assistant Medical Officer, City Asylum, Helleston, nr. Norwich.
1897. Tait, James Sinclair, M.D., L.R.C.P.Lond., F.R.C.S.Edin., L.R.C.P. Edin., D.P.H.Edin., R.C.P.S.Edin., F.P.S.Glasg., Medical Superintendent, Hospital for Insane, St. John's, Newfoundland.
1904. Tate, Robert George H., M.D., D.P.H., Banstead Asylum, Surrey.
1857. Tate, William B., M.D.Aber., M.R.C.P.Lond., M.R.C.S.Eng., Medical Superintendent, Lunatic Hospital, The Coppice, Nottingham.
1897. Taylor, Frederic Ryott Percival, M.D., B.S.Lond., M.R.C.S.Eng., L.R.C.P.Lond., East Sussex Asylum, Hellingly.
1904. Thompson, A. D., M.B., Ch.B.Glasg., Cheshire County Asylum, Parkside, Macclesfield.
1880. Thomson, David G., M.D., C.M., Medical Superintendent, County Asylum, Thorpe, Norfolk.
1903. Thomson, Herbert Campbell, M.D., F.R.C.P.Lond., Assist. Physician Middlesex Hospital, 34, Queen Anne Street, W.
1905. Thomson, James Hutcheon, M.B., Ch.B.Aberd., Earlswood Asylum, Redhill, Surrey.
1905. Thwaites, Harry, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Lebanon Hospital, Asfuriyeh, near Beyrout, Syria.
1905. Tidbury, Robert, M.D., R.U.I., M.Ch., L.M., The Borough Asylum, Ipswich.
1901. Tighe, John V. G. B., M.B., B.Ch., B.A.O.Irel., North Riding Asylum, Clifton, Yorks.
1900. Tinker, William, M.R.C.S., L.R.C.P., Holloway Sanatorium, Virginia Water, Surrey.
1898. Todd, Percy Everard, M.B., Medical Superintendent, Pretoria Asylum, Transvaal, South Africa.
1905. Toogood, Frederick Sherman, M.D.Lond., Medical Superintendent, The Infirmary, High Street, Lewisham.
1903. Topham, J. Arthur, B.A.Cantab., M.R.C.S.&P.Lond., County Asylum, Chartham, Kent.
1901. Torney, George Parsons, A.B.Dubl., L.R.C.P., L.R.C.S.I., L.M., Medical Superintendent, County Asylum, Lincoln.
1896. Townsend, Arthur A. D., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Hospital for Insane, Barnwood House, Gloucester.
1904. Treadwell, Oliver Ferreira Naylor, M.R.C.S.Eng., L.S.A., H. M. Prison, Parkhurst, I. of W.

1903. Tredgold, Alfred F., M.R.C.S., L.R.C.P., 2, Dapdune Crescent, Guildford, Surrey.
1902. Trevelyan, Edmund Fauriel, M.D.Lond., F.R.C.P.Lond., Assistant Physician to the Leeds General Infirmary, 40, Park Square, Leeds.
1881. Tuke, Charles Molesworth, M.R.C.S.Eng., Chiswick House, Chiswick.
1888. Tuke, John Batty, jun., M.D., F.R.C.P.Edin., Resident Physician, Saughton Hall, Edinburgh.
1885. Tuke, T. Seymour, M.A., M.B., B.Ch., M.R.C.S.E., Chiswick House, Chiswick, W.
1877. Turnbull, Adam Robert, M.B., C.M.Edin., Medical Superintendent, Fife and Kinross District Asylum, Cupar. (*Late Hon. Secretary for Scotland.*)
1889. Turner, Alfred, M.D., C.M., Plympton House, Plympton, S. Devon.
1890. Turner, John, M.B., C.M.Aberd., Senior Assistant Medical Officer, Essex County Asylum, Brentwood.
1903. Turner, Oliver P., M.R.C.S., L.R.C.P., Peckham House, Peckham, S.E.
1878. Urquhart, Alex. Reid, M.D., F.R.C.P.E., Physician Superintendent, James Murray's Royal Asylum, Perth. (*Editor of Journal.*) (*Hon. Secretary for Scotland, 1886-94.*) (PRESIDENT, 1898.)
1900. Veitch, J. Ogilvie, M.B., C.M.Edin., County Asylum, Powick, Worcester.
1904. Vincent, George A., M.B., B.Ch.Edin., Assistant Medical Superintendent, St. Ann's Asylum, Trinidad, B.W.I.
1894. Vincent, William James, M.B.Durh., Assistant Medical Officer, Wadsley Asylum, near Sheffield.
1884. Walker, Edw. B. C., M.D., C.M.Edin., Medical Superintendent, East Sussex Asylum, Haywards Heath.
1896. Walker, William F., L.R.C.S.&L.M.Edin., L.S.A.Lond., Plas-y-n-Dinas, Dinas Mawddwy, Merionethshire.
1898. Wall, Charles Percivale Bligh, M.B., Ch.B.Edin., Butterworth, Transkei, Cape Colony.
1900. Walters, John Basil, M.R.C.S.Eng., L.R.C.P.Lond., 51, Devonshire Street, Portland Place, London, W.
1889. Warnock, John, M.D., C.M., B.Sc., Abassia, nr. Cairo, Egypt.
1895. Waterston, Jane Elizabeth, M.D.Brux., L.R.C.P.I., L.R.C.S.Edin., 53, Parliament Street, Cape Town, South Africa.
1902. Watson, Frederick, M.B., C.M.Edin., The Grange, East Finchley, London, N.
1891. Watson, George A., M.B., C.M.Edin., M.P.C., County Asylum, Rainhill, Liverpool.
1903. Watson, John Harry, M.R.C.S.Eng., L.R.C.P., Assistant Medical Officer, Colney Hatch Asylum, London, N.
1885. Watson, William Riddell, L.R.C.S. and L.R.C.P.Edin., Govan District Asylum, Hawkhead, Paisley.
1880. Weatherly, Lionel A., M.D., M.R.C.S., Bailbrook House, Bath.
1897. Welsh, Gilbert Aitken, M.D., C.M.Edin., The Crescent, Garliestown, N.B.
1890. West, George Francis, L.R.C.P.Edin., Medical Superintendent, District Asylum, Kilkenny, Ireland.
1872. Whitcombe, Edmund Bancks, M.R.C.S., Medical Superintendent, Winson Green Asylum, Birmingham. (PRESIDENT, 1891.)
1884. White, Ernest William, M.B.Lond., M.R.C.P.Lond., 40, Margaret Street, London, W. (*Hon. Sec. South-Eastern Division, 1897-1900.*)
1906. White, Robert George, M.A., M.B., B.Sc., Ch.B., Pathological Department, School of Medicine, Cairo, Egypt.
1903. Whittingham, George M., M.R.C.S., L.R.C.P., Earlswood Asylum Redhill, Surrey.
1905. Whittington, Richard, M.A., M.D., 1, Sillwood Place, Brighton, Sussex.

1889. Whitwell, James Richard, M.D. and C.M., Medical Superintendent, Suffolk County Asylum, Melton Woodbridge.
1903. Wigan, Charles Arthur, M.D.Durh., M.R.C.S.Eng., Deepdene, Portishead, Somerset.
1883. Wigglesworth, Joseph, M.D., F.R.C.P.Lond., Rainhill Asylum, Lancashire. (PRESIDENT, 1902-3.)
1895. Wilcox, Arthur William, M.B., C.M.Edin., Assistant Medical Officer, County Asylum, Hatton, Warwick.
1900. Wilkinson, H. B., M.R.C.S., L.R.C.P., Assistant Medical Officer, Plymouth Borough Asylum, Blackadon, Ivybridge, South Devon.
1887. Will, John Kennedy, M.A., M.D., C.M., Bethnal House, Cambridge Road, N.E.
1905. Williams, David John, M.R.C.S., L.R.C.P.Lond., Medical Superintendent The Asylum, Kingston, Jamaica.
1901. Wilson, Albert, M.D.Edin., 1, Belsize Park, N.W.
1904. Wilson, Geoffrey Plumpton, M.R.C.S., L.R.C.P.Lond., Kesteven Asylum Sleaford, Lincs.
1890. Wilson, George R., M.D., C.M., M.P.C., Medical Superintendent, Mavisbank Private Asylum, Polton, Midlothian.
1896. Wilson, Robert, M.B., C.M.Glasg., Nailsworth, Gloucestershire.
1897. Winder, W. H., M.R.C.S., L.R.C.P.Lond., D.P.H.Cantab., Deputy Medical Officer, H.M. Convict Prison, Aylesbury.
1875. Winslow, Henry Forbes, M.D.Lond., M.R.C.P.Lond., 14, York Place, Portman Square, London.
1897. Wiseman, David William, M.R.C.S.Eng., L.R.C.P.Lond., "Newlyn," Clifton Crescent, Sutton, Surrey.
1894. Wood, Guy Mills, M.B.Durh., 49, Gordon Square, London, W.C.
1904. Wood, Martin Stanley, M.B., Ch.B.Vict., Royal Asylum, Cheadle, Cheshire.
1903. Wood, Maurice Dale, M.D.Durh., B.S., Assistant Medical Officer, County Asylum, Haywards Heath, Sussex.
1869. Wood, T. Outterson, M.D., M.R.C.P.Lond., F.R.C.P., F.R.C.S.Edin. 40, Margaret Street, Cavendish Square, W.
1885. Woods, J. F., M.D., M.R.C.S., 29, Queen Anne Street, Cavendish Square, W.
1873. Woods, Oscar T., M.D., L.R.C.S.I., Medical Superintendent, District Asylum, Cork. (*Hon. Secretary for Ireland, 1897.*) (PRESIDENT 1901.)
1905. Worsley, Richard Le Geyt, M.R.C.S., L.R.C.P., H.M. Prison, Liverpool.
1900. Worth, Reginald, M.R.C.S., L.R.C.P., Middlesex County Asylum, Wandsworth, S.W.
1877. Worthington, Thomas Blair, M.A., M.D., and M.C.Trin. Coll., Dubl., Medical Supt., County Asylum, Knowle, Fareham, Hants.
1862. Yellowlees, David, LL.D., M.D.Edin., F.F.P.S.Glasg., 6, Albert Gate, Dowan Hill, Glasgow. (PRESIDENT, 1890.)

ORDINARY MEMBERS	...	...	...	...	...	644
HONORARY MEMBERS	...	...	...	...	...	32
CORRESPONDING MEMBERS	...	...	...	...	...	15

Total 691

Members are particularly requested to send changes of address, etc., to Dr, Robert Jones, the Honorary Secretary, 11, Chandos Street, Cavendish Square, London, W., and in duplicate to the Printers of the Journal, Messrs. Adlard and Son, 22, Bartholomew Close, London, E.C.

List of those who have passed the Examination for the Certificate of Efficiency in Psychological Medicine, entitling them to append M.P.C. (Med.-Psych. Certif.) to their names.

- | | |
|---------------------------------|---------------------------|
| Adamson, Robert O. | Cooper, Alfred J. S. |
| Adkins, Percy, R. | Cope, George Patrick. |
| Ainley, Fred Shaw. | Corner, Harry. |
| Ainslie, William. | Cotton, William. |
| Alexander, Edward H. | Couper, Sinclair. |
| Anderson, A. W. | Cowan, John J. |
| Anderson, Bruce Arnold. | Cowie, C. G. |
| Anderson, John. | Cowie, George. |
| Andriezen, W. | Cowper, John. |
| Armour, E. F. | Cox, Walter H. |
| Attegalle, J. W. S. | 8 Craig, M. |
| Aveline, H. T. S. | Cram, John. |
| Ballantyne, Harold S. | Crills, G. H. |
| Barbour, William. | Cross, Edward John. |
| Barker, Alfred James Glanville. | Cruickshank, George. |
| Bashford, Ernest Francis. | Cullen, George M. |
| Begg, William. | Cunningham, James F. |
| Belben, F. | Dalgetty, Arthur B. |
| Bird, James Brown. | Davidson, Andrew. |
| Blachford, J. Vincent. | Davidson, William. |
| Black, Robert S. | 6 Dawson, W. R. |
| Black, Victor. | De Silva, W. H. |
| Blackwood, John. | Distin, Howard. |
| Blandford, Henry E. | Donald, Wm. D. D. |
| 7 Bond, C. Hubert. | Donaldson, R. L. S. |
| Bond, R. St. G. S. | Donellan, James O'Conor. |
| Bowlan, Marcus M. | Douglas, A. R. |
| Boyd, James Paton. | Downey, Augustine. |
| Bristowe, Hubert Carpenter. | Drummond, Russell J. |
| Brodie, Robert C. | Eames, Henry Martyn. |
| Brough, C. | Earls, James H. |
| Browne, Hy. E. | East, W. Norwood. |
| Bruce, John. | Easterbrook, Charles C. |
| Bruce, Lewis C. | Eden, Richard A. S. |
| Brush, S. C. | Edgerley, S. |
| Bulloch, William. | Edwards, Alex. H. |
| Calvert, William Dobree. | Elkins, Frank A. |
| Cameron, James. | Ellis, Clarence J. |
| Campbell, Alex Keith. | English, Edgar. |
| Campbell, Alfred W. | Eustace, J. N. |
| Campbell, Peter. | Eustace, Henry Marcus. |
| Carmichael, W. J. | Evans, P. C. |
| Carruthers, Samuel W. | Ewan, John A. |
| Carter, Arthur W. | Ezard, Ed. W. |
| Chambers, James. | Falconer, James F. |
| Chapman, H. C. | Farquharson, Wm. Fredk. |
| Christie, William. | Fennings, A. A. |
| Clarke, Robert H. | Ferguson, Robert. |
| Clayton, Frank Herbert A. | Findlay, G. Landsborough. |
| Clinch, Thomas Aldous. | Fitzgerald, Gerald. |
| Coles, Richard A. | Fleck, David. |
| Collie, Frank Lang. | Fox, F. G. T. |
| Collier, Joseph Henry. | Fraser, Donald Allan. |
| Conolly, Richard M. | Fraser, Thomas. |
| Conry, John. | Frederick, Herbert John. |
| Cook, William Stewart. | Gaudin, Francis Neel. |

- Gawn, Ernest K.
 Gemmell, William.
 Genny, Fred. S.
 Gibson, Thomas.
 Giles, A. B.
 Gill, J. Macdonald.
 Gilmour, John R.
 Goldie, E. M.
 Goldschmidt, Oscar Bernard.
 Goodall, Edwin.
 Graham, Dd. James.
 Graham, F. B.
 Grainger, Thomas.
 Grant, J. Wemyss.
 Grant, Lacklan.
 Gray, Alex. C. E.
 Griffiths, Edward H.
 Hall, Harry Baker.
 Halsted, H. C.
 Haslam, W. A.
 Haslett, William John Handfield.
 Hassell, Gray.
 Hector, William.
 Henderson, Jane B.
 Henderson, P. J.
 Hennan, George.
 Hewat, Matthew L.
 Hewitt, D. Walker.
 Hicks, John A., jun.
 Hitchings, Robert.
 Holmes, William.
 Horton, James Henry.
 Hotchkis, R. D.
 Howden, Robert.
 Hughes, Robert.
 Hutchinson, P. J.
 2 Hyalop, Thos. B.
 Ingram, Peter R.
 Jagannadhan, Annie W.
 Johnston, John M.
 Kelly, Francis.
 Kelso, Alexander.
 Kelson, W. H.
 Ker, Claude B.
 Kerr, Alexander L.
 Keyt, Frederick.
 King, David Barty.
 King, Frederick Truby.
 Laing, C. A. Barclay.
 Laing, J. H. W.
 Law, Thomas Bryden.
 Leeper, Richard R.
 Leslie, R. Murray.
 Livesay, Arthur W. Bligh.
 Livingstone, John.
 Lloyd, R. H.
 Low, Alexander.
 McAllum, Stewart.
 Macdonald, David.
 Macdonald, G. B. Douglas.
 Macdonald, John.
 Macevoy, Henry John.
 McGregor, George.
 MacInnes, Ian Lamont.
 Mackenzie, Henry J.
 Mackenzie, John Cumming.
 Mackenzie, William H.
 Mackenzie, William L.
 Mackie, George.
 McLean, H. J.
 Macmillan, John.
 5 Macnaughton, Geo. W. F.
 Macneice, J. G.
 Macpherson, John.
 Macvean, Donald A.
 Mallannah, Sreenagula.
 Marr, Hamilton C.
 Marsh, Ernest L.
 Martin, A. A.
 Martin, A. J.
 Martin, Wm. Lewis.
 Masson, James.
 Meikle, T. Gordon.
 Melville, Henry B.
 Middlemass, James.
 Mitchell, Alexander.
 Mitchell, Charles.
 Moffett, Elizabeth J.
 Monteith, James.
 Moore, Edward Erskine.
 1 Mortimer, John Desmond Ernest.
 Murison, Cecil C.
 Myers, J. W.
 Nair, Charles R.
 Nairn, Robert.
 Neil, James.
 Nixon, John Clarke.
 Nolan, Michael James.
 Norton, Everitt E.
 Orr, David.
 Orr, James.
 Orr, J. Fraser.
 Oswald, Laudel R.
 Paget, A. J. M.
 Parker, William A.
 Parry, Charles P.
 Patterson, Arthur Edward.
 Patton, Walter S.
 Paul, William Moncrief.
 Pearce, Walter.
 Penfold, William James.
 Philip, James Farquhar.
 Philip, William Marshall.
 Pieris, William C.
 Pilkington, Frederick W.
 Pitcairn, John James.
 Porter, Charles.
 Price, Arthur.
 Pring, Horace Reginald.
 Rainy, Harry, M.A.
 Ralph, Richard M.
 Raunie, James.
 4 Raw, Nathan.
 Reid, Matthew A.

- Renton, Robert.
 Rice, P. J.
 Rigden, Alan.
 Ritchie, Thomas Morton.
 Rivers, W. H. R.
 3 Robertson, G. M.
 Robson, Francis Wm. Hope.
 Rorie, George A.
 Rose, Andrew.
 Rowand, Andrew.
 Rudall, James Ferdinand.
 Rust, James.
 Rust, Montague.
 Rutherford, J. M.
 Sawyer, Jas. E. H.
 Scott, George Brebner.
 Scott, J. Walter.
 Scott, William T.
 Sheen, Alfred W.
 Simpson, John.
 Simpson, Samuel.
 Skae, F. M. T.
 Skeen, George.
 Skeen, James H.
 Slater, William Arnison.
 Smith, Percy.
 Smyth, William Johnson.
 Snowball, Thomas.
 Soutar, James G.
 Sproat, J. H.
 Stanley, John Douglas.
 Staveley, William Henry Charles.
 Steel, John.
 Stephen, George.
 Stewart, William Day.
 Stoddart, John.
 9 Stoddart, William Hy. B.
 Strangman, Lucia.
 Strong, D. R. T.
 Stuart, William James.
 Symes, G. D.
 Thompson, George Matthew.
 Thomson, Eric.
 Thomson, George Felix.
 Thorpe, Arnold E.
 Trotter, Robert Samuel.
 Turner, W. A.
 Umney, W. F.
 Walker, James.
 Warde, Wilfred B.
 Waterston, Jane Elizabeth.
 Watson, George A.
 Welsh, David A.
 West, J. T.
 Whitwell, Robert R. H.
 Wickham, Gilbert Henry.
 Will, John Kennedy.
 Williams, D. J.
 Williamson, A. Maxwell.
 4 Wilson, G. R.
 Wilson, James.
 Wilson, John T.
 Wilson, Robert.
 Wood, David James.
 Wright, Alexander, W. O.
 Yeates, Thomas.
 Yeoman, John B.
 Young, D. P.
 Younger, Henry J.
 Zimmer, Carl Raymond.

- 1 To whom the Gaskell Prize (1887) was awarded.
- 2 To whom the Gaskell Prize (1889) was awarded.
- 3 To whom the Gaskell Prize (1890) was awarded.
- 4 To whom the Gaskell Prize (1892) was awarded.
- 5 To whom the Gaskell Prize (1895) was awarded.
- 6 To whom the Gaskell Prize (1896) was awarded.
- 7 To whom the Gaskell Prize (1897) was awarded.
- 8 To whom the Gaskell Prize (1900) was awarded.
- 9 To whom the Gaskell Prize (1901) was awarded.

THE JOURNAL OF MENTAL SCIENCE

[Published by Authority of the Medico-Psychological Association
of Great Britain and Ireland.]

No. 216 [NEW SERIES] JANUARY, 1906. VOL. LII.
No. 186.

Part I.—Original Articles.

Amentia and Dementia: a Clinico-Pathological Study.

By JOSEPH SHAW BOLTON, M.D., M.R.C.P., Fellow of
University College, London; Senior Assistant Medical
Officer, Lancaster County Asylum, Rainhill.

CONTENTS.

	PAGE
PART II (<i>continued</i>) (pp. 1—28).	
[<i>Introduction</i>	Vol. LI, 508]
[<i>Group I</i> —Idiocy and imbecility . . . . .	. 515]
[<i>Group II</i> .—Excited and "moral" cases . . . . .	. 523]
[<i>Group III</i> .—Recurrent cases . . . . .	. 659]
(<i>a</i>) Relapsing . . . . .	. 663]
(<i>b</i>) Now chronic . . . . .	. 671]
<i>Group IV</i> .—Hysteria	Vol. LII, 1
<i>Group V</i> .—Epileptic insanity . . . . .	. 5
<i>Group VI</i> .—Cases with systematised delusions (including paranoia) . . . . .	. 14

GROUP IV.

HYSTERIA.

EXAMPLES of true hysteria are relatively rare in asylum populations, and in the present series of cases there are but six instances amongst the 728 patients, and all these are of the female sex. The writer has, however, during his asylum ex-

perience, seen more than one case of genuine hysteria in the male sex.

The cases contained in this group are examples of the more severe forms of hysteria which either are unmanageable at home, or, possessing no suitable home, drift into workhouses and eventually into asylums. As would *à priori* be expected, all are recurrent cases, and have been previously in asylums, and in those instances where a satisfactory history exists, the patients had shown symptoms for years before their first certification.

Of the six cases, 5 are single women and one is married. The last shows marked stigmata of degeneracy, has defective articulation, is simple-minded and of low intelligence, and is very unstable, emotional, and hysterical. How she succeeded in getting married is a mystery. Two of the 6 cases are good workers, 1 is an ordinary worker, 2 refuse to work, and 1 is physically incapable of work of any kind.

In general symptomatology, apart from hysterical manifestations, the cases grade on the one hand into those of Group II, Class *b*, namely, "simple emotional chronic mania," and on the other into those of Group V, Class *b*, namely, "high-grade amnesia with epileptic mania."

As from the aspect of pure hysteria the number of cases in the group under consideration is too small to justify any symptomatological deductions, the writer has necessarily to fall back on his asylum experience in order to obtain a basis for the following general statements concerning the types of hysterical patient which are found in asylum practice. The following varieties of case, which are not to be considered either as distinct entities or as representing all the types which occur in asylums, fairly completely summarise the writer's experience of asylum hysteria.

(*a*) Cases of marked hysteria or hystero-epilepsy who suffer from attacks of maniacal excitement much resembling those which occur in cases of "high-grade amnesia with epileptic mania" (see p. 11).

(*b*) Quieter cases, who at times work industriously but who are emotional and unstable, possess more or less marked hystero-genic zones, and suffer from hysterical attacks. These patients somewhat resemble, and grade into, cases of "simple emotional chronic mania" (Vol. LI, p. 528).

(*c*) Cases whose symptomatology is somewhat analogous to

a hysterio-epileptic state with a duration of weeks or months. These patients may be relatively or apparently sane for considerable periods. They then suffer from trance-like conditions, also lasting for considerable periods, during which they are as flaccid and inanimate as a recent corpse and have to be fed and attended to in every way. They may be wet and dirty, or they may secretly get up and use the commode. They, after a variable period, may exhibit grand movements and emotional attitudes, during which they alternate between this mental state and the previous one. Such a patient, when in bed, has been seen to hold her arm vertically towards the ceiling, with the forefinger pointed upwards and the whole limb rigid, for hours at a time, and has for similar periods performed movements of wide range with an utter disregard of consequences.

(*d*) Lazy, well-nourished patients who sit all day like dements or cases of stupor and never work, but who are very erotic in the presence of the members of the opposite sex. Their eyes are bright and wakeful, and they readily smile. They manifest hysterical phenomena on stimulation of the various hysterogenic zones, and their physical development is surprisingly good.

(*e*) Cases who show various types of "functional" paralysis, *e.g.*, monoplegia, paraplegia, etc. This condition has usually lasted so long that organic changes, which render cure impossible, have occurred in the muscles, tendons, and joints.

Of the six cases contained in the present group, the following two are inserted for the purposes of illustration.

Hysteria in a Case of marked High-grade Amentia.

CASE 229.—E. W.—, female, single, no occupation, æt. 31. Has shown symptoms for eight or nine years, and previous to these she had a "seizure," which curved her to the left side. Was in an asylum three years ago for several months.

Face expressionless. Forehead smooth. Silly vacuous grin. On watching her she soon becomes hysterical. Her eyebrows begin to act, her eyes suffuse, and her carotids throb. Just as she is beginning to weep I suggest "Which is it to be?" and she at once shakes with laughter. Soon, however, this emotional storm ends in a fit of weeping, which stops abruptly under pressure on the left infra-mammary hysterogenic zone, and leaves her composed.

She then gives her name and age and when she came and where she has come from, but not the name of this asylum (she was admitted yesterday). She knows the day and the name and part of the month,

but not the exact date. She was previously in an asylum, but she "never put the date down when she went." She was there six months, and it must be "free or four" years since she left. She is childish in speech and behaviour. She says her mother remarked that she was much better when she left the asylum, and then adds, "but I never went in the town in B—," meaning that she was not upset by seeing people.

She has at times typical hysterical attacks, which are readily stopped by suggestion, and she is readily put to sleep at night, when troublesome, in the same way. On the other hand, the suggestion of a swelling in her throat brings on an attack.

During her residence she was clean in her habits and easy to get on with, but she never did any work. She washed her head in cold water every morning, and attended, more or less, to herself. She was very noisy, but was never spiteful, and was fond of singing and dancing. When in the airing court, if not standing or sitting, she used to run about rather than walk. When excited she would knock her head about and bang it on a window-frame, or she would do extraordinary things, *e.g.*, say she was a "lady sanitary inspector," and go round pulling the plugs, pulling doors off their hinges, and trying to pull down the water-pipes, etc. She at variable intervals suffered from convulsions, which were sometimes hysterical and at others hystero-epileptic.

Hystero-Epilepsy, Double Personality, Mental Degradation.

CASE 232.—E. G. B. M—, female, single, domestic servant, æt. 37. Certified since the age of 25, and previously in an asylum at the age of 24. Maternal uncle insane.

A very neurotic-looking woman with blinking eyes, a narrow peaked forehead, and a small jaw. She usually puts on a sardonic grin when noticed. Her voice is thick and lisping as if she had a perforated palate, but this is not the case, though there is a scar in the middle line.

She is a marked case of hysteria, and exhibits a condition which amounts to an alternating personality.

At rare intervals she is quiet and well-behaved, denies her name, readily reacts to suggestion, and suffers from attacks of typical hystero-epilepsy which can be readily induced or cut short in the usual way. When in this mental state she says that her age is 21 next Christmas day. Her name is not really M—, but this name was given to her by a slave-dealer, who stole her away. She is the wife of a member of a noted firm of brewers. She has had "a large number of children." Married? "Yes." In church? "Church and chapel, and drawing-room too." She was in the asylum from which she has come for twenty months (really twelve years). She has never been there before, but E. M—, was there, and she (the patient) was brought from the South African war, and changed for E. M—.

Usually, however, this patient is in a very different mental condition. She is excitable, emotional, and quarrelsome, and suffers from frequent hysterical attacks which either do not react at all to suggestion or only stop for seconds or minutes. She is troublesome and noisy, and

though she at times does a certain amount of floor-polishing and rough ward work, she is destructive, banging the deck-polisher about, tearing the casing off the heating-coils, etc. On one occasion she broke off the head of a deck-polisher, an act which must have required the exercise of quite a remarkable amount of force in the case of a woman. She is untidy and careless of her appearance. She becomes hysterical and bangs herself about if no notice is taken of her when one walks through the ward, whereas if she is noticed she either falls into a hysterical fit, or acts in a generally emotional and erotic manner. Under these circumstances she does not deny her name, and is too emotional as a rule to reply at all to questions.

The latter of these mental states is the common one and the former is relatively rare—so rare, in fact, that it was impossible to determine, during the time she was under observation, whether or not a sharp line of demarcation exists between the two states.

GROUP V.

EPILEPTIC INSANITY.

Epilepsy and mental disease.—As a preliminary to the description of this group of cases, it seems desirable to introduce certain general considerations bearing on the relationship which exists between epilepsy on the one hand and the entire subject of amentia and dementia on the other.

Epilepsy occurs in association with mental disease in three separate groups of cases in the general table which is inserted in the introduction to this paper, namely, in the first and fifth divisions of amentia and in the third division of dementia. The numerical relationship existing between the cases in these different groups is as follows :

	M.	F.	T.
<i>Amentia. Group I.</i>			
Idiocy and imbecility, Classes (<i>d</i>), (<i>e</i>), and (<i>f</i>) .	16	19	35
<i>Amentia. Group V.</i>			
Epileptic insanity	6	18	24
<i>Dementia. Group III, Class (b) .</i>			
Dementia following epilepsy	12	8	20
Total	34	45	79

The percentage of cases suffering from epilepsy out of the total of 728 is, therefore, 11 in the males, 10·6 in the females, and 10·9 in the whole series, and this does not differ markedly from the generally accepted average of about 10 *per cent.*

If, however, the groups of low-grade amentia, of high-grade amentia, and of dementia be considered separately, the following

interesting relationship regarding the incidence of epilepsy in these different groups is obtained :

Idiocy and imbecility	94	cases,	37.2	per cent. of epilepsy.
High-grade amentia	189	"	12.7	"
Dementia	445	"	4.5	"
Total	728	"	10.9	"

Hence, whether the question be considered from the point of view of total cases, or, as is more correct, from that of the percentage co-existence of epilepsy and mental disease in the different grades of degeneracy, the statement may be made that, where cerebral degeneracy is greatest, epilepsy most frequently occurs in association with the mental disease. This fact is still further demonstrated when the group of epileptic insanity is divided into the following two classes—

	M.	F.	T.
Higher grade amentia without marked stigmata of degeneracy	2	6	8
High-grade amentia with marked stigmata of degeneracy	4	12	16
Total	6	18	24

for there are, again, more cases in the more markedly degenerate class than in the less. The evidence is, therefore, entirely against the thesis that the co-existence of epilepsy and mental disease results in cerebral dissolution, and is in favour of the view that both conditions are degeneracies.

Further considerations will now be adduced which tend to show that epilepsy nevertheless exerts a harmful influence on the subjects of mental disease who suffer from it.

An important difference exists, in the symptomatology following fits, between the cases of epilepsy and amentia and those of epilepsy and dementia. The former either rapidly recover from the convulsions or exhibit more or less marked psychic disturbance, and in neither of these types is there much, if any, mental confusion. The first of the types resembles in this respect certain ordinary "sane" epileptics, and the second those "sane" epileptics who, in a condition of post-epileptic automatism, are responsible for many eccentric acts and even crimes, of the commission of which, on recovery, they are entirely ignorant. In the case of epilepsy and dementia, on the other hand, the fits are followed by more or less marked mental

confusion, which lasts for hours and even days, and after succeeding series of fits the existing dementia becomes gradually more profound. Some such cases, in fact, resemble examples of chronic dementia paralytica (general paralysis) in the point that numerous and severe fits result in an obvious increase in the degree of the permanent mental enfeeblement. It is thus evident that epilepsy acts, in relation to the subjects of mental disease, in a similar manner to that of the various forms of "stress," which determine the times of onset of first attacks or of relapses in high-grade aments, and therefore precipitate their confinement in asylums, and of mental confusion, resulting in mental enfeeblement, in cases which possess neurones of deficient durability. The psychic phenomena which occur in association with epileptic fits in all types of mental disease also afford an illustration of the general law that cortical neurones of deficient or subnormally aberrant development are not only less capable of resisting "stress" than are those of higher development, but are also more durable under the influence of such "stress" as that to which they may happen to be subjected, and that neurones of high development but deficient durability are more able to bear "stress" without interference with their functional activity, but, when the point of breaking-strain is passed, tend to undergo dissolution.

The influence of epilepsy on the psychic processes of the subjects of mental disease may therefore be thus summed up. In amentia of all grades co-existing epilepsy accentuates the psychic abnormalities which are characteristic of cases of cerebral under- or subnormally-aberrant development; and in dementia it increases the tendency to and the progress of mental enfeeblement in cases possessing cerebra of deficient durability. The general effect of co-existing epilepsy is therefore harmful in all types of mental disease. The epileptic idiot or imbecile is more spiteful and degraded, the epileptic high-grade ament is more vicious and impulsive, the epileptic maniac is more treacherous and dangerous, and the epileptic dement becomes progressively more demented, than occurs in the cases of the corresponding types of mental disease when this complicating factor is absent.

Epileptic insanity.—The 24 cases included in this group have been divided, for convenience of description, into the following four classes :

	M.	F.	T.
(a) Epileptic mania in cases of higher grade amentia which do not exhibit marked stigmata of degeneracy	2	5	7
(b) Epileptic mania in cases of high-grade amentia which exhibit marked stigmata of degeneracy	4	11	15
(c) Epileptic mania in a case of mild imbecility	—	1	1
(d) Epileptic mania in a case of higher grade amentia suffering from mild senile dementia	—	1	1
Total	6	18	24

The isolated cases in classes (c) and (d) are accidental types. The former of these has passed the boundary of Group I, Class (f), which includes cases of mild imbecility with epilepsy, without entirely deserving inclusion in the above-mentioned Class (b). The latter, on the other hand, would have been included in Class (a) were it not for the incidence of senile involution, with consequent mild dementia. For the purposes of description Classes (a) and (d) and Classes (b) and (c) will therefore be considered together.

Group V. Classes (a) and (d).

Higher Grade Amentia, with Epileptic Mania.

Under this heading are grouped 8 cases, of whom two are males and six are females. One of the latter differs from the remainder in the fact that senile involution of the cortical neurones with consequent mild dementia has begun to develop.

The cases at present under description agree in the possession of ordinary intelligence and in the practical absence of stigmata of degeneracy. In the examples in which a satisfactory personal history has been available, the incidence of the epilepsy has been delayed till puberty or even adult life has been reached.

The symptomatology of these cases is so well known that only the briefest reference here is necessary. The patients are unstable, irritable, and quarrelsome; and especially after, but at times in association with, fits they are liable to maniacal excitement, with outbreaks of impulsive violence. They are, as a rule, religious, and they are fond of attending services or of reading books dealing with spiritual matters. They associate together like ordinary sane individuals and at times make plans and plots against asylum government, and they frequently make

enemies, often as the result of jealousy. On the whole they differ from the average sufferers from mental disease in being less selfish, self-absorbed, and callous to the troubles of others, and in being more self-conscious. They in some respects resemble criminals rather than lunatics, and may be described as degraded rather than degenerate.

The violent psychic disturbances which are characteristic of these cases may occur after or in association with fits, or they may follow "sensations," which are probably attacks of *petit mal*. The expression "sensation" may refer to an aura preceding momentary loss of consciousness, but in some cases it is apparently used to denote a mere feeling of malaise without visible loss of consciousness. The severity of the psychic disturbances bears no necessary or definite relationship to the type or severity of the epileptic attacks. Cases with severe or frequent fits may show slight mental symptoms only, and others with mild, non-apparent, or infrequent epileptic attacks may suffer from severe psychic disturbance. These cases as a class are probably homologous to the group of "sane" criminals who suffer from "masked" epilepsy, and who, in a condition of post-epileptic automatism, commit murders and other crimes.

In general symptomatology cases of epileptic mania resemble certain other groups of high-grade amentia. They most resemble cases of recurrent insanity (Group III), and also, but to a less extent, they show a resemblance to certain types of excited and "moral" cases (Group II). In some instances, in fact, the difference between the types appears to lie solely in the presence of epilepsy, which acts as the exciting cause of, and increases the violence of, the recurring psychic disturbances which are characteristic of these cases.

The type of case under consideration shows as a rule less resemblance to cases with systematised delusions (Group VI), though examples, *e.g.*, No. 237, occur which might almost be spoken of as cases of abbreviated paranoia.

Cases of epileptic mania are frequently good workers. Both the male cases worked well, and of the six females, four, apart from occasional refusals, were excellent workers. The remaining two, owing to age and physical infirmities, were unable to do useful work.

The following two cases are inserted as illustrative examples:

*Higher Grade Amentia. Epilepsy, with very slight Secondary
Psychic Disturbance.*

CASE 235.—J. W—, male, single, bricklayer, æt. 34. Certified since the age of 27. In asylums at the ages of 26 and 25, and has shown symptoms since the age of 23. Mother suffered from paralysis.

A smiling man of pleasant appearance, who at once looks at me and asks if he is to sit down. He gives his name, his age, and his birthday. He knows the day, the exact date, when he came here, where he came from, and the exact date of his admission to that asylum, together with the period of his residence there.

He had his last fit five to six weeks ago. He usually has about one a month. They occur the first thing in the morning as he is getting up, or occasionally at night, whilst he is in bed. When the fit comes on he simply drops down, and he can get up and go to work directly the fit is over. If he has three or four fits in succession he feels "weak." He states that at the time of his admission to his last asylum he was violent after fits, but has since been well behaved. He passed the fifth standard at school, and the fits began at about the age of 14, the second or third year after he started work. He worked in the garden at his last asylum.

The patient, whilst under observation, was a useful and willing worker. He suffered from occasional fits, and psychic accompaniments were slight or entirely absent.

*Higher Grade Amentia. Delusional State Resembling Paranoia.
Epilepsy.*

CASE 237.—A. S. M—, female, widow, no occupation, æt. 42. Certified one year, and was twice in an asylum at the age of 26 and once later. Father insane.

A garrulous, excited, and highly neurotic woman. She gives her name and age and the date of her birth, and then asks "Why don't you look up things instead of asking me?" She knows the day and the date, where she has come from, and the date of her admission to that asylum. She states that her mother died five days before the last date. Then she asks me for a pair of scissors as she says she would cut off my hair and beard. On further examination, she states that she was the first of the Talbot family to be born on Rushton Park Estate. They are somehow a royal family. She was christened on the same day as some important person or other, and she then continues to repeat all kinds of inconsequent coincidences. She appears quite unable to appreciate the proper relationships to one another of external facts and occurrences. She strongly objects to my questioning her. She was married at the age of 26 (? true, as she was in an asylum that year) and has one son. She states that her husband left her a million pounds. She frequently calls me "fool" and "idiot." She is extremely egotistical. Whenever she sees the name Talbot (her maiden name) she fancies that it has something somehow to do with her. She is most abusive

and is extremely garrulous. Her mental condition much resembles a kind of abbreviated paranoia.

Patient rapidly became acutely maniacal and continued so for several weeks, till she was nearly worn out physically. She then improved and settled down into a stationary condition which lasted during the time she remained under observation.

She is, on the whole, quiet and well behaved, but she is at times garrulous, fussy, and hypochondriacal, and at others grandiose. She would dress fantastically if she dared. She is not at all religious. She does not hoard rubbish. She is very clean and looks after herself. She dusts the dormitory and makes several beds, and at times does a little needlework. If allowed, she would never leave the ward, and she is not anxious to go either to church, to entertainments, or even into the airing court. Every few days she becomes more or less abusive but soon settles down again. She frequently complains about the food, etc. This is especially the case when she is menstruating and for about a week at this time the egg is invariably bad or the beef-tea is short, etc. In her business letters to her lawyer she tends to keep away from the point, to write inconsequently and verbosely, and to complain of persecution. She frequently, in her letters to strangers, writes about her private affairs. Her fits are rare but she frequently suffers from "sensations." The latter often occur about dinner-time and she has from three a day to nine a week. She "feels them more than fits." They cause severe headaches and make her feel "weak." In conversation she is intelligent and at times interesting. Her memory is perfect. She would often during a prolonged conversation pass for a perfectly sane woman.

Group V. Classes (b) and (c).

High-Grade Amentia, with Epileptic Mania.

This class contains 16 cases, of whom 4 are males and 12 are females. One of the latter is intermediate in type between this class and that of mild imbecility with epilepsy.

These cases occupy an intermediate position between the last class, *e.g.*, "higher grade amentia with epileptic mania," and that of "mild imbecility with epilepsy"—Group I, Class (*f*). The fits as a rule begin during the early years of life, and the cases usually show marked stigmata of degeneracy. The patients in many respects resemble overgrown children, and hardly a single example of the class would be capable at any time of passing as a sane intelligent adult, in this respect markedly differing from the cases of the preceding class.

In many instances these patients are bad-tempered, spiteful, quarrelsome, violent, and even dangerous. Other cases, however, are emotional and hysterical, and many of the "fits" from

which these latter patients suffer, but especially those occurring during the day and under the influence of emotion, are indistinguishable from hysterical attacks. The fits which occur during the night are, however, more or quite typically epileptic in character.

These patients as a class are often very troublesome, but they quarrel together rather than combine in action. They, however, make friends as do sane people, and they are often favourites with the attendants and nurses. They are usually vain, and they are fond of decorating themselves with trifling articles of finery. They are frequently religious.

A large proportion of these cases were useful workers. Of the four males, one was a good, two were ordinary, and one was a poor worker; and of the twelve females, eight were good workers, and the remaining four, who were all very violent and dangerous patients, were unemployed.

The following three cases are inserted for the purposes of illustration :

High-Grade Amentia. Epilepsy, with slight secondary Psychic Disturbance.

CASE 242.—S. A—, male, single, labourer, æt. 34. Certified at the age of 28, and was previously in an asylum at the age of 24. Has suffered from fits since his birth.

An intelligent-looking man, with a receding forehead and chin, bright eyes, and a generally neurotic appearance. He gives his name and age, and the date of his birth. He knows the day and date in full, when he came, where he is, where he has come from, and how long he was there. He earned his living from the age of 11 years up to that of 24, when he first went to the asylum. He has suffered from fits for "some time, only just before I went to H—." (This is his only incorrect statement.) Before a fit comes on he feels as if he were going to faint. If the fit is slight he remembers everything. If it is strong, "I loses my senses." He has no other aura. As soon as the fit is over he "feels all right" and shows no confusion. He speaks as a rule in rather a childish manner, e.g., Can you read and write? "Yes." Have you been to school? "I went when I was a little boy, but I haven't been since." He writes well, he is generally intelligent, and he is a useful and willing worker.

High-Grade Amentia. Epilepsy, with slight secondary Psychic Disturbance.

CASE 251.—K. L. J—, female, single, no occupation, æt. 35. Certified since the age of 30, and previously in an asylum at the age of 29.

A dark-complexioned, neurotic-looking woman, who smiles pleasantly. Teeth irregular and projecting. Palate very high and narrow. She gives her name and age, and says she has "been afflicted twenty years." She was "not unwell till 17." The fits came on at the age of 13 or 14 years. She knows the day and date, and where she is and where she has come from. She was previously in an asylum for four and a half months at the age of 29. Her illness "came on as screaming fits and upset the neighbours, and my doctor sent me there." She has only had two or three fits during the day. "They came on during my sleep." She feels quite clear in her head in the morning, but is sometimes sick, has a headache, and feels too ill to do anything.

Her memory is good, but she is childish, simple-minded, and hypochondriacal. She is sensible, well-behaved, clean, and a good worker. She is very obliging and does her work well. She is very religious and always remembers the text of the sermon in order to send it to her mother. She has no special friends amongst the patients. She, however, does a good deal of private needlework, and writes home regularly. She has had no fits for over a year, but frequently has headaches at the menstrual periods and "suffers in her back." At these times she often loses her memory for short periods or forgets things, and she is more than usually hypochondriacal.

High-Grade Amentia. Epileptic Mania.

CASE 252.—A. S. P.—, female, single, no occupation, æt. 31. Certified since the age of 27 years, and previously in asylums at the age of 17, 21, and 22 years.

A pleasant-looking woman of pale appearance. She gives her name, age, and date of birth. She knows where she is, when she came, where she came from, and the present day and date. She has been in "a place like this nearly 22 years." She has been three times previously in asylums, and three times in workhouses or hospitals. On the first occasion, shortly after her eleventh birthday, she fell into the fire, was severely burned, and was sent to the hospital. After her discharge from the hospital she had only been at home a few days when she was sent to the workhouse, and she has since spent her life in workhouses or asylums.

When under sedatives she rarely has fits. She usually has one or two a month, and they as a rule occur during the night. When the new moon is about she "has sensations." She feels them most about her heart. The "sensations" do not always end in a fit, but when they do "I feels lost and hears myself laughing, and cannot stop it." When she has a severe fit she has no "sensation" at all, but falls down suddenly. She dreams a good deal at night, but especially at the new moon. She says she feels disagreeable at times. She is very hypochondriacal and garrulous.

As a rule this patient works well, and she is very clean and attends generally to herself. She is, however, very spiteful and interfering. She makes friends amongst the patients but cannot keep them. She is very jealous when other patients are taken notice of. She is extremely

religious. Real fits are rare, but she frequently has "sensations." When they come on she begins to cry and sob. They are not followed by confusion, and when they are over she often says, "I feel better and that's for a few days more."

GROUP VI.

CASES WITH SYSTEMATISED DELUSIONS (INCLUDING PARANOIA).

This group contains ten male and sixteen female cases, the predominant characteristic of which is the existence of a sub-normally aberrant type of ideation which results in the development of a systematised series of delusions. Throughout the following description the term "paranoia," for purposes of convenience, will be used in a generic sense with reference to the whole group of cases.

As all cases of this type sooner or later develop ideas of grandeur, and in this respect resemble many of the "cranks and asylum curiosities" described in Group II, Class (*d*), it seems desirable here to compare these groups with their sane prototypes, in order to demonstrate the difference which exists in the processes by which, in the two groups of cases, these ideas of grandeur become evolved. The "delusions of grandeur" which frequently exist in cases developing or suffering from dementia will be referred to in the third part of the paper. It is sufficient here to state that the ideas of grandeur at present under consideration appear in consequence of developmentally aberrant ideational processes, whilst those to be referred to under Dementia occur as a result of imperfect ideation in cerebra which are undergoing degeneration, or which are "mained" and consequently unable to perform their functions normally owing to previous degenerative processes. In the former type ideas of grandeur develop in consequence of definite and systematised processes of thought, however aberrant or abbreviated these may be, and, if the premisses were correct, the conclusions, except for exaggeration, would follow. In the latter type the ideational processes resulting in delusions of grandeur are largely unsystematised, and in many cases the mode of development of the idea of grandeur is simply a process of "going one better" by relative association as the result

of the feeling of well-being. For example, a case of dementia paralytica, on being asked if he possesses a hundred pounds, may reply "A hundred? *Hundreds*, THOUSANDS, MILLIONS!" and an indefinite number of similar "delusions of grandeur" may readily be manufactured by appropriate interrogation.

The "crank," whether sane or insane, grades into the paranoiac, also whether sane or insane, and the essential difference between the two types lies in the process by which the idea of grandeur is developed. In the former type the evolution is simple and rapid, and the result may even appear spontaneous, whereas in the latter the process is complicated and gradual, being in the sane variety the natural consequence of a real "hard time," and in the insane that of a lengthy and grotesquely exaggerated system of persecution, which may, or may not, have any basis in fact.

The sane "crank" accepts or originates an idea which is contrary to accepted usage or scientific fact, *e.g.*, positive as vegetarianism, or negative as anti-vaccinationism, anti-vivisectionism, anti-taxationism, etc. He glories in his peculiarity, courts persecution, is unsusceptible to argument or proof, develops a sense of responsibility as a reformer or an innovator, and, as a natural result, evolves ideas of grandeur.

The insane "crank" is simple-minded, peculiar, and erratic, or possesses ability in association with grotesque ideation and the resulting weird actions and eccentric general behaviour. Both types, in consequence of petting and spoiling, markedly develop their inherent vanity, and their aberrant association of ideas, occurring in the absence of any criteria of comparison, readily results in notions of grandeur. Even a patient with intelligence little above that of an imbecile will, for example, believe in his royal lineage, in spite of the existence of a living father and mother, if he is told that he resembles the Georges and particularly such a personage as the late Queen in appearance; and the development of ideas of grandeur, when a patient actually possesses a certain capacity for painting or poesy, naturally follows still more readily.

The sane "crank," apart from his fixed idea, may or may not be a useful or even a prominent member of society. The sane "paranoiac," on the other hand, is frequently a person of ability, and not rarely has risen in social status by his own efforts. Such an individual as the latter may be described

shortly by means of the one word "upstart." Men who have risen from the ranks in the army are at times domineering to their former compeers, and suspicious of and insolent to their present more-cultured associates. Women who have risen from the position of domestic servants may become dictatorial, domineering, insolent, and unjust to their present inferiors. Such cases are, to say the least, not of a high intellectual grade, or they would not so exaggerate their own performances and would be less ignorant of their own ignorance. Examples of sane paranoia in persons of higher capabilities or social status are, however, probably more numerous. A type of the sane professional paranoiac is, for example, a medical consultant who has for years had the greatest difficulty in earning his livelihood, or even in keeping the wolf from the door. He has during this period associated with successful men of his own grade, and his vanity has been fed by the adulation of students and nurses and by the feeling of pride that he is *not* an ordinary general practitioner but is a member of the higher grade of the profession. The lower the actual intellectual status of such an individual, the higher, when success eventually crowns his efforts—and these more often consist of obsequiousness, tact, and diplomacy than merit the name of scientific achievements—is his opinion of his position and importance. He is grandiose, domineering, consequential, and dictatorial, and his juniors or inferiors find it almost impossible to work harmoniously with or for him. A more common type of sane paranoiac than the professional is the social variety. An individual manages for years by the exercise of thrift and tact to live on the fringe of "society." He carefully cultivates certain people, who are perhaps most undesirable or even unpleasant acquaintances, simply because of their social connections, he submits to any number of rebuffs and indignities, and he exercises an amount of tact and discrimination in his management of different people who may be of use to him from the social point of view, which, if employed for business purposes, might make him a fortune. The greater the difficulties such an individual experiences in continuing on terms of acquaintanceship with those whom he considers the elect, and the severer the hardships he has to suffer, the more he looks down on the common people—who not being in society have necessarily been manufactured by the Great Artizan from

inferior materials—and the more arrogant and insolent is his behaviour towards them. The sane paranoiac is thus an individual who, owing to his limited mental range, views his personal experiences and capabilities through convex lenses and therefore develops intellectual stereotypism with ideas of grandeur. Whilst the “crank” concentrates his energies primarily on the accomplishment of an eccentric object which is not directly connected with his own welfare, the paranoiac devotes himself to the consideration of his own personality from the aspects of both experience and accomplishment, as if he were the one individual with brains in a world of fools.

The insane paranoiac occupies the status amongst cerebral degenerates which is filled by his prototype amongst the sane. He begins his life as a sane individual, and becomes out of accord with his environment at some period of adult life.

An example of the younger and more degenerate type is a man who, owing to real, but unappreciated, intellectual incapacity, drifts from employment to employment without realising that his services are dispensed with owing to his inability to perform his duties in such a manner as to justify their retention. Sooner or later such an individual develops the idea that he is badly treated, or that some former employer has actively endeavoured to deprive him of his situation. The particular idea of persecution which first develops necessarily depends on accident of environment, and many different imaginary wrongs may be considered and rejected before the basis of his future content of delusions is laid. He may, for example, see a younger brother placed in his father's business, whilst he himself is unable to keep in any permanent employment, and may, consequently, seek a reason for his father's fancied prejudice against him and discover his traducer in a family friend or medical adviser. The essential feature of such a case is a suspicion of others which will sooner or later foster definite ideas of persecution, and these, as the result of introspection, become gradually more intense, more systematised, and more likely to form part of the content of a permanent delusional state.

Cases of paranoia developing at mid- or late adult life agree in essentials with those occurring at an earlier period, but differ somewhat in their mode of origin. A clerk, for example, after several years of hard drudgery in a city office, becomes, owing

to the monotony of his life and the constant mental strain of his duties, nervous and fidgety, and fearful of making mistakes. He may merely be afraid lest his uneasiness be noted by his colleagues, or they may actually talk about or even make a butt of him. Further, when in the streets, his nervous and absorbed manner or his furtive glances may cause people to look at him as they pass. He thus readily becomes suspicious and watchful, tends to apply to himself looks and remarks which really do not concern him at all, and eventually develops the mental condition referred to in the preceding paragraph. A married woman, again, who has for years lived a secluded and monotonous life, may, as the result of real or fancied trouble with her neighbours, develop the idea that they try to annoy her in various ways. Every action performed by them, every noise produced in their house, or every alteration made in the outside decoration of their premises, may appear to her to be done on purpose to annoy her; and eventually similar ideas of persecution develop. In such cases, when the mental condition has already become such as to afford a suitable soil for the growth of the delusional state, this may spring up as the result of accidental occurrences, which would be without permanent ill effects on a normal individual, such as alcoholic excess, severe illness, monetary losses, or family troubles. In the cases of the first and second of these exciting causes, ideas of persecution may develop as the result of hallucinations of hearing secondary to cerebral toxæmia; and the disorder may thereupon run a more rapid course. Many examples might be added to illustrate the various modes of development of what is finally a delusional state, but the above are probably sufficient to demonstrate the nature and origin of this condition.

The delusional state has at first no definite, or at any rate no fixed content; and the actions of the patient in some respects resemble the watchful and suspicious behaviour of an animal which has at one time suffered ill treatment, and is, therefore, inclined to look upon every stranger as a probable foe. The content of delusions develops more or less rapidly *pari passu* with the evolution of the delusional state. The patient lives in an atmosphere of suspicion, and everything said or done in his presence is subject to misinterpretation, and in some way or another is applied to himself. He broods over his fancied wrongs, and is constantly associating together ex-

pressions or actions which have nothing in common. The earlier delusions of persecution may constantly change until one or more of these is finally accepted and adhered to. Whilst the exact content of delusions at the beginning thus depends on accident of environment, this original basis is then constantly added to by a combination of the results of experience and introspection until a whole systematised superstructure of possible and impossible persecutory ideas is eventually elaborated.

An individual, for example, accepts the idea that his wife has committed adultery with some particular individual, and becomes gradually so suspicious and violent as eventually to require certification. He appears to lose the idea and is discharged from the asylum. During his detention his wife has earned her living by taking in lodgers. On his return the patient finds this out, and he concludes that she has been keeping a brothel during his absence, and has even been training her daughters in immoral practices. He says little or nothing, but watches her conduct, suspecting her all the time of immoral behaviour with every man she happens to be alone with. In consequence he develops the idea that even tradesmen and vagrants calling at the house have come for immoral purposes; and if his wife when out of doors speaks to a male acquaintance he suspects her of making an assignation. Finally, after more or less domestic trouble, associated perhaps with violence on his part, the patient is again certified, when without delay he begins to accuse his wife of causing his incarceration in order to remove him from her path. He then proceeds to suspect certain of the attendants of going to visit his wife when they are off duty, and either attacks them or endeavours to make such complaints against them as will secure their dismissal. Such a simple type of case, if at large, would be likely to commit homicide sooner or later.

Almost any idea of persecution may serve as an accidental basis for the development of a systematised content of delusions, but in the more typical cases the original persecution has been carried on by some particular individual, and in at least many instances the idea contains an exaggerated and misinterpreted basis of fact. The patient then, as the result of prolonged introspection, succeeds more and more in blackening the character of the persecutor, who eventually becomes in his

eyes an incarnate spirit of evil. The more diabolically ingenious the persecutor proves himself, and the wider the net which he has spread for the unfortunate patient, the more and more persistent becomes the question "Why is he so persecuting *me*?"

At this point the patient becomes almost desperate, and during alternating periods of grotesque exaggeration of his ideas of persecution, and of comparative sanity, during which he laughs at the opinions he has expressed, the grandiose stage of the delusional state begins to make its appearance. The patient has often hitherto been more or less reserved regarding his "case," but he now becomes abnormally garrulous, and repeats a minutely detailed description of this whenever he can obtain a listener. He worries everyone around him, and especially strangers, with a full account of his sufferings, and endeavours to obtain their opinion and advice. According to the temperament, the previous experience, and the present environment of the patient, the persecutor may be employing secret service agents, who later are associated with secret societies of world-wide influence, or detectives, who are Jesuits in disguise, and who gradually come to employ the whole mediæval power of the Roman Church to compass his destruction, or secret police, who watch him lest he should by chance escape and influence the political situation in England, Europe, or the world. One patient, when almost despairing of finding an explanation why his enemy had obtained his incarceration in an asylum, suddenly remembered an illegitimate child of his who was at that time about twelve years of age. He knew nothing definite concerning the history or connections of the mother of the child, and eventually, after thinking the matter over, concluded that she was probably of royal or august parentage, and had been stolen in infancy and hidden away under the guise of poverty. He hence concluded that *he* was incarcerated lest he should discover these facts and claim the throne on behalf of his daughter.

When the persecutory ideas of the patient have thus passed from the possible to the impossible, accident of environment will soon cause him to develop some definite idea of grandeur. The death of a king or queen, the Pope, or an important political or social personage, etc., at once leads him to apply for the vacancy, and after several tentative titles he eventually fixes on one, and the case is then fully developed.

As the result of constant repetition and introspection the personal history of the patient has by this time become stereotyped and abbreviated, and his description in some instances becomes almost unintelligible without the key furnished by a previous knowledge of the case. The patient is an emperor, a general, the Prime Minister, etc., and round his grandiose account of himself are fossilised the remains of, usually, his later delusions. At this, the fully developed stage of the disorder, it is common to find the patients willing to work usefully, whereas during the earlier and persecutory stage they frequently refuse to do any work whatever.

The period of time required for the full development of the paranoiac varies from a few to very many years, and numbers of patients die before they reach the final stages of the disorder. Frequently the pre-senile or even the senile period of life is reached before the case is fully developed, and it may then be complicated by the incidence of involution of the cortical neurones, with consequent mild dementia.

Both the mode of development and the general characters of the mental symptoms of paranoia are markedly influenced by the degree of education possessed by the individual sufferers. Educated patients reason well and even acutely, whilst uneducated subjects find great difficulty in expressing themselves, reason in a faulty manner, and make weird mistakes from ignorance both of the terms they use and of the exact connotation of these. Such patients, on the advent of a new invention or discovery, at once apply this to their own case, and not only get hold of the new word inaccurately, but also apply the process or fact in some grotesque manner, which however is in strict accord with their own limited knowledge and experience. Errors of this nature have to be carefully allowed for during the study of the mental processes occurring in this class of patient.

From what has already been stated, the existence of aberrant forms of the general type of case which exhibits systematised delusions is readily intelligible; and unusual exciting causes, particularly when hallucinatory phenomena result from these, frequently give rise to an unusual symptomatology and to an entire modification of the general course of the case. It is also especially difficult to determine where the group of "asylum cranks" ends and where that of systematised delusional cases begins. In this respect, however, the group of cases under con-

sideration resembles the other groups into which cases of amentia have been divided. All the groups grade insensibly into one another, all excepting the first, which contains idiots and imbeciles, possess their sane prototypes in the outside world, and all agree in exhibiting to a greater or a lesser degree the essential characteristics of deficient or subnormally aberrant cerebral organisation, and, apart from senile involution of the cortical neurones or degeneration of these from accidental extraneous causes, of absence of cerebral dissolution and consequent dementia.

Of the 26 cases which are included in the present group, and of which a considerable proportion had reached their full development, the majority were useful workers. Of the 10 males, 8 worked very usefully, and of these 3 were early cases and 5 were more or less fully developed; one, an early case, refused to work, and one, a fully-developed case suffering from senile involution of the cerebrum, was an ordinary, but useful, worker. Of the 16 females, 8 were good workers, and of these 2 were early cases and 6 were more or less fully developed; one early and 2 developed cases refused to work, one early and 2 developed cases were ordinary workers, and one fully-developed case suffering from senile involution of the cerebrum and one fully-developed case owing to bodily illness were poor workers.

The following six cases are inserted for the purposes of illustration :

Delusional Insanily, Pseudo-Hallucinations, Mild Dementia.

CASE 258.—D. E.—, male, married, labourer, æt. 62. Certified since the age of 57, and symptoms for some time previously.

An intelligent-looking old man, who is very deaf and therefore shouts loudly during conversation. He says that his deafness is due to a blow on his head from a shovel. He makes a whistling noise with his tongue and teeth as he talks. He gives his name and age, and the day and date, and knows where he came from and where he is. He strongly objects to the name "Hellingly." He thinks "heavenly" might trend to the good of the inmates, but the present name of this place is blasphemous. He thinks "people ought to be very careful in giving names to places. There is plenty of obscenity on the earth without making it by such names. There is too much dancing, etc., at music-halls. People transmit disease from hand to hand, and breath to breath, while dancing." He then continues for some time to protest strongly against the obscenity of dancing. He will not believe that the practice came from the East

either from the Holy Land or the Mohammedans. I then interrupt him with a question or two about dates, and make a remark about newspapers. This causes him to begin again, and he makes severe remarks on the abuses of asylums, and about newspapers in general, and the favouritism of giving newspapers to some inmates and none to others. He does not blame all the officials, though most are of no use. A few are, however, valuable, and one was kind to him. After a few personal questions he tells me that he hears voices at night. His mother comes and talks to him then. She weeps over him, as he has found her tears on his cheeks; and this recollection or inference causes him to become emotional. He then tells me that some time ago he was listening to Her late Majesty Queen Victoria and Mr. Gladstone. They were speaking in a little chapel, and he could see them most clearly. In confirmation of this he tells me that he knows the site, etc., of the chapel in question. This occurrence was before the late Queen died. A few days after it Mr. Gladstone died. He says that long before she died he prophesied the exact day and date of the death of the Queen. This remark *apropos* the subject of prophecy causes him to say that he has seen it raining fire from heaven in Eastbourne. "Oh, it was something fearful and a Divine punishment for drinking so much evil spirits." He now becomes grandiose rather than dictatorial and prophetic, and states that his father was a prince and his mother the rightful heirress to the crowns of England and Spain. Her name was Jane, Jeanne, etc. He himself is the Earl of Sapton, Duke of Clarence, Kent, and Lancaster, by right. He, however, was proscribed. He has a scar on his right side (correct), which is like a crown (imagination), and he says that it is upside down for this reason (*i. e.* he thinks that the scar looks like a crown upside down, and that it is placed thus both to identify him and to show that he is proscribed). His "mother was buried in a gold crown, and the Crimean war was fought over her poor carcass."

When the patient gets excited, his ideation becomes rapid, and he gesticulates and discourses as the result of vivid pseudo-hallucinations. He is a decent old man and a fairly useful worker in the tailor's shop and the ward. He is most punctilious in the performance of his duties, and does his work slowly and very carefully. He is, however, so interfering and fault-finding when in contact with other patients that he only works satisfactorily for any length of time when kept quite by himself.

Developed Paranoia; Onset in Early Adult Life.

CASE 261.—T. H. T—, male, married, musician, *æt.* 39. Certified since the age of 32 years.

An intelligent-looking man of dark complexion, and with elevation of the outer canthi. He gives his name and age, and his knowledge of time and place and general intelligence and memory are normal. When asked if he is a musician he replies "Three right sides" (*i. e.* he is a man with three accomplishments), "recitation, singing, and violin-playing. Taste for poetry-writing and so on." He has a pretty good all-round talent, if he is allowed to get it up. He then offers to give the asylum people two millions. "No limit, I think, scarcely" to his possessions.

A hundred thousand is enough for his own pocket. He is above crowned heads in finance, but keeps in a medium position to stop jealousy. He hears "a sort of muttering, a little by-play, a way they have of explaining a little roundabout affair over this long life system." Asked what this is, he says that people can call him the "rightful pro-longer" on account of the long life system he has started. "A man can live a thousand years through bleeding, as the anatomy gets harder every year one lives, from the pulp of a baby to the hardness of a man, by keeping from all diseases, as one's whole anatomy hardens, barring one's teeth, unless attended to." He says that these ideas arose from a dogbite when he was a youth. He bled a basin of blood and felt so well after that he "has tried and proved these ideas correct," but then he has "a very penetrating mind." When questioned with the object of eliciting a persecutory phase to his mental state, he replies that all through his life certain people and the police have had a modified way of annoying him. They castrated him to a certain extent, making his testicles nearly as small as a hazel-nut, but they are now improving. He thinks "a little trick was going on," but he does not know who his persecutors were.

The patient is a good worker, and is an excellent player on the violin. He is a member of the asylum band, and at times plays solos. He is solitary in his habits, and is liable to become violent and dangerous if interfered with.

Developed Paranoia. Onset at the pre-senile Period of Life.

CASE 264.—J. H—, male, married, farm bailiff, æt. 64. Certified since the age of 53, and was previously in an asylum at the age of 49. Brother insane.

The patient is a pompous-looking old man with a long white beard. He gives his name, age, and birthday; he knows the exact day and date, where he is and where he has come from and when he came, also the exact date when he first went to an asylum, and the exact dates when he was transferred from asylum to asylum during the past eleven years. His memory and intelligence, in fact, appear normal, and the former is acute.

He then, observing that I am taking notes, slowly dictates as follows: "The 17th of August was the day, in the year 1825, when old Farmer Gilbert Henry Thomas Fowler used the means of getting mother Ann Longley, daughter of William Longley, and in due time her first-born son was born. He signed a cheque 'Henry Carrington Smith' for me, and was really J. W. Fowler Longley." He tells me this "to show what a beastly bad fellow that a' been." On careful inquiry I find that he does not suffer from hallucinations, but "everybody seemingly is my enemy. . . . Why should I not have my liberty, but herd with a lot of notorious whores, rogues, and vagabonds?" . . . "John William Fowler Longley is the man who will have his way. He killed two children in the docks at G—. I didn't see him, but am sure that he did so. He also killed three in the docks at L—. He tried to shoot me and got other folks as was lunatics to do so, and I had to sleep

in the same dormitory at H— with them.” On further examination, patient states that his mother “was used by three lions, two lions and a lioness, after being knocked down at Gloucester, Wombwell’s show,” and that therefore he is “Coer de Lion.” He is also the first cousin of the King of England, as his father and the King’s father were own brothers.

The patient is an extremely decent and intelligent old man and is a good and willing worker. His mental condition has now obviously long been stationary, and a study of the above description shows that he has got to the “abbreviation” stage in his delusional state, although, as he refers to the *King* of England, he is still continuing to add to his content of delusions.

Developed Paranoia. Onset at the Pre-senile Period of Life.

CASE 271.—M. H—, female, single, lodging-house keeper, æt. 66 ; certified since the age of 57. States that she has a sister insane.

A pleasant, but dignified-looking old woman, with an expressionless forehead which does not move when she smiles.

She at once begins to tell me that she was kidnapped at W—, in place of someone else, eleven years ago, and placed in F—. She had a sister there also, and the latter was quite well enough to be out. “Nothing much the matter with her.” Patient gives the following account of her own incarceration. She was in W— and heard a voice saying, “Go to the Town Hall for your ticket.” She also heard a gentleman asking her what she was doing there at that time of night, and then heard someone say it was a detective. She thereupon went to a police-station at W— and asked if there was a letter or papers for Miss H—. She indignantly repeats that she “never asked for money.” She was then taken to the infirmary. She denies that she ever had anything to do with any sailors. She insists on the respectability of her lodgers, and says she had many enemies who wanted to get her out of her house and keep her out of prospective money. She talks then a good deal about money and legacies and cheques which were to be, or might be, obtained by her. She gives a long and somewhat rambling, but perfectly coherent, account of her incarceration, the striking feature of which is that, whilst she will talk indefinitely if left alone, she will not attend in the least to what is asked of her, but at once abruptly denies it or refuses to reply. The reason for her behaviour is that every word one says is understood by her to mean that one is trying to get at her in some way or other, in order to obtain evidence of her insanity by misinterpretation of her remarks. After spending a little time in reassuring her in this respect, one is able to get her to reply to ordinary questions. She then gives her full name and states where she is, when she came, where she has come from, and the day and date. She also states how long she was in her last asylum. To a question concerning her age, however, she whispers that the patients near are noticing ; it is better, as she is sane, that they should not know.

During her residence she was very dignified and grandiose ; she decorated herself with ribbons and pieces of dress material, and was very careful about her hair. She made her bed and attended most

carefully to herself and her belongings, of which she possessed a quantity. She sewed very well and neatly and was very industrious, but absolutely refused to do any ward work. She was at times abusive and disagreeable, and was very eccentric and disinclined to make friends. She misconstrued what was said to her when spoken to, and was very suspicious. She considered the people around her spies sent to watch her, and at times remarked that other patients were wearing articles of clothing belonging to her. She would never have a second helping at meal-times unless she herself handed her plate to the charge nurse. On one occasion when excited she was ordered a dose of calomel, which was given in a cup of tea (!) by an inexperienced nurse. There were, she noticed, eight patients at the table and also eight cups set out. The nurse brought in a ninth cup and set it before her. She at once was suspicious, examined the tea, found the calomel, refused to take her meal, and, when she saw me, accused the nurse of attempting to poison her. This incident is a good instance of her general shrewdness, and on many occasions similar occurrences were noticed.

Paranoia passing into the Final Stage. Onset in Early Adult Life.

CASE 278.—K. L.—, female, married, housewife, æt. 35. Certified since the age of 34. Was, shortly before this age, in an asylum for some weeks, and has shown symptoms since her youngest child was born, four years ago.

A smiling, but fatuous-looking woman, with bright eyes, an expressionless face, and many fine horizontal lines on her forehead. She gives her name and age, and the day and date in full, and states exactly where she is, when she came, where she has come from, and the exact dates of her detention in asylums. She states that she went to the asylum to visit a friend and they kept her there. She does not know how the mistake arose, as both her husband and brother want her out. In fact, she says, her husband has many times brought her clothes to the asylum, but the authorities would not let her go. She says that "a man next door" wanted their cottage for a friend of his, and that he sent her to the asylum in order to get rid of her, and so get her husband, when the housekeeper was gone, out of the cottage. The "man next door" began to get things at shops in her name in order to get her into trouble. He went by the name of Fred Bray. She seems to doubt whether this was his real name, as he only got 23s. a week and a cottage, and still went to Brighton and to theatres, etc. People thought that she was interfering with other people's affairs. She has not done so unless they know her thoughts, and her thoughts wouldn't do any harm to anyone. She thinks that the "man next door" hypnotised her husband and then herself, as her husband once gave her a black eye, and he had never done so before. This man had power to do an injury to anyone who wished her well. "These people had no business to write to other people about me; it's forgery. If he has killed one he has killed hundreds. He outraged my little Bessie, aged 8, a pretty little girl. Such fellows deserve roping. It's a pity God lets them live, I think. If he hadn't something he wished to hide, why did he try to pass

my friends off as his? He has taken our name and passed in a sense as my husband." She is very garrulous, and has a rather childish way of talking. She is extremely suspicious, and when I ask questions about her children, etc., she wants to know why, and then asks if I have any children myself. When I reply "No," she says, "Perhaps you are like the 'man next door,'" and "Perhaps you have plenty in the workhouse."

During her residence she was often excited, and was extremely garrulous and suspicious. She frequently wrote long letters dealing with her case, and the ill treatment to which she thought she was subject. At times she would work hard, but as a rule she refused to work. Latterly, as her mental state was passing into the next phase, she used to think at times that she was really the medical officer, and used to ask for her salary and her uniform, and to state that it was her intention not to undertake her duties unless these were provided. At other times, again, she denied all this and made her more usual demands for her liberty and for large sums of money on account of her detention, threatening all kinds of criminal proceedings and penalties.

Developed Paranoia in a Patient of Deficient Education.

CASE 281.—E. K—, female. Æt. approximately 40–50, but difficult to judge. Certified 5 years.

A phlegmatic-looking woman who screws up her mouth and smiles. Very stout. Lateral spinal curvature. Palate deep and narrow in front. Enormous lobules to ears. When asked her name says, "I'm known by that name" (pointing to admission paper), "but it's not my name." "I take Black as a surname." Christian name? "Victoria." "I sit next the crown. I have the income equal to the position, a thousand a year and a fortune." "I accepted ten thousand as a settle, waiting so long, kept out of it so long." Her memory and general intelligence are practically or quite normal for an uneducated woman. She was in her last asylum "five years and a half quite, not for any lunacy, political." There has been an "immense plot to keep me out of my rights, almost from birth, not quite." She states where she is, "H—, I'm told, but not the original." How not? "Because they reversed the station for bettering political matters. I recognised as I came along that it was so." She hears voices at night. "Some friends of ours followed me here on political matters, and we have verified the case that I carried the crown. *It came out grandly last night.* We've really conquered the whole of Europe through coming here. The last is a great Richard's king case of course." Regarding her capacity for work she states that she sews well, but "I'm a first-class certificated mistress by profession."

During her residence she was dull and phlegmatic, and did very little work. Her mending often had to be unpicked, and she would work at a garment for weeks without finishing it. She used to tear up music and new newspapers, and was careless of her belongings, and left them about. She made her bed and attended to herself. She often wrote letters, especially to the Commissioners of Lunacy or the King. She

thought that the charge nurse, when she went out of the building, received messages for her from different parts. She was very grandiose, but was quite satisfied with the food and with her surroundings. She never interfered with other patients, but got on her dignity if anyone interfered with her.

On Some Relations between Aphasia and Mental Disease.

By SYDNEY J. COLE, M.A., M.D.Oxon., Wilts County Asylum, Devizes.

THE hope that a study of aphasia might show a way to a better understanding of the nature of insanity is not new. Even at a time when far less was known about aphasia than is known to-day such a hope was not without easily conceivable grounds. It will now hardly be maintained that the perverted speech of a lunatic is always to be regarded as a just presentation of perverted thought. Not only is the thought disordered, but often also the speech itself. The symptom of perseveration, for instance, does not always represent morbid prevalence of an idea ; it may express a disorder which lies rather within the sphere of speech. This is well illustrated in a case of eclamptic insanity reported by Heilbronner.⁽¹⁾ Of pictures representing birds of various kinds, the patient designated many in succession as "swan," even when identification was correct ; she called a stork a swan, and at the same time alluded to the stork fable. In this instance it is not the idea that clings, but the word, as in the recurring utterances of an aphasic. In many forms of mental disease we meet with symptoms of amnesic aphasia, loss of nouns, inability to name objects seen. In certain forms of incoherence we can recognise an element of paraphasia. Thus we can often obtain a clearer conception of the speech disorder of a lunatic by regarding it from the aphasic standpoint.

The late Professor Wernicke, who was the first to call attention in any systematic way to the importance of the relations between insanity and aphasia, laid stress on the significance of the so-called "transcortical" forms of aphasia as links between the aphasias and the mental diseases.⁽²⁾ That form especially to which he gave the name of "transcortical

sensory aphasia" is of great psychiatric interest. It is regarded as corresponding to a type which Lichtheim obtained deductively by supposing an interruption of a path from the auditory word-centre to a schematic centre for concepts.⁽⁸⁾

According to Lichtheim, such an interruption should express itself as follows. There should be loss of understanding for spoken and written language. Volitional speech should be preserved, though it should be paraphasic. Volitional writing should be preserved, though it should be paragraphic. There should be preservation of ability to repeat words spoken by another person, to read aloud, to write to dictation, and to copy writing ; but there should be complete loss of intelligence for what is so repeated, read, or written.

Since Lichtheim wrote there have been published a number of cases which, though showing some deviations, have approached more nearly to this type than to any other. In some cases the disorder has followed injury, or coarse focal disease ; but often it is one of the expressions of some form of insanity. For a proper understanding of such conditions, in respect of their clinical as well as their pathological features, more numerous observations are required. In this paper I would discuss briefly those aspects of transcortical sensory aphasia which are of interest to the alienist, and report (by the kind permission of Dr. J. Ireland Bowes, superintendent of the Wilts Asylum) some cases which have come under my personal notice.

A prominent symptom in many instances, one which may often be the means of drawing the observer's attention to the aphasic defects, is *echolalia*. Lichtheim appears to have regarded this symptom as pathognomonic of the condition. Its occurrence in aphasic cases is well known ; indeed, it was in association with aphasia that Romberg first described it. Yet it has not always been regarded as an aphasic symptom in itself. Its occurrence in various forms of insanity is mentioned in most of our text-books without reference to its aphasic relations. But there seems good reason to believe that, at any rate in senile dementia, epilepsy, and general paralysis, the echolalia is usually and perhaps always accompanied by aphasic symptoms ; and the same may be true of cases of other kinds, including some which might be assigned to the katatonic form of dementia præcox.

Various grades of echolalia have been distinguished. The

slightest is Pick's "Echolalie in Frageform," the purposeful repetition or giving back of a question. As a sign of difficult apprehension this is met with in confusional states. There may be a turning of the phrase, as when in response to the question "How old are you?" the patient says "How old am I?" In the severest grade, "automatic" echolalia, the patient mechanically repeats most of what is said to him, and even words and sentences casually overheard. Between these two extremes there are any number of intermediate grades, so that it is nowhere possible to draw any sharp distinction between what is purposive and what is automatic. Throughout the series a relation can be traced between the echolalia and *defect of understanding for spoken language*, most clearly perhaps in cases such as that reported by Sterz.⁽⁴⁾ His patient could still understand and speak fairly fluently her Slavonic mother tongue, but for German, which she had not learned till grown up, she now showed echolalia without understanding. Similarly an unusually puzzling question will sometimes elicit echolalia from a normal person. A conventional imitation of this natural phenomenon is presented to us in the entertainments of nigger minstrels whenever a riddle is propounded.

Arnaud has attempted to distinguish six forms of word-deafness, three of which, on account of preservation of ability to repeat words spoken by another person, would come under the head of transcortical sensory aphasia.⁽⁵⁾ In two of these forms, those which he terms "mental" word-deafness, there is some disturbance of voluntary speech: but while in one there is echolalia without understanding, in the other the patient understands the words after repeating them ("echolalia with consecutive intelligence"). In the remaining form, "representative" word-deafness, in which there is no defect of voluntary speech, repetition is apparently of no assistance. These forms, as Pick has shown, fade into one another, so that the classification has little value.⁽⁶⁾

Transcortical sensory aphasia may be transient or permanent. As a transient disturbance it may be observed in some cases of intoxication by alcohol or chloroform.⁽⁷⁾ More interesting to the alienist are the transient disorders occurring in epilepsy. Pick has given an excellent account of such word-deafness and echolalia in re-evolution after epileptic fits.⁽⁸⁾ Similar disturbances in epileptic confusional states, not obviously attributable

to fits, have been described by Raecke.⁽⁹⁾ The occurrence of the same aphasic disorder during Jacksonian fits may be illustrated by the following case :

Married woman, formerly a cook. Family history unknown. Had three children. First attack of insanity at age of twenty-nine. Admitted to Wilts County Asylum in 1874, at the age of thirty-two, in the third attack. Quiet, depressed, suicidal; delusions of poisoning and hallucinations of hearing. Since then she has been silly and weak-minded, but cheerful, industrious, well-behaved, and on good terms with patients and staff. Has had silly delusions, as that her brain has been stolen and pickled, and that her stomach contains a drawing-room full of people. At times she has had combined hallucinations of sight and hearing, imagining she saw children swimming in her coffee, and that she heard them singing. Delusional in talk, but quite coherent. Moderate dementia. Well orientated as to place and persons, and fairly well as to time.

On the evening of March 7th, 1903, she became shaky and stupid, and was found to be suffering from slight right hemiparesis; partial loss of speech for a few hours. After a few weeks no paresis was noticeable.

She remained as before till the afternoon of May 8th, 1905, when she had a typical major epileptic fit; three more fits during the night. Next day she seemed quite as usual; no speech defect, hemiparesis, or other focal symptoms could be discovered. Had one fit that day and another in the night; drowsy stage after the fits lasted not more than ten to fifteen minutes. On May 10th and following night she seemed well; no fits.

May 11th.—From 11 a.m. onwards through the day, she has been subject to spasm of the right upper extremity, lasting about one and a half to two seconds, and recurring at intervals of about three to fifteen seconds. The muscles affected are chiefly the triceps, infra- and supra-spinati, and rhomboids; in less degree the pectoralis major and muscles of ulnar border of forearm, particularly extensor carpi ulnaris; doubtful slight implication of biceps, deltoid, and latissimus dorsi. No affection of trapezius and neck muscles, or of hand, other limbs, or face. All the affected muscles are thrown simultaneously into a strong contraction, which subsides in a quiver. As the patient lies in bed the position assumed by the limb is as follows: arm straight and lying close to the side, shoulder slightly raised, fingers flaccid and semi-flexed, wrist slightly extended, forearm midway between pronation and supination.

She tries to stop the spasm by holding the limb with the left hand; says, "Doctor, I don't know what's the matter with my arm. It keeps moving, and I don't want it to move; it's so funny. Can't you stop it for me?" "Nurse, come and hold my arm." Her speech is a little slower than usual, rather hesitant and drawling, after the manner of typical epileptic speech; articulation good. Doubtful very slight right facial weakness. The incidence of the spasm does not affect the speech.

When asked to show her tongue, she repeats the words "Show me your tongue"; but she wears a blank look, and does not do as she is told. Request repeated twice, with same result. At the fourth time

she repeats as before, and again, more slowly; then, "Show my tongue?"—and puts out tongue. The same process has to be gone through for every simple question or command, unless gestures are employed: these she readily understands. She volunteers occasional remarks about her arm, asks for something to drink, etc. There is no paraphasia, and her remarks are quite sensible.

She can shrug the shoulder, but other voluntary movements of the limb, including finger movements, are abolished. When she is made to understand that I want her to put her right hand to her face, she lifts it with the other, but the recurrence of the spasm prevents completion of the movement. Cutaneous sensation on the limb seems somewhat impaired. She walks with slight unsteadiness, but does not tend to fall to one side more than to the other. She stands steady, with eyes shut and feet together, spasm continuing. Knee-jerks and plantar reflexes normal (flexor response). Pupils normal. I saw her several times during the afternoon and evening, but the condition showed no variation.

The spasms continued till 9.40 p.m. (no sleep), and then ceased. At 9.46 a major epileptic fit, lasting two minutes, and involving the whole body, with deviation of head to the right; 9.53 to 9.56, while still unconscious after the fit, occasional recurrence of the spasm; slept; 2.45 a.m. (May 12th), fit, with similar recurrence of spasm for a few minutes in the succeeding drowsy stage; slept; 5.10 a.m., fit, followed as before by brief recurrence of the spasm.

Since then there have been no more fits or spasms. By the morning of May 12th, the word-deafness and echolalia were gone, and except that she was dull and sleepy she seemed her usual self. There was marked paresis of the arm, but this improved rapidly in the next four or five days. Weakness and impairment of finer movements of fingers were still present two months later. Handwriting slow, tremulous, and jerky, but quite legible.

Heart somewhat enlarged, impulse felt with difficulty, sounds rather faint and indistinct. Arteries generally somewhat thickened. Pulse slow, tension not raised. No albuminuria.

In general paralysis the commonest mode of occurrence of echolalia is in association with a similar word-deafness in re-evolution after seizures, as in the following case;

Woman, *æt.* 34. General paralysis two years. Argyll Robertson pupils, loss of knee-jerks, tremors, ataxic and slurring speech, unsteady gait, *bien être* and grandiose delusions. Talkative, restless, and dirty. For months she had not given a relevant answer to a question. No previous seizures.

On the evening of May 24th, 1905, she gradually became comatose, and showed well-marked right hemiplegia. Lay for four days almost unconscious, did not speak, paid no attention when spoken to. On the fifth day more awake, looked about, smiled happily. Said "Yes" or "Well" to everything said to her, but without understanding. On the sixth and seventh days she repeated automatically everything said to her, including whole sentences; added no words of her own. Simple

requests were echoed in this way, but not executed. Hemiparesis now scarcely noticeable. On the eighth day no echolalia; simple commands, as to show the tongue or place the hand on the top of the head, were correctly obeyed. Patient occasionally said "Yes" in response to questions, but often inappropriately; no sensible answer could be obtained. Objects seen could not be named. In a few days she was talkative as usual, babbling incoherently her delusions.

In numerous cases of acute insanity of confusional type milder grades of echolalia are observed for brief periods, always, so far as I am aware, in association with defect of understanding for spoken language.

We may now turn to the consideration of cases in which transcortical sensory aphasia is observed as a permanent condition. Some are cases of gross lesion, usually in or near the left temporal lobe. More interesting, and probably more numerous, are those in which no such lesion is found. Many of these are cases of senile dementia, with pronounced cerebral atrophy and arterial degeneration. For comparison with a case of my own I give abstracts of some of the published records. They not only illustrate the speech disorder which concerns us, but are of considerable interest in connection with the cerebral localisation of mental disease. The second case in the list is interesting historically, as by it Pick first showed that a local aggravation of a general atrophy might produce localising symptoms, recognisable as such during life, and permitting a topical diagnosis. It so happens that most of the cases of local atrophy, reported since by Pick himself and other observers, have likewise been cases of transcortical sensory aphasia, in which a general wasting has been most marked in the left temporal region. In Liepmann's case the previous observations of Pick and Bischoff allowed a predominant wasting of this region to be diagnosed during life. However, in another case of Pick's, clinically a well-marked example of transcortical sensory aphasia, the wasting was chiefly in the frontal lobes. In no case has it been limited to the temporal region. Liepmann insists on the importance of the general wasting, even in cases (such as Heubner's) in which the temporal region has been the seat of a focus of softening. At present, at any rate, we are not justified in regarding the aphasic disorder simply as the result of disease of the temporal lobe, to the exclusion of the more diffuse affection.

The following are the principal cases, arranged in chronological order :

PICK ⁽¹⁰⁾.—Man, æt. 61, lawyer. Delusions of suspicion and persecution ; imaginary voices. Understanding for spoken language greatly impaired ; the simplest questions were understood only after much reiteration. Talkative ; large vocabulary ; speech mostly unintelligible, correct words being senselessly strung together ; no insight for this. Imitative speech correct ; echolalia. Reading aloud fluent and rarely incorrect ; understanding quite lost. Spontaneous writing fluent ; resembled spontaneous speech. Writing to dictation and copying were rapid, mostly correct, no understanding. Objects seen could not be named. Case published in patient's lifetime.

PICK ⁽¹¹⁾.—Man, æt. 71. Senile dementia ; progressive loss of memory during the past three years ; excited and aggressive at times, and partially disorientated. Understanding for spoken language was very defective ; simple familiar questions about himself he could mostly understand, other questions not at all. Was talkative, had a considerable stock of words, but so mixed them up that much of speech was unintelligible ; verbal and literal paraphasia. He showed partial insight into his speech defects. Reading aloud was slow, laborious, and often wrong. Complete loss of understanding for written language. Preservation of ability to repeat the words of others. Writing, voluntary and to dictation, impaired ; copying impaired. Objects seen were mostly recognised, but often wrongly named. General wasting of cortex, more of left hemisphere than of right, most marked in left temporal lobe ; no focal lesion.

ASCHER ⁽¹²⁾.—Man, æt. 45. General paralysis ; marked defect of memory, talkativeness, flight of ideas ; after twelve months, sudden onset of aphasia. Voluntary speech quantitatively reduced ; vocabulary restricted ; some paraphasia. Marked impairment of understanding for spoken language ; only the simplest requests were executed ; questions were mostly not understood. Echolalia. Could point out many named objects ; when asked to name an object shown, he often used senseless words, or called it by the name of his attendant. Reading aloud, correct for single words, some errors in continuous passages ; no understanding. Voluntary writing almost abolished, and, except for his name, unintelligible, words being senselessly strung together. Writing to dictation, paragraphic ; copying, slightly paragraphic. Death at 47 ; general atrophy, specially marked in first left temporal gyrus ; no focal lesion.

PICK ⁽¹³⁾.—Woman, æt. 67. Demented ; found wandering ; at times did not know her son. Spontaneous speech preserved, but vocabulary greatly reduced ; great sameness of speech ; prayers and passages from the Bible were correctly recited. The simplest spoken questions and requests were rarely understood ; partial insight ; purposive repetition ; imitative speech correct. All writing, and understanding for written language, lost (little accustomed to read or write). Objects seen could not be named. General wasting, most marked in left upper temporal region, and to a less extent in Broca ; no focal lesion.

PICK⁽¹⁴⁾.—Woman, æt. 61. Great loss of memory, apathy, aimless wandering. Spontaneous speech quantitatively reduced, paraphasic, rarely correct. Understanding for spoken language much impaired; simple questions and requests occasionally understood. Imitative speech correct; marked automatic echolalia. Reading aloud, correct; no understanding. Voluntary writing quite paragraphic; to dictation, paragraphic; copying slavish. Objects seen could rarely be named. General atrophy, most marked in frontal lobes; no focal lesion.

BISCHOFF⁽¹⁵⁾.—Woman, æt. 65. Depressed, suicidal, restless; rapidly became demented and lost. Voluntary speech, rambling; verbal paraphasia, loss of nouns, great reduction of vocabulary. Spoken language rarely understood unless accompanied by gesture. Imitative speech mostly correct. Reading aloud, fairly good; some paralexia; understanding almost completely lost. Spontaneous writing, lost; to dictation, fair; copying, partly preserved; no understanding. Objects seen were understood, but could not be named. Later, apoplexy, right hemiplegia, and death in six months. General wasting, especially of left temporal lobe, and to a less extent of right: recent softening in internal capsule.

LIEPMANN⁽¹⁶⁾.—Woman, æt. 74. Senile dementia of three years' duration; apathetic, restless, dirty. Extreme reduction of spontaneous speech; paraphasia. Loss of understanding for spoken language. Correct imitative speech: at first, purposive repetition with occasional consecutive intelligence: later, marked automatic echolalia, without intelligence. Could not be induced to read or write. Objects seen and handled were not understood. General atrophy, more in left hemisphere than right, most marked in left temporal lobe, and to a less extent in Broca; no focal lesion.

HEILBRONNER⁽¹⁷⁾.—Woman, æt. 69. Senile dementia, beginning like Korsakow's psychosis, with total disorientation as to time, place, and persons, confabulation, and inability to retain recent impressions. Slow, insidious onset of aphasia in the second and third years. Spontaneous speech, rambling and irrelevant, some paraphasia, great reduction of vocabulary. Almost complete loss of understanding for spoken and written language. Partial ability to read aloud, paraphasic. Imitative speech fairly well preserved, with partial intelligence. Considerable loss of understanding for the use of common objects and of ability to name them. Pronounced general atrophy, but especially of left temporal lobe.

STRANSKY⁽¹⁸⁾.—Man, æt. 65. Apoplectiform attack, with loss of speech and transient right hemiplegia: confusion and excitement for some weeks, and dementia onwards. *Flexibilitas cerea*. Marked automatic echopraxis. Voluntary speech scanty, paraphasic. Perseveration. Understanding very defective for spoken language, and lost for written. Automatic echolalia. Reading aloud, paralectic. Writing, voluntary and to dictation, paragraphic; copying absent. Objects seen were often misconceived, often could not be named. General atrophy, most marked at junction of left supramarginal and first temporal gyri: no focal lesion.

BERG⁽¹⁹⁾.—Man, æt. 49. Depression, alternating with excitement and violence; confusion; moderate dementia; gradually increasing

aphasia. Spontaneous speech extremely paraphasic ; agrammatism. Understanding for spoken words and short sentences preserved, lost for longer and more complex sentences ; simple requests often understood. Imitative speech preserved ; echolalia. Reading aloud, intact, rarely with understanding. Simple written requests, though read correctly, were almost never understood ; simple written questions were more often understood, and could sometimes be answered in writing, though with paraphasia. Voluntary writing very paraphasic ; to dictation, occasionally paraphasic, rarely with understanding ; copying intact, not slavish, no understanding. Objects and pictures were understood and correctly named, also objects handled with closed eyes. Still works well as a tailor. Case published in patient's lifetime.

With these might be compared Alzheimer's case of perivascular gliosis of the left temporal region, ⁽²⁰⁾ the cases of softening around the posterior extremity of the first temporal gyrus reported by Heubner ⁽²¹⁾ and Pick, ⁽²²⁾ Bonhoeffer's traumatic case, ⁽²³⁾ and also, of course, the well-known case of Lichtheim. ⁽³⁾

The cases of echolalia which are most difficult to discuss are those with severe dementia, having their starting-point in earlier life, and presenting in their initial stages symptoms of acute insanity. Some of these cases appear to answer to the description of dementia præcox ; it is in the katatonic form of this disorder that echolalia, according to Kraepelin, most frequently occurs. In a large proportion of such cases the echolalia is not observed until a late stage of the disease ; it is then associated with gross dementia, marked defect of understanding for spoken language, and paraphasic incoherence. Apparently in reference to such cases as these Pick offers the suggestion that the dementia may have developed gradually out of transcortical sensory aphasia. ⁽²⁴⁾ They appear to be very slow in their course, and would require to be minutely studied through a long series of years. As the aphasic condition does not specially attract notice till a late stage, we have no sufficient records of its mode of development.

The diagnosis of katatonia in cases of this class cannot be regarded as having any etiological significance. For not only echolalia but other katatonic symptoms, such as echopraxis and *flexibilitas cerea*, occur in various pathological conditions and in various periods of life. They are observed, for instance, in cases of senile atrophy, and in cases of gross organic lesion. When they occur in such cases, they not infrequently happen

to be the accompaniment of an aphasic disorder of the kind which we are considering.

Of cases which might be assigned to dementia præcox, I have had several under my notice. I have also a patient who became insane, at the age of twenty-five, one week after confinement. In the acute stage she had hallucinations of hearing, and delusions of suspicion and of personal unworthiness; she thought her husband was the devil, and that he had killed her child. She could answer some questions readily and rationally, but her memory and ideas of time were confused. Apparently she suffered from an ordinary puerperal insanity or exhaustion-psychosis. In the next two years she became much demented, lost, incoherent in speech, noisy, and dirty in habits. Though there is not, and never has been, anything to suggest coarse lesion, she now, after thirty years, shows marked word-deafness, automatic echolalia, extreme paraphasia and word amnesia, and can rarely name the commonest objects. The aphasic symptoms are now dominant, for evidence of delusions and hallucinations vanished long since. Dementia is now so advanced that detailed notes would have little interest. The same may be said of my cases of presumable dementia præcox, with one exception. In this instance the mental state and degree of education of the patient permit a detailed study, and the deficiencies in the history are sufficiently counterbalanced by the interest of the clinical features to warrant a full report.

Fanny R—, unmarried, admitted to the Wilts Asylum, March, 1896, under the following certificate: "Quite idiotic, repeats the latter part of the question you ask her, instead of answering it, and then laughs; continually talks to herself." Mother and maternal aunt insane, and brother feeble-minded. Patient was born in 1842, had always had good health, and led a moral and temperate life; was a teacher in an elementary school. Symptoms of insanity first appeared about the age of twenty; assigned cause, disappointment in love; she took to wandering about the neighbourhood singing hymns, and would get up at night at all sorts of hours; has been insane ever since. Previous to admission to the asylum, she had been an inmate of a workhouse since 1888; was sent to asylum because she had become dangerous, "striking the attendants, pulling the fire out of the grate, pouring a kettle of boiling water about the room, destroying clothes and bedding, behaving indecently."

On admission.—Sparely nourished, looks older than her years. Slight kyphosis; chest contracted; lungs apparently healthy. Apex-beat displaced slightly downwards and outwards; apical systolic murmur. Pulse fair, regular, 90; arteries thickened. Urine normal; no albumen.

Right pupil slightly larger than left : both react normally. Knee-jerks normal. No asymmetry of face or limbs. No trace of paresis.

For a few weeks after admission she was mischievous and destructive; and in the summer of 1899 she was noisy and spiteful, and smashed crockery. Except in these two periods she has given little trouble, and her condition has varied little. She has been under my observation since August, 1902. The following account is compiled from notes made in the autumn of 1905.

Present state.—Her general physical condition seems unchanged. Vision is good : she reads small print. Optic fundus normal. Attempts to map out the visual fields have proved vain; there is nothing to suggest hemianopsy. Hearing is good apparently in both ears; she hears the slightest whisper; formal tests with the watch have been fruitless. A few rough tests of smell and taste show no defect of these senses. There is no defect of cutaneous sensation.

She does no work of any kind : sits idle when indoors, but looks about and takes notice of what goes on around. She knows the names of various members of the asylum staff, but has difficulty in recalling them, often giving wrong names before hitting upon the right. She well knows her way about those parts of the asylum in which she has been. Knows she has been here a long time, but has no idea of dates. Is not wet or dirty in habits, but is very untidy. Makes a mess with her food; has little regard for the use of a spoon, holds it in the right hand, between the palmar surfaces of index and little fingers and dorsal surfaces of second and third fingers. At times she is given to bolting her food. She is usually able to dress and undress herself, but sometimes she will tie her stockings round the back of a chair, throw her boots out of window, or put on her clothes in a wrong order. For years she has had a habit of rubbing the ends of her dress together as if she were washing clothes. She has some slight mannerisms of posture when seated. She often reads aloud from books and newspapers, but without evidence of understanding. She always appears cheerful and contented. At the slightest smile or laugh of a bystander she bursts into laughter. Once, in 1903, I saw her walking behind another patient and imitating her peculiar gait, but on no other occasion have I observed anything of the nature of echopraxis.

The following sample of conversation is fairly representative : (What is your name?) What is your name? Fanny R—? Master R—? Zulu? (What place is this?) Asylum? Devizes? (Where do you live?) Where do you live? Up at the globe? Tilda Globe? Some little chair? (What are you doing here?) What are you doing here? Paintley or what? Solchester? Liquor then? (How old are you?) How old are you? Fourteen? (Have you any brothers or sisters?) Yes. (How many brothers?) Good many, good number, ten, score, acre of land. (How many sisters?) Sisters? Two. (What are their names?) What are their names? Thunderland, Saunders, schoolroom children, schoolbell, tit for St. Paul's, tit for kettle bell spontial sudden. . . . (Who is this?—Nurse C. B) Who is this? Edith Higgleyhead sermons, churchgoer, clergy come up, me, ria, . . . (What is to-day?) Good Friday? Wednesday? Ash Wednesday? (What have you had for dinner to-day?) Meat, cooked meat, cold Columbus. (Have you

had dinner to-day?) To-day please, meat, beef, soup, our Simeon, Amen, Sicily, Denmark, Surrey, soup, hot, bun, lady angel, liquor . . .

In these answers we see traces of the so-called "flight of ideas."

Voluntary speech.—Though not noisy, she is very talkative. She exhibits a characteristic logorrhœa; she is constantly muttering to herself a meaningless jumble of words, with no suggestion of sentence-formation. Names of persons figure in great profusion. The words "school," "children," "teacher," are also frequent. Mingled with such talk is a quantity of mere jargon, with no recognisable words.

She has not been known to ask any sensible question; if she requires anything, as at the meal-table, she indicates her wants by gestures. For any practical purpose her voluntary speech is so paraphasic as to be almost useless. She often greets me with "How are you to-day, missus?" but apart from a few conventional utterances of this kind she volunteers no sensible remark. Once I heard her say to no one, and *à propos* of nothing, "That's what I meant when I said it was better for the teacher"; and on another occasion, when someone shouted in another part of the ward, she called out, "All right, Philip, my boy, I'll come to you directly." Such formally correct utterances can be detected, very rarely, in the logorrhœa. They always have reference to her former occupation as teacher, and are almost certainly old series revived whole, not constructed at the moment. She never produces phrases of such a calibre in response to questions, or suitably to an occasion. All her volitional speech is scrappy and disjointed; she seems incapable of constructing the simplest sentence ("agrammatism"). And if a question cannot be answered in a word or two, as by giving the name of an object, her reply is usually senseless or unintelligible.

In many cases of aphasia, including some which belong to this particular class, the vocabulary is very scanty; the loss is most evident in relation to nouns, especially proper names. In the present case an almost opposite condition is observed. Her potential vocabulary is somewhat extensive, as is shown by the great variety of words which arise in the paraphasia. There is a wealth of nouns, but a very scanty stock of other parts of speech. Many of her utterances consist only of names of persons, used quite inappropriately. If she uses a verb it is nearly always as a bare infinitive, without subject or prefix of any kind.

Whether she understands a question or not she usually gives an answer of some sort; she rarely hesitates for lack of a word. Nearly all her answers are given with the rising inflexion characteristic of question. There is an entire want of appropriate expression and intonation. Pronunciation is good and free from dialect. Articulation is perfectly distinct.

Understanding for spoken language.—Some short, simple, and conventional questions are understood; but often she fixes upon a single word in the question, and links some association to this word, irrespective of the context. I have never heard her confess want of comprehension. Any question of more than about six words is usually answered senselessly. The questions understood are mostly such as have reference to her own person, or to some object before her. Questions of more remote or abstract significance, however simple, are answered

without evidence of understanding—*e.g.*, “Do good men go to hell?” Even to all manner of abuse and threats she seems deaf, unless they be expressed simply in a word or two. “You have two noses” amused her; here there is a reference to the concrete. But when I tried Lichtheim’s test, saying, “I am Peter Black, and I am only four years old,” and asked her “Is that true?” she said “Yes,” even after several repetitions. The absurdity was not perceived. Eleven days later she called me “Peter Black,” though the name had not been mentioned in the interval. She knows my real name.

Simple commands, as to come here, sit down, stand up, or show the tongue, are mostly executed, even when unassisted by gestures; but more complicated requests, as to go and sit in the chair by the window, or take a book from the table to the mantelpiece, are usually not followed at all, or are only partly executed; in the middle of the errand she stops, with a look of hesitation, and utters some jargon or a few proper names. She does not appear inattentive or unwilling to do as she is desired. Gestures are understood.

Questions and requests often have to be repeated several times before the right reaction can be evoked. Complexity of the sentence and mere number of its words appear to be important factors in preventing her understanding; her difficulty is not only in understanding the words singly, but in understanding them in combination; in this respect there is a resemblance to Berg’s case. Of words which can be understood individually the stock is not very small, as may be ascertained by presenting them in a short, conventional setting, *e.g.*, “What is —?” She can understand the names of many articles in common household use, articles of furniture, food and clothing, names of familiar animals and birds, etc., but the test-results are very variable and contradictory. The names of even the commonest things (*e.g.*, spoon, sugar, key, pen), even when repeated half a dozen times, and when she is not inattentive, often fail to awake intelligence; repeated a minute or two later, the same word may be at once understood. If she can see the object before her, there is rarely any difficulty. Geographical and historical names are not understood, with the exception of a few of the most familiar biblical names; for these a parrot-like memory of some text may help her. Names such as “London,” “Thames,” “France” are apparently not recognised as names of places of any sort.

In all such tests one must not at once assume that understanding is wanting because the answer is senseless; it often appears senseless because it is paraphasic. To this source of error I have endeavoured to pay due regard.

Imitative speech.—The automatic echolalia is the most noticeable symptom. The patient repeats a considerable part of what is said to her; in the case of short sentences the whole sentence, in the case of long sentences the last few words. Not rarely she echoes a sentence of as many as twelve words. Articulation is perfect, and the inflexions of the speaker’s voice are well reproduced. She repeats the senseless utterances of other patients. Paraphasia is rarely observed except in special testing with long and uncommon words; it may be literal or verbal. Short sentences in foreign languages are echoed, with some inaccuracies—not, apparently, because understanding of the meaning

is anyway necessary for repetition, but rather because the auditory and motor speech mechanisms respond best to those excitations for which they have been educated.

Repetition is evidently not essential for understanding, nor do I think it is ever of much assistance to her. The echolalia is entirely "automatic"; there is no turning of the phrase, as in Pick's *Echolalie in Frageform*.

Serial speech is well preserved. She has a speech memory of large portions of the Bible and of the Book of Common Prayer. She can count up to thirty, recite portions of the multiplication table, and can say the alphabet in both directions. But if it is desired that she rehearse one of these series, it is useless to say, for example, "Say the alphabet"; one must begin it for her. In this way, but in this way only, she can be led to recite nearly all our Lord's parables, other passages of Scripture, and any part of the Order for Morning and Evening Prayer. The only exceptions to this rule as to the mode of eliciting series are in the case of the Lord's Prayer and the Apostles' Creed; it is then sufficient to say, "Say the Creed."

Such series afford the best means of studying the mode of production of the paraphasia; for, as we have the original text for comparison, we presumably know what she intends to say. At the last section of the Creed she goes on, "I believe in the Catholick blue picture"; then follows jargon, with no recognisable words. I have observed a somewhat similar sequence of events on many occasions; the failure in speech leads first to verbal paraphasia, and the jargon follows. Sometimes the paraphasia is worse: "I believe in God the Father Almighty, maker of Julia, suffered under the young Jew, was crucified the dead men, conceived of the Virgin Mary, but in my spirit the pink Polly . . ." (jargon). Resemblance of sound is often traceable, as in "picture" for "Church," "pink Polly" for "Pontius Pilate."

(It is somewhat remarkable that the paraphasia is worst in those series which she should be expected to know best—the Creed and the Lord's Prayer. These are the very series which she can recite without being started. Probably she does know them best. It is hardly conceivable that this good Churchwoman, who is able to recite long passages of Scripture without perverting them, has forgotten the Creed and the Lord's Prayer. Nor can I attribute her perversions to fooling. Not only is her manner becomingly grave, but if, as soon as she begins to go astray, the first syllable of the next correct word be given her, she instantly takes it up, and continues correctly. She may be further prompted if necessary, always with success. If she were fooling, she would hardly be turned so readily from her purpose. In former years, recitation of the Creed probably required no effort of memory, so her attention now is not specially drawn to the words; and as, in speech of any sort, she is little aware of errors, there is nothing to incite her to correct them. In less familiar passages some slight effort is probably necessary to recall the actual words, and on this account their reproduction is more under the control of the attention. Similar phenomena are observed when she recites the days of the week, the months of the year, several well-known hymns, and other familiar series, but not in such as are less familiar.)

The paraphasia is primarily *verbal*, consisting in the use of genuine but inappropriate words. Pure literal paraphasia seems not to occur in her voluntary or serial speech, or in reading. If the jargon is to be regarded as a mixed literal and verbal paraphasia, the literal disorder is secondary.

Spelling.—She can spell words when asked, but there are many slight errors; her spelling approximates to phonetic spelling. She can sometimes say what a word is when it is spelled to her, even if it contains as many as ten letters, but often she gives a wrong word of similar sound.

Ability to name objects seen.—When an object is shown, she will give it a name of some sort, but much more often wrong than right. The wrong names do not suggest mind-blindness, but verbal paraphasia, and, to a less extent, word-amnesia. A resemblance to the correct word is often traceable—*e.g.*, saucer, “citizen”; sovereign, “Solomon”; shilling, “shilling”; What is it made of? “Salisbury” (*silver*); penny, “Fred, Frank” (*farthing?*); What is it made of? “Metal, prince” (*bronze*); bottle, “ball”; vase, “voice”; carpet, “Patrick”; parcel, “Charlie”; canary, “bird, cuckoo, canary”; geranium, “flower, Jemiriam”; penholder, “Inkermann.” Occasionally, association by contiguity is observable: Cuff, “apron”; a penny of the present reign, “Queen Victoria.” Sometimes she uses a descriptive evasion: collar, “shirt-thing”; spectacles, “seeing-things.” Often she uses first a vague or general term (*cf. supra*, metal, bird, flower), and then one of closer significance. Often after giving a wrong name, she gives the correct name. Having given the correct name, she does not go on to give incorrect or senseless names. If, when she does not find the correct name, its first syllable is given to her, she usually gives the full word promptly.

As designations for objects, she frequently uses names of persons and places, and very often the word “soldier.” Perseveration in typical form does not occur; she does not designate successive objects by the same word, but occasionally a word once used will reappear sporadically in the course of the testing. Thus, having called a vase “voice,” she uses that word later for two other objects.

In selecting a named object from a group of objects she rarely makes a mistake.

Reading aloud.—She can read aloud at a fair medium pace, but not without errors. How far these are paraphasic, and how far paralectic, it is not easy to say. The following is her version of part of a magazine article: “The landing-place consists of steps formed in the prepenny-ridiculous (perpendicular) side of the rock on which the lighthouse stands. The coastguards were there to receive us, and told us it was imperative that each one should stand on the gravel (gunwale) of the boat and jump directly they gave the word. Most of us did so, but in one case, if not held back at a satirical (critical) moment, a fatal loop (leap) would have been made. It is an increasing (interesting) place to see, and gives one a vital (vivid) idea of the pearls (perils) of the sea.” Often the errors are more numerous. “Meteorological Office” is read, very rapidly, “Emily-Moody-chronologies-calico-office.” Passages in French are read in senseless paraphasic English. All her reading is

devoid of appropriate expression and intonation, even in the case of scriptural passages which she can recite correctly in a natural manner. In her reading of such passages there are errors of the same kind as those which occur in the case of unfamiliar passages. She never appears to understand what she reads.

She can read numerals, but only up to two places—914, “ninety fourteen.”

Understanding for written language.—Simple written requests are read aloud in an expressionless way, apparently without understanding. A request is not executed, even when it consists of only two or three words, is correctly read, and is such as she executes when it is given by word of mouth. It is not executed when prefaced by a written injunction to do what is written, or when given with any sort of oral injunction to that effect. In rare instances she will execute the request if, immediately *after* she has read it, she is told to “do that.” This method also is usually without result. When the request is now repeated orally, it is at once executed. I have never obtained an answer to a written question; she never understands that the words constitute a question. Moreover, the “?” is a “semicola.” When she is made to read a palpable absurdity (“The table is a good dog”; “I have two noses”), and is at once asked, “Is that true?” she replies, gravely, “Yes.”

Writing.—Voluntary writing is abolished. Asked to write her name, she scribbles a series of curls. She writes her name to dictation, but some of the letters are so malformed as to be unrecognisable. *F* is made rather like *C*, and *R* like *D*. A small *m* looks like *unnn*. Asked to write the word “dog,” she writes *donz, dony, doj*; it seems as if she has forgotten the formation of *g* and is trying to recall it. Asked to write “monkey,” she writes *Aomdey*, though she spells it correctly aloud as she writes. “Bishopstrow,” a name once familiar to her, is written *Oosopstoroo*; she spells it correctly when asked. In many words written to dictation, one or more of the terminal letters are replaced by *ny* (“London,” *Lonny*); in such instances it seems that she strays into the ending of her own name “Fanny.” Copying is not much better; it is not slavish. In copying print into script, there are many literal errors. She cannot be made to copy print with print. She copies simple geometrical figures very clumsily. She can copy numerals. Writing numerals to dictation is very defective; many are wrong or unrecognisable.

She cannot read the time from a clock.

I have not been able to obtain any satisfactory results in my attempts to test her capacity for retaining recent impressions. Casual observations, as of the above “Peter Black” incident, suggest that such impressions are sometimes well held.

She can sing some verses of songs and hymns to appropriate tunes. If one of these tunes is played upon the piano, she will begin to sing it.

Summary.—Among the psychiatric symptoms in this case we may include katatonic mannerisms, stereotyped movements, impulsive acts, and echomimia; flight of ideas; marked mental impairment and lack of spontaneity, with good memory for certain things.

The speech symptoms are as follows: Voluntary speech shows extreme verbal paraphasia, agrammatism, and disorder of intonation, with para-

phasic logorrhœa and jargon. Serial and imitative speech are well preserved (automatic echolalia). Reading aloud shows slight verbal paraphasia. Understanding is very defective for spoken language, and is lost for printed and written language. Voluntary writing is abolished. Writing to dictation and copying show marked literal paraphasia.

This, I suppose, from the psychiatric standpoint, may be a case of katatonic dementia; from the standpoint of general medicine it is a case of sensory aphasia. Though the history is regrettably meagre, I think we may infer with some probability that the case is one of insanity as ordinarily understood, and not of gross lesion; also that there is considerable diffuse atrophy of the brain, predominating possibly in the region of the left temporal lobe.

The sensory character of the disorder is shown not only by the defect of understanding for spoken and written language, but by the characteristic logorrhœa, the word-amnesia, and the predominantly verbal rather than literal paraphasia. To these we may perhaps add the agrammatism. Of the relations of this symptom to sensory aphasia and to temporal lobe lesions a useful survey has been given by Pick. ⁽²⁵⁾

The patient's speech shows evident traces of what is termed, not very happily, "flight of ideas." Though this is one of the cardinal symptoms of mania, it is, of course, by no means peculiar to maniacal states. That aspect of it which is termed "clang-association"—the condition in which the current of ideas (or rather the current of speech) is determined by similarity of word-sounds—shows an evident relationship to verbal paraphasia. One of Wernicke's patients, a young woman who suddenly became aphasic in consequence of some vascular lesion, and who certainly was not insane in the ordinary sense, exhibited not only clang-association but other manifestations of flight of ideas, as definitely aphasic symptoms. The notes of this case are of the highest interest. ⁽²⁶⁾

How are we to picture to ourselves the mode of production of the echolalia? Preservation of imitative speech in certain cases of dementia with aphasia is interpreted by Pick ⁽²⁷⁾ in accordance with Dr. Hughlings Jackson's doctrine of evolution and dissolution. It is observed that a child learns to speak by repeating the words which he has heard, apparently irrespective of understanding. A path from the auditory to the motor speech centre is accordingly regarded as the oldest or first-

opened association-path of speech. In virtue of this priority it is further regarded (by implication from the doctrine) as comparatively resistant to interrupting influence. Of all the associations of the auditory image of a word, the motor image is the simplest, most definite and most firmly established. The other associations, those which constitute the meaning, are complex and ill-defined, and vary not only with the widening experience of the hearer, but often also according to the context or the circumstances in which the word is heard; these associations are therefore more liable to be dissolved.

The extension of this principle to echolalia may be formulated somewhat as follows: The child is supposed to learn to speak through the effective action of some kind of primitive impulse to imitate, or some kind of reflex subserved by the path which I have mentioned. In the course of evolution of the individual the action of the impulse or reflex becomes inhibited by the complex higher associations linked to the hearing of language and constituting its meaning. If these higher associations are dissolved their inhibiting influence ceases; the impulse, which is supposed not to have been at any time removed, appears to become again effective. Its effect is echolalia. The imitation now is more perfect and prompt than in childhood, because the whole speech apparatus has been perfected through exercise. The doctrine of inhibition applied here is, of course, Dr. Hughlings Jackson's. The notion that the echolalia of the dement is the analogue of the imitative speech of the child is one which we owe, I believe, to Krafft-Ebing.

Pick ascribes the inhibition to the auditory word-centre, which he accordingly regards as an inhibitory organ for the speech mechanism; he explains the logorrhoea of many sensory aphasics in the same way. There does not appear to me to be any advantage in ascribing the inhibition to the auditory word-centre; such a notion is difficult to harmonise with that which regards the auditory word-centre as the seat of primary revival of words for speech, a notion which has been widely adopted and has certain conveniences. It seems more agreeable to conceive the inhibition as exercised, not by the auditory word-centre itself, but through it, by higher associations whose paths radiate from the auditory word-centre to the centres which are denoted summarily in Lichtheim's schema by the "centre for concepts."

If this application of the doctrine of inhibition to the doctrine of centres appears awkward, we may adopt a metaphor of another kind. We may say that if the wave of excitation from the periphery finds on arriving at the ordinary word-centre that some of the channels through which it once flowed are now closed, it tends to flow more strongly through those which still remain open to it. If the newer channels (those to the conceptual sphere) are blocked, it is forced into the older channel (that to the motor speech centre).

Whether we are content with such views of echolalia or not, they have the merit of taking into account the relationship of echolalia to defect of understanding for spoken language. At any rate, as Pick shows, we must give up the old view of Ziehen⁽²⁸⁾, that echolalia is a symptom of irritation. Rather it is a symptom of defect, most marked in chronic conditions characterised by absence of other phenomena of the kind we ascribe to irritation.

Echolalia is often classed, along with so-called compulsive acts, under the head of symptoms of disorder of will.⁽²⁹⁾ To say that it is due to disorder of will is inadequate and misleading. It is useless, because it fails to correlate echolalia with other speech symptoms. It is misleading, because echolalia may in some cases be fairly regarded as a purposive and reasonable act. In such a connection as this it is probably better to avoid the notion of will entirely; its subjective origin unfits it for precise scientific use.

When we turn to the consideration of my patient's defect of understanding for written language, it may seem puzzling that she cannot understand a few simple words when she reads them aloud, though she understands them when they are spoken by someone else. A difference of this kind was present in some degree in Berg's case, and apparently also in others of the cases abstracted. We can hardly explain it by supposing a disorder in any one centre, or a path-interruption other than that already assumed; for then we should be faced with the question why the patient does not understand by hearing the sound of her words as she reads. Perhaps the following considerations may suggest the direction in which an explanation is to be sought.

Self-observation acquaints us with several ways of reading which are disadvantageous to comprehension. If I have to read aloud, I inevitably attend to the articulation of my words:

not necessarily with conscious effort, I am attending also to rhythm and quantity. It is partly on this account that as soon as I grow tired I am in danger of paying too little heed to the sense; my reading may now become such that while the listener still follows it, I myself no longer take it in—at any rate, have no recollection of what I have this moment read out; the sound of my words has not helped me. Again, in reading a proof, I have to notice carefully the appearance of the letters, so as not to overlook some solitary misprint; so much, then, does the meaning escape me that if I am to scrutinise the wording, I must peruse afresh. And, in general, it is obvious that understanding is impeded whenever the more mechanical part of the reading is attended with difficulty, however slight, however occasioned. The obstacle which baulks understanding in the reading of a proof is only a magnification of one which is always present in reading of every kind.

In these instances we say that understanding suffers because attention is divided. This is hardly an explanation; it is rather a way of describing the result. It is therefore chiefly important for us to note that there are factors or conditions necessary to the reading process itself which tend to produce this result. As their preoccupying effect is noticeable to some extent in ordinary persons, especially in states of fatigue, we may justifiably infer that in a pathological lowering of associational activity the same factors may be sufficient to make understanding impossible. Though my patient can still read aloud with some facility, these factors may nevertheless prevent understanding, by making, as we say, too great demand upon her attention. When the words are spoken by someone else, she can often understand them; the process involved in the hearing of language is simpler, more primitive and direct, and is free from the impediments which I have indicated.

But her reading may also be regarded in another way. From the standpoint of evolution, the meaning of words is associated primarily with the memory of their sound. In learning to read, the visual image of the word is associated with the auditory image already acquired. In reading, then, the visual image awakes the auditory image, and through this the meaning is awaked. The indirectness of this process would, in dissolution, presumably operate unfavourably to understanding. Moreover, the most stable association of the

auditory image is the motor image; the auditory image awaked in reading, like that awaked in hearing, should tend to awake in its turn the motor image; reading should have an original tendency towards articulation. This tendency may, in fact, be observed in children learning to read. In the course of evolution it becomes inhibited by the associations which already inhibit imitative speech. In dissolution, the inhibition is removed. In harmony with these considerations is the circumstance that, so far as I am aware, my patient always reads aloud. She does so almost automatically whenever any printed or written matter is before her. Thus, in her reading, we can trace the operation of the same factors as those which give rise to echolalia⁽³⁰⁾.

Pick says that in connection with echolalia the principles of Dr. Hughlings Jackson find one of their most successful applications. These associated phenomena of reading may afford some further justification of Pick's remark.

(¹) Heilbronner, *Monatsschr. f. Psych. u. Neurol.*, xvii, 1905, p. 429.—(²) Wernicke, "Aphasie und Geisteskrankheit," *Deutsche med. Wochenschr.*, 1890, p. 445; *Grundriss der Psychiatrie*, Leipzig, 1900, p. 7 *et passim*.—(³) Lichtheim's "Type VI" (*Brain*, vii, 1885, pp. 433-484).—(⁴) Cf. Stransky, *loc. cit. infra*, p. 466.—(⁵) Arnaud, *Arch. de Neurol.*, xiii, 1887, p. 378.—(⁶) Pick, "Beiträge zur Pathologie und path. Anat. des Centralnervensystems," Berlin, 1898, pp. 20, 32, 42. Also "Beiträge zur Lehre v. d. Echolalie," *Jahrb. f. Psych. u. Neurol.*, xxi (ref. *Revue Neurologique*, 1903, p. 901).—(⁷) v. Monakow, "Gehirnpathologie," 1897.—(⁸) Pick, "Ueber die sogen. Re-evolution," etc., *Arch. f. Psych.* xxii, 1891, p. 756.—(⁹) Raecke, "Das Verhalten der Sprache in epileptischen Verwirrheitszuständen," *Münch. med. Wochenschr.*, 1904, pp. 256-259.—(¹⁰) Pick "Ein Fall von transcorticaler sensorischer Aphasie," *Neurol. Centralbl.*, 1890, pp. 646-651.—(¹¹) Pick, "Ueber die Beziehungen der senilen Hirnatrophie zur Aphasie," *Prager med. Wochenschr.*, 1892, pp. 165-167.—(¹²) Ascher, "Ueber Aphasie bei allgemeiner Paralyse," *Allgem. Zeitschr. f. Psych.*, xlix, 1893, pp. 256-277.—(¹³) Pick, "Beiträge zur Path." etc., pp. 25-36.—(¹⁴) Pick, *Ibid.*, pp. 37-43.—(¹⁵) Bischoff, "Beiträge zur Lehre von den sensorischen Aphasie," *Arch. f. Psych.*, xxxii, 1899, p. 730, Case 1.—(¹⁶) Liepmann, "Ein Fall von Echolalie; Beitrag zur Lehre von den localisirten Atrophieen," *Neurol. Centralbl.*, 1900, pp. 389-399.—(¹⁷) Heilbronner, "Ueber die Beziehungen zwischen Demenz und Aphasie," *Arch. f. Psych.* xxxiii, 1900, pp. 366-392; *post-mortem* note in *ibid.*, xxxiv, 1901, p. 396, footnote 3.—(¹⁸) Stransky, "Zur Lehre von den aphasischen, asymbolischen, und katonen Störungen bei Atrophie des Gehirns," *Monatsschr. f. Psych. u. Neurol.*, xiii, 1903, pp. 464-485.—(¹⁹) Berg, "Beitrag zur Kenntnis der transcorticalen Aphasie," *Monatsschr. f. Psych. u. Neurol.*, xiii, 1903, pp. 626-640.—(²⁰) Alzheimer, "Ueber perivascularläre Gliose," *Allgem. Zeitschr. f. Psych.*, liii, 1897, p. 864.—(²¹) Heubner, "Ueber Aphasie," *Schmidt's Jahrbücher*, 1889, ccxxiv, pp. 220-222.—(²²) Pick, "Beiträge," pp. 111-118.—(²³) Bonhoeffer, *Arch. f. Psych.*, xxxvii, 1903, pp. 800-825.—(²⁴) Pick, "Beiträge," p. 42.—(²⁵) Pick, *Ibid.*, pp. 123-133.—(²⁶) Kleist, "Ueber Leitungsaphasie," *Monatsschr. f. Psych. u. Neurol.*, xvii, 1905, p. 514.—(²⁷) Pick, "Ueber die Bedeutung des akustischen Sprachcentrums als Hemmungsorgan des Sprachmechanismus," *Wiener klin. Wochenschr.*, September 13th, 1900, pp. 823-827.—(²⁸) Ziehen, in *Ebstein's Handbuch d. prakt. Med.*, iv, p. 48 (ref. Pick, *Wien. klin. Woch.*, *loc. cit.*).—(²⁹) Cf. e. g., Kraepelin, "Psychiatrie," 6te Aufl., i, p. 212; Ziehen, "Psychiatrie," 2te Aufl., 1902, pp. 134, 173, 184. The only

reference Ziehen gives on the production of echolalia is to Meschede "Ueber Echolalie und Phrenolepsie," *Allgem. Zeitschr. f. Psych.*, liii, 1897, pp. 443-454. According to Meschede, Krafft-Ebing's notion holds good for many cases of dementia, but not for those which exhibit the most typical echolalia. "The repetition is brought about, not by removal of inhibitory influences, but really by active intervention of extraneous motives, by hallucinatory and psychomotor (psycho-kinetic) spasmodic or automatic impulses to movement: it is a *phrenoleptic* phenomenon rather than a symptom of defect." In support of this highly subjective and non-scientific interpretation, Meschede describes a case. The notes betray the patient's inability to recall names for persons and objects seen, and possibly other aphasic defects; but on these points Meschede makes no remark. He says the echolalia is effected without the intercurrent of conscious will, and even compulsorily in spite of and contrary to the will. Kraepelin speaks of increased flexibility of the will, but I cannot determine whether he supposes the will itself is induced to effect the echolalia, or whether something else effects it while the will is asleep. Ziehen avoids the term "will," but nevertheless inclines to similar modes of thought. He tells us that echolalia is a compulsive act, the outcome of a compulsive idea. But he leaves us no wiser than we were before, for he does not show why *this* particular idea becomes compulsive rather than some other idea. For the solution of this problem psychology is less helpful than ordinary clinical observation. All we know [of echolalia] has been learned by regarding it in a purely objective way from the standpoint of natural science, by observing what other speech symptoms it is associated with, or by correlating it with other phenomena of its own class. And as this is the only way in which the facts can be ascertained, so the only useful way in which they can be interpreted is in accordance with any principles found applicable generally to such phenomena *objectively* regarded—such principles, for example, as Dr. Hughlings Jackson has shown us. In this way we can preserve a consistently natural-scientific point of view. We can study the patient's movements, of whatever sort; but when we endeavour to look behind them, to a "will" or an "idea," in the manner proposed by some authors, I fear we are apt to see nothing but our own image, reflected as in a distorting mirror. ⁽³⁰⁾ That a similar reversion to the primitive type of reading sometimes occurs in normal persons is shown by the common tendency to read aloud or in an undertone any passage the meaning of which is at all obscure. Whether this is purposive or automatic, helpful to comprehension or not, the important point to note is that it is occasioned by failure of understanding. The phenomenon may be compared with the echolalia elicited by riddles.

Some Notes on the Study of Insanity. By F. GRAHAM CROOKSHANK, M.D.Lond.⁽¹⁾

"The evidence . . . so strong that the relations of mind and nervous structure are such that the cessation of the one accompanies dissolution of the other, while . . . with death there lapses both the consciousness of existence and the consciousness of having existed."

"Life is a continuous adjustment of inner relations to outer relations. Mind emerges . . . as fast as the adjustment becomes more extended, more involved, and more complete."

"If mind has been actually built up by this process, it can be, if not actually, yet theoretically, unbuilt by a reverse process. If it is composed of inner relations adjusted to outer relations, then it can be resolved into such inner relations."

HERBERT SPENCER: *Autobiography*, vol. i, p. 471.

MR. PRESIDENT AND GENTLEMEN,—That our certain knowledge does not extend beyond our states of consciousness; that of the mind we know nothing save that it is a series of “perceptions,” a sum of “mental phenomena”; that the cause of this “series” or “sum” is a factor of which we know nothing; that no effort enables us to assimilate mind and motion; that the passage from what we call the physics of the brain to what we call the corresponding facts of consciousness is unthinkable—all these are truths necessarily recognised by those who refuse assent to propositions they cannot *know* to be true.

To discuss insanity as a state of mind is, unless these truths be admitted, as futile as would be a discussion on the national finances in which the arithmetical sum of two and two was allowed to be a matter of opinion. Yet many writers on insanity do not appear to think it of real importance that, not only have we no primary data other than those of our own consciousness, but that mental phenomena, whether those of sanity or insanity, cannot be properly studied unless the face is resolutely set against any juggling attempt to resolve what we call the psychical into what we call the physical series.

Living as we do in a world in which, as philosophers, we have to regard the psychical as the only directly known reality, and the physical as known to us only through the psychical, while yet our affairs and conduct are regulated by the working hypothesis that physical “phenomena” correspond to certain objective existences, there are obvious and great disadvantages in the exclusively psychical study of insanity.

In a conventional or empirical sense, then, we have to recognise that insanity is more than a condition or state of mind, a sum of series of psychical phenomena; and we admit that it embraces a physical state, a series of physical conditions, the signs of which differ, not in nature, but in arrangement and relation, from those physical signs of disease which we do not usually understand to indicate any part of what we call insanity.

But it is a necessity in studying insanity to consider the psychical and physical series separately.

The psychical series with which we are conversant is so short that it may be only as an octave in an illimitable keyboard; the physical series, as we know it, is relatively far longer. I can trace the physical antecedents of a bruised finger far away from my own person. I can speak of the stone that struck it,

and of the boy who hurled the stone. But I know of no psychical antecedent to the pain I felt when the stone struck me. If I did I should know what an animist would believe the stone to have felt when being propelled through the atmosphere. And as we cannot properly look for psychical causes of the psychical phenomena of insanity so we should not speak of the psychical causes of insanity.

The causes of the physical phenomena of insanity are, and must be themselves "physical"—that is, physical in the sense that physiological conditions are physical. Similarly there is no such thing as moral or mental treatment known to us. What we now refer to as "moral" or "mental" treatment is a part of physical treatment operating on physical conditions of the body through physiological channels by physiological stimuli.

It is deplorable in the extreme that by current usage these elementary notions should be ignored, and that we should persistently speak of psychical influences operating remedially or otherwise on insanity.

What we mean when we so speak is obvious enough; what we appear to mean is another matter. We do not really forget that states of consciousness are utterly different from nervous states, and that we cannot conceive psychical states to exist as separate entities—in *vacuo*, so to speak, divorced from correlated physical states and credited with a therapeutic dosage.

It may be useful, perhaps, to enunciate in two sentences Jackson's famous doctrine of concomitance, or parallelism. States of consciousness are utterly different from nervous states, but occur together with them. For every mental state there is a correlated nervous state, but there is no known interference of the one with another.

While this affirms that every conscious state is synchronous with a correlated nervous state, it does not affirm, what may be true, but what we do not *know*, that every nervous state, if not every cellular state, is correlated with a psychical though yet sub- or unconscious state. If this, which we do not know, be true, the disproportion in extension between the physical and the psychical series is reduced, if it does not disappear. Parallel lines are not, however, necessarily of equal length. To point out that the physical and the psychical series, as we

know them, are of vastly unequal length does not in the least contra-indicate the use of the similitude of parallels.

Those who hold the doctrine of parallelism, or concomitance, cannot admit that psychical states are *effects* of correlated physical states. But it is not out of harmony with the doctrine of parallelism, which is also one of synchronism, to assert that, though the conditions are synchronous, yet, apparently, the occurrence of certain variations in the physical *necessarily* coincide with the occurrence of certain variations in the psychical. Further than this we cannot go; but even so we can perhaps conceive how it may be that, though physical remedies cannot be known to cause psychical states, yet, using the terms with all stringency, the rectification by physical remedies of physical states is necessarily accompanied by the rectification of psychical states. In other words, physical means may cause physical alterations in nervous states which are synchronously *accompanied* by modifications in psychical states:—but not *caused*, or else the doctrine of parallelism is a mere logomachy, and false at that.

If the skin be pricked by a pin, after an appreciable interval sensation occurs. The prick sets up, or causes, states of peripheral nerves: these bring about certain (nervous) states of cortical cells. During the occurrence of these cortical cell states (or relations) psychical states occur. Time is taken up, not between the occurrence of the cortical cell states and the psychical states, but between the prick and the occurrence of the cortical cell states. In terms of the doctrine of parallelism, the sensation is not caused by the prick. Yet even so precise a writer as Huxley has, in at least one passage, fallen into verbal error on this point.

Now, every brain-cell is a definite link in a sensori-motor chain, or reflex arc, of greater or less complexity. With the activities of some only of these cells are, so far as we know, psychical or conscious states correlated. But, proceeding directly or indirectly from any cell or group of cells during whose activities psychical states occur, there is some outgoing impulse which is expressed either by physiological action or by inhibition of physiological action.⁽²⁾

It follows, then, that the essential physical phenomena of insanity are to be found in the states or relations of those brain-cells whose normal or healthy activities are accompanied

by the states of consciousness lacking, disordered, or anomalous in insanity.

The systematic study of insanity therefore embraces the study of:—

(1) *Psychical phenomena.* We cannot, however, observe states of consciousness in others, only what we take to be the physical expressions of the nervous concomitants of conscious states.

(2) *The essential physical phenomena of insanity.* We can only study these by having regard to the physiological effects, resultants, or motor outgoings of those cells whose activities are correlated with the disordered states of consciousness, making what, after all, is unproven and unprovable—the assumption that those conscious states which, for ourselves, are correlated with certain nervous states, having definite physiological expression, are identical with those conscious states which in others are correlated with nervous states having the same ultimate expression.

These—the physical signs of insanity—have been referred to in the *Journal of Mental Science* for January, 1900. It is, however, with regard to the first group of phenomena, the psychical series, that I now venture to make a few remarks.

Lewes, many years ago, defined “mind” as the sum of “mental phenomena.” Such a definition approaches perilously near to the anatomist’s description of the kidney as an organ of reniform shape. But we have to remember that the sum of states of consciousness which for each individual, whether he be sane or insane, constitutes mind, comprehends not only the consciousness of the moment, but consciousness become unconscious—latent knowledge recoverable by memory. And, possibly, such psychical states as may be conceived to accompany the functional and dynamic states of all nervous centres, or, at any rate, those states of consciousness which may accompany low nervous states under conditions which are not normal, but may not be present under normal conditions, or may be then present only in lesser degrees of vividness.

It is a commonplace of metaphysics that chance has no more place in the world of mind than it has in the world of matter, and that sensations, intellections, emotions, are all subject to an order as strict and as inviolable as that which obtains amongst material things.

I conceive that the study of psychical phenomena, the study of the psychical series, must in a very great measure be, then, the study of the order which obtains amongst the successive sums of psychical states which constitute for us each and all the egos of the moment.

By introspection we are made aware that the order of succession of sums of conscious states, or "egos," in passing from childhood to maturity is that of progression from sums of simple, undifferentiated, inco-ordinated states to others of complex, differentiated, co-ordinated states. In other words, for each individual the growth of mind is a process in the order of evolution—a process of integration and differentiation; and this that is true of the individual is also true of the race.

The history of evolution of mind in the individual is, as Schneider and Haeckel in particular have proved, a reflection, or epitome, of the history of the evolution of mind in the whole ascending series of species.

As old age creeps on, the maturity of middle life gives place to second childishness and whittles down to the vanishing point of mere oblivion. This, which we all know, only means that, as Ribot has so beautifully shown for the detail of memory, after maturity the normal order of succession of sums of states of consciousness is, for each individual, the order of progression from the unstable to the stable, from the complex to the simple, from the differentiated to the undifferentiated, from the co-ordinated to the unco-ordinated—the order that is, in fact, the reverse of the order of evolution.

It is convenient to speak of this order as that of "dissolution." But the term "dissolution" in this connection means simply "the reverse of evolution," and is divorced from all connotation of physical processes.

It is not in normal senile decay alone that the process of normal evolution is reversed, that the psychical series is in an order of involution or dissolution.

Unconsciousness, absolute unconsciousness, unconsciousness which finds no place for unconscious or subconscious psychical processes, is death, and marks always the end of a series of psychical states or sums of states arranged in this order which we have called that of dissolution.

What we commonly call unconsciousness, (and is that unconsciousness during which unconscious psychical states may

exist), whether it be the unconsciousness, normal and periodic, of sleep, or the unconsciousness, abnormal and catastrophic, of epilepsy and surgical anæsthesia, is but the penultimate or ultimate term of a series of sums of states arranged in the same order.

Montaigne the essayist quaintly expressed the idea thus :—

“Zeno found the soul as well as the body to be engaged in death—
It joyntly fades in one
Wearied as age is done.

Which thing the image of sleep doth manifestly shew unto us.

For he esteemed it a fainting or declination of the soul as well as of the body. He thinks the mind is contracted, *and doth, as it were, slide and fall down.*”

Can we better this expression of the doctrines of dissolution and of parallelism? For whether we consider the psychic phenomena of sleep, of surgical anæsthesia, of pathological coma, or of senility, we have to recognise that those states of consciousness which relate to the environment are first absent, and afterwards only those which relate to self, or are states of visceral consciousness. And conversely, just as in growth the individual recapitulates in epitome the history of the race, so does he in recovery from sleep, anæsthesia, or coma, recapitulate in epitome the manner of his own mental development.

We are apt to forget, perhaps, that considerations of time and of magnitude are irrelevant to the discussion of evolution. Evolution is the expression of an order, and its discussion is concerned with serial arrangements. It is not a theory; it is not an explanation; it is a statement. The order of the succession of the films in a cinematograph demonstration is the same whether the rolls be slowly unwound by hand or at a high speed by electricity—whether the roll be unwound so that some of the presentments are separately realised and others not, or all are shown with the same distinctness. And so it is that the order of the succession of sums of conscious states in the normally recurrent process of falling asleep is precisely the same as in the slower dissolution of senility. This does not necessarily carry with it the suggestion that the separate sums of conscious states are themselves identical, only that the order is the same and the states are similar in kind.

Just so has Dr. Mercier pointed out, in justifying the inclu-

sion of delirium with the insanities, the essential resemblances in order and kind between the phenomena of a dust whirl by the roadside and those of a cyclone. Like causes produce like effects. As with the falling apple, so with the solar system. And we have in our lives curves upon curves, a daily rise and fall, and still one long rise and fall.

It is not fanciful to say that the poet's phrase "life's fitful fever" has an almost literal application. We have our daily rise and fall, our gain and loss; at first the one preponderates, at last the other; we have the rise, the fastigium, the declination, and the end, to some sudden, to others gradual, to all inevitable. Yet whether our mental life terminate by crisis, or by lysis, the order of the succession of the phenomena is always that which, as Huxley has eloquently said, from the lowest forms of life to the highest, preserves the same appearance of cyclical evolution.

"Cyclic change meets us on all sides, in the water that flows to the sea and returns to the spring, in the heavenly bodies that wax and wane, go, and return to their place, in the rise, apogee, and fall of dynasties, and in the inexorable sequence of the ages of man's life."

It cannot be denied that in progressive insanity sums of states of consciousness appear to succeed in an order not only as definite and as inexorable as that which obtains in normal dissolutions, but actually the same. The difference between the normal dissolutions of sleep and senility and the abnormal dissolution of insanity is firstly in time, secondly in regularity, thirdly in extension. For the more regularly insanity advances, and the greater its extension the more cases approximate to one type, becoming less differentiated from each other and from other forms of mental dissolution.

Dr. Clouston has said that the strongest common clinical and pathological tendency of every form of mental disease is to end in dementia, or, in other words, to progress:—a position supplemented by Dr. Blandford's dictum that melancholia is the least departure from the normal and that most likely to pass away.

Many years ago Sankey wove the ideas underlying these dicta into his splendid generalisation that insanity is but one process, and that the so-called varieties are merely differentiated by non-essential phenomena; that all insanities begin with

melancholia and tend to pass through a succession of stages in the order (1) melancholia, (2) mania, and (3) dementia; a succession liable at any time to interruption by recovery taking place in the order of (1) dementia, (2) mania, (3) melancholia. I do not know that Sankey's generalisation ever received adequate attention. Its importance does certainly appear to be not always recognised even now.

Perhaps one reason is that so much attention is paid to *names*, and so little to essentials. The application of the term "melancholia," instead of being restricted to the cases indicated by Dr. Blandford as being those least divergent from the normal (and which are for certain reasons *usually* characterised by a depressed emotional tone), has been extended to many cases which are really cases of mania or dementia.

The old notion—it can hardly be called an idea—that in states of mania there is really something expressed by the term "exaltation" dies hard, and one may still trace in contemporary writings the suggestion that mania and melancholia are opposites in some such sense as are dilatation and contraction. One might as well speak of spastic paralysis being an "exaltation" of the motor function of the cortex cerebri as of mania being a state of "exaltation of mind."

We may, however, accept the terms "melancholia," "mania," and "dementia" as convenient labels for cases in which the sums of states of consciousness are believed to be particular kinds of aggregates.

And we have, then, in Sankey's thesis a convenient statement of the order in which, during the progress of insanity, kinds of aggregates of states of consciousness occur, a statement, too, which is absolutely consistent, if essentials and not phrases be regarded, with the writings of almost every observer.

Melancholia has been described as the kind of insanity evolutionarily, clinically, and hereditarily farthest removed from dementia. And that melancholia may—and frequently does—pass into mania; that acute mania is generally ushered in by hypochondriasis; that most cases of chronic mania have dementia superadded, and tend to become progressively demented; that acute mania not ending in recovery passes gradually into dementia; that paranoia, developing as melancholia or mania, passes into dementia, and is a "chain of which

emotional disturbance is a first link"; that katatonia is a stage in a process of mental degradation which, commencing with depression, passes into excitement and, if recovery does not ensue, into dementia; that cases of persecution mania pass through successive stages of depression, mania, and dementia; that general paralysis is in its earliest stage frequently mistaken for melancholia or hypochondriasis:—all these are commonplaces, disputed by none, but collectively forming only a part of the overwhelming evidence that there is in insanity one invariable order in which psychical states occur—that insanity is, in fact, one process, and the "varieties" of insanity either different stages of one process or examples of one process differing in completeness and in rapidity.

How absurd it would seem if we heard that physicians considered phthisis to be, not one disease, but a group of many kinds of lung disease, one variety of which should be called consolidation, another cavitation, a third dextral, a fourth sinistral, and a fifth bilateral!

Surely we should recognise melancholia, mania, and dementia as stages of one process—that of mental dissolution; and we should distinguish the varieties of insanity from the psychical point of view, as the process be speedy or dilatory, regular or irregular, partial or complete.

The etiology of insanity obviously has no place in any consideration of the psychical series, and can only, for the reasons I have earlier stated, be discussed with the analysis of the physical series of phenomena.

Using the phraseology employed by Dr. Bevan Lewis, "mind" is a sum of states of object consciousness and states of subject consciousness—as Spencer would have said, of outer relations and inner relations.

And if melancholia—that is, the insane condition nearest the normal—be analysed, it is seen that there is a quantitative lessening, or at any rate qualitative degradation, of the total states of object-consciousness entering into the aggregate of conscious states which constitute for the moment the mind of the person affected.

From this it follows that there is a relative, but only relative, increase in the totality of states of subject consciousness, though they too may be absolutely, yet in a lesser degree, diminished in "volume" or "intensity."

Hence arises the egoism which distinguishes "melancholia" from the "melancholy" which characterises those in whom altruism is most highly developed—those whose mind is far above the normal, or average, in content. And it is owing to the lack of adjustment between the subjective ego and the true environment, which is seen through a glass darkly, that in melancholia the tone of feeling is one of "opposition" or "depression."

But the frequency with which this tone of feeling and its correlated physical expression accompanies early and positive reduction in states of object consciousness has led to the characterisation of this reduction by a name which is also applied when the same tone of feeling is thought to be recognised—by its apparent physical expression—in states of mind other than those in which there is simply initial reduction or blurring of states of object consciousness.

If now, after the stage of melancholia be reached, progressive reduction of mind continue, the states of subject consciousness are lessened in number and intensity, though always to a lesser degree than are the states of object consciousness, until, states of object consciousness having practically disappeared, we have first a subjective ego adrift from environment, then an actual invasion or alteration of the subjective ego. The mind becomes merely a sum of such states of subject consciousness as may be left unimpaired, and there is no longer *necessary* reason for the existence of negative tones of feeling.

The ego is something composed of the wreck of old memories—there is, in fact, mania with delusions.

With further reduction in the totality of mind, states of consciousness become so few that the application of the term "dementia" is justified. In strictness amentia, total unconsciousness, unconsciousness without even sub-consciousness, is actually death—psychical annihilation.

Sankey's proposition may be represented diagrammatically. Represent the sums of states of consciousness of a sane man as bounded by two concentric circles of different diameter; the sum of states of subject (visceral) consciousness as enclosed by the smaller circle, and the sum of states of object (environmental) consciousness as lying between the inner and outer circles. (An apter representation would, perhaps, be one of

spheres, not circles.) The order of invasion or reduction is always from without inwardly, and, whichever be the sector or sectors attacked, the area of object consciousness is lessened first, that of subject consciousness secondarily. However irregularly the invasion spreads, the order of the zones attacked is always the same.

As Montaigne has said, "there is no weakness or decay so universal but some entire or vigorous parts will remain." So, though the line of invasion, the order of encroachment from outside to the centre, is invariable, the extension and regularity of the invasion may vary almost infinitely. Our cases, our so-called clinical types, do so. But yet the more symmetrical and regular the process of ablation of mind, so the more closely do our cases of insanity approximate to the one type recognition of which is so necessary to our understanding of what insanity is.

May we not say that insanity, as a state of mind, is one in which there is substitution of simple, organised, undifferentiated and inco-ordinated states of consciousness for complex, unorganised, differentiated, co-ordinated states of consciousness, tending to progress towards annihilation; liable to arrest or reversal, and, while similar to that which occurs in senility, anæsthesia, delirium, and intoxication, differing in circumstances of time, regularity, symmetry, and uniformity, and in the etiology of the correlated physical processes?

This conception of the progress and process of insanity corresponds exactly, I think, both with Sankey's proposition and with what we should expect *a priori*, if told that insanity was a reduction of mind in an order the converse of that of evolution.

The proof of this requires the statement and correlation of a vast number of facts, for which the present is no opportunity. But it is capable of demonstration:—

(1) That the psychical phenomena of insanity occur in the same order as do those of sleep, delirium, intoxication, anæsthesia, and senility.

(2) That this order is the reverse of that which obtains in individual or racial development, and in recovery from sleep, delirium, intoxication, and anæsthesia.

(3) That in recovery from insanity the order of psychical phenomena is that of individual and racial development.

(4) That the occurrence in insanity of delusions, hallucinations, and obsessions is not in contravention of the order of sums of states of consciousness described, but is due to it and the conditions under which it obtains, and has analogies in the history of racial and individual development and decay; moreover, that the particular character of delusions and hallucinations is determined by the extension and regularity or otherwise of the process of dissolution as well as by the content of the mind affected.

I have tried, sir, to outline just one detail of a systematic study of insanity based on acceptance of the limits of our actual knowledge. This acceptance renders it necessary that the psychical series and the physical series be studied separately, without verbal confoundings and transmutations. In respect of the psychical series we have to study, not merely the kinds of conscious states occurring, but the order in which they occur. It is only when we study the physical series that we are justified in considering the etiology and treatment of insanity. In particular we have to study what I have defined as the physical signs of insanity.

If systematic investigation be made, and systematic thought conducted, on these lines, we shall find that insanity is a process of parallel psychical and physical dissolution with the clinical presentation described by Sankey. We shall realise, moreover, that we have not to do with "mental diseases," but with dissolutions of mind and nervous system varying in completeness, in regularity, and in rapidity, and determined, so far as the nervous system is concerned, by various physical causes. We shall abandon the vain practice of attempting to classify processes by recognising as different things different stages of the same process, and we shall employ instead a classification which is based on the causes of the physical phenomena. We shall treat insanity, not by windy talk about "appropriate moral and mental remedies," but by employing physical means to rectify the physical series, knowing from experience that restitution of physical (nervous) states is necessarily accompanied by restitution of psychical states.

After all, then, it imports little that the "substance" of matter is as purely a piece of metaphysical speculation (for all we know) as is the "substance" of mind; that the psychical series as known to us is far shorter than the physi-

cal; and that the physical is known to us only through the psychical.

As Huxley said, "the speculative game is drawn; let us get to work."

(¹) Read at the Quarterly Meeting of the Medico-Psychological Association, in London, November 16th, 1905.—(²) In every case of insanity there is a negative lesion causing sensory or motor paralysis (Hughlings Jackson).

Multiple Lipomata in General Paralysis. By CONOLLY
NORMAN.⁽¹⁾

THE following case presents certain points of interest. The extreme prominence of pain crises in the beginning is unusual. Suicidal tendencies in general paralysis are sufficiently uncommon to be noteworthy, though they are by no means as uncommon as is generally supposed. The same may be said of delusions of conjugal infidelity. Finally, multiple lipomata occurring in this disease have not, as far as I am aware, attracted the notice of any English author.

CASE 17,391.—Male, æt. 40. Married for some years; two children, æt. respectively $4\frac{1}{2}$ years and 5 months. The man had been manager and part owner of a shop in Dublin. He was said to have been a sober and industrious person. I saw him first in March, 1895, in consultation with Sir Thornley Stoker, who desired my opinion as to whether the case was probably, as he deemed it, one of general paralysis in the tabetic form. I expressed my concurrence in his judgment. The history showed no known taint of insanity in the family. Patient had had syphilis about sixteen years before and believed that he had been thoroughly cured. His wife was healthy and had had no miscarriages, and his children were healthy. The first sign of the existing illness was tremor in the right hand, which appeared about two years ago. In consequence, his writing became gradually worse and worse, until it was wholly illegible. This interfered with the performance of his business. He said that his left hand was not at first affected, but after a time it became as bad as the right. (Possibly the condition was simultaneous in both, but first attracted attention in the right.) Then he began to suffer from agonising attacks of pain in the

region of the bladder, shooting down the urethra into the *glans*. His wife believed at this time that he used to masturbate at night, but it appeared probable that what she thus interpreted were merely *attouchements* produced in the effort to relieve the pain described. I have known a not dissimilar mistake made by those who might have known better than this lady, and an unfortunate lunatic blistered on the prepuce by way of curing him of a "habit" which was but the expression of the fact that the poor wretch was dying of a stone in his bladder.

In the case before us Sir Thornley Stoker, when consulted, at once recognised the existence of bladder crises and found that there were other unmistakable signs of *tabes dorsalis*—slight ataxy, Rhombert's phenomenon, lightning pains in the legs, etc. Occasional stomach crises (intense epigastric pain, with vomiting, etc.) occurred later. Mental symptoms were first noticed in January, 1895, when failure of attention, confusion, and loss of memory were added to a certain unreasonableness, which had been till then supposed to be merely the fretfulness of an invalid. He desired to return to his business, for which he was unfit; did sometimes go to his place of business but could attend to nothing, and was liable to wander vaguely away from the house. He had had two "fits" of epileptiform character within the preceding year, and had been unable to speak for some time after each. When I saw him in March he presented well-marked speech trouble of the general paralytic character, well-marked general tremors, and was clearly tabetic. He complained bitterly of bladder pains, and was besides lachrymose and low-spirited. He was very amnesic, not remembering the events of the previous day. He was jealous and suspicious of his wife, without any distinct delusion. About April 10th he had another "fit" (his third), and was speechless after it for about two days, then very restless and rather turbulent. He got steadily worse mentally and developed delusions that his wife was poisoning him. On April 21st he told his wife to put away his razors lest he should commit suicide. In the early morning of the following day (April 22nd) he rushed out of the house, wearing only his night-shirt and calling for an emetic—an antidote to the poison that he said had been administered to him. When he was brought in he seized a table-knife and strove to cut his throat with it. The same day he was admitted to the Richmond Asylum.

On admission.—Fine tremor of the facial muscles. Jerking about naso-labial folds when he speaks. Tongue presents fine tremor. Pupils unequal, left larger; light and sympathetic reflexes gone. Skin of face greasy. Cheeks flaccid and expressionless. Hands tremulous. Ataxic gait. Knee-jerks cannot be obtained. Speech drawling, nasal, slurring, tripping, catching (*i.e.*, typically general paralytic). He is somewhat incoherent, and accuses his wife of poisoning him. Says: "I am poisoned; I am sure it was poison my wife gave me; she did it under the pretence of giving me medicine; do you remember me a little child? What o'clock is it? Oh! Lord, I am sure she has killed me." He also complains of pain in bladder region, of incontinence of urine, and of impotence, attributing the latter to his "wife's unfaithfulness."

When he was examined on admission three tumours of probably lipomatous character were discovered. One lay just over the angle of the left scapula, was circular in outline, about an inch and a half in diameter; another in the left lumbar region, irregularly oval, four inches by three inches; the third on front of right side of chest in the nipple line, the lower edge just above the costal margin, irregularly circular in outline, roughly an inch and a half in diameter. They had all these common characters: they were inconspicuous to the eye, they were freely movable on the subjacent tissue, and the skin was freely movable over them; they were non-fluctuating, soft, and somewhat nodular.

General progress of case.—Tremor and ataxy of upper extremities slowly increased. Loss of co-ordination was more rapid in the legs. Facial and tongue tremor, irregularity of pupils, and peculiar speech engagement continued. His memory was extremely bad; he never knew the day and rarely the season; forgot the events of his life from day to day. He often answered from the point, and occasionally was quite incoherent. He was uneasy about his health in a fatuous way, complaining feebly that he was "diseased." He was also in the habit of complaining of incontinence of urine at a period when this symptom did not exist. He tended to return to the belief that his wife poisoned him, and also that she was unfaithful, though he could give no details or connected account of his reasons, and though when his wife visited him he was most friendly and satisfied with her. He had several attacks

of pain in the bladder region (bladder crises), similar attacks of epigastric pain, with vomiting (stomach crises), and on two occasions attacks of intense pain in the lower bowel, with tenesmus and watery diarrhoea, which I believe to have been rectal crises.

In August, 1895, synovial effusion in both knee-joints appeared without known cause and seemingly suddenly and painlessly. One feared the more familiar form of Charcot's disease, proceeding to destructive changes in the joints, but after about six weeks the effusion, which had been considerable, disappeared rather quickly, leaving the knees apparently normal. Epileptiform seizures occurred in June, when he had three or four in quick succession, in July (one), in August (one), and at the end of December, 1895, when he had two successively. The earlier seizures were followed, after the stupor passed off, by curious aphasic phenomena. Thus he was for some hours, unable to speak at all, then used wrong words or mere gabble, and slowly returned to the use of language. On two occasions while he was in this state I wrote numerals for him or their names and endeavoured to induce him to count. He made an effort to speak but only produced unintelligible sounds. When I spoke aloud the names of the numerals, asking him to repeat them, he had better success, uttering words, sometimes numerals, sometimes other words, but rarely correctly. When, however, I spoke the name of a numeral under ten and held up a corresponding number of fingers he repeated the numeral correctly. After the seizures in December his condition was very much worse. He was very stupid and hard to get to converse. He lost flesh, the arms and legs wasting and the general strength declining rapidly.

For some time after his admission no particular attention was paid to the subcutaneous tumours. It was then found that they had increased in number and had appeared on the abdomen. They were obviously painless, and the patient was unconscious of their presence. They cannot be said to have been symmetrical. In July, 1895, the original tumours had somewhat increased in size and were rather more prominent. About a dozen others had appeared on the back, the sides, and abdomen. These were of various sizes and various degrees of definiteness of outline. Some were firm and almost fibroid in consistence; others were soft, and some had edges so ill-defined

that they appeared to be merely local accumulations of subcutaneous fat without any capsule. As the case went on the tumours rapidly increased in number, giving a curious appearance of stoutness to the trunk, contrasting remarkably with the wasted extremities. They occurred on the front of abdomen, in the lumbar region, all over the chest, back, front, and sides. They did not occur on the face, neck, shoulders, arms, forearms, gluteal or sacral regions, thighs, or legs. They were most visible over the lower portion of the chest, where their uneven prominence gave a curious knobby contour that was very noticeable. Elsewhere they might easily enough have escaped superficial observation. It could not be perceived that they caused inconvenience of any kind.

On April 1st, 1896, the patient had nineteen epileptiform fits. Thereafter he never quite rallied, but lingered till April 28th, when he died, just over a year after admission.

Owing to the opposition of his relatives it was impossible to obtain an autopsy, but an opportunity was taken to secure a portion of one of the smaller and more defined tumours, which was found to present the structure of a lipoma.

Although this case presents, as aforesaid, many somewhat uncommon and interesting points, there is no individual feature which one has not seen before, save the condition of multiple lipomata. The association of this condition with general paralysis is, as far as I am aware, mentioned in only one treatise, the short but admirable work of Magnan and Serieux in the *Aide Memoire* series, where the coincidence is casually referred to. In the casuistry of general paralysis I am aware of but one pertinent case, described by Targowla in the *Annales Médico-Psychologiques* for the year 1891 ("Lipomes Symétriques Multiples chez un Paralytique Générale"). Targowla, while alluding to the occurrence of lipomata in tabes dorsalis, seems to regard the combination as hitherto unobserved in general paralysis. His patient is not noted as belonging to the special tabetic form of general paralysis. The mental troubles displayed were chiefly general mental enfeeblement, loss of memory, and vague notions of persecution. Inequality of pupils, tremors of tongue, and speech peculiarities were the leading physical signs. Diagnosis of general paralysis was made by Magnan, Marandon de Montiyel, and others. The patient was alive when the description was written. The lipomata were symmetrical, and

were found in the zygomatic, submaxillary, mastoid, clavicular, deltoid, and sacral regions on both sides of the body, as in my case; some were diffuse, some circumscribed, but all evidently of the same essential nature. Targowla inclines to associate this condition with the tropho-neurotic conditions occurring so frequently in tabes dorsalis and sometimes in general paralysis. Its occurrence, in the example just described, in combination with general paralysis and well-marked tabes seems to point in the same direction. The explanation, to be sure, is not very complete, and may be merely a re-statement of our ignorance.

In concluding my observations upon this case, I must thank my friend Sir Thornley Stoker for giving me an opportunity of seeing the patient before he came into my asylum, and also for kindly giving me some valuable notes of the patient's condition during the short period when the latter had been under his care. I have further to thank my friend and former colleague Dr. D. F. Rambaut, now Medical Superintendent of the Shrewsbury Asylum, for some case-book notes, on which I have drawn in the above description.

Since the date when the above case was under notice I have seen a case which recalled it to my mind. A patient was introduced to me by my friend Dr. Travers Smith with a view to obtaining my opinion as to whether the case was one of general paralysis. There was slight involvement of speech. The patient presented vague neurasthenic symptoms, and was extremely hypochondriacal, without distinct delusion. There was a history of losses of consciousness of brief duration, without convulsion as far as could be ascertained. Patient was an army reservist, æt. 36. He denied syphilis, but he was quite untrustworthy in other matters, so that no value can be attached to this denial. I formed the opinion that he was probably suffering from early general paralysis of a somewhat unusual type. He was subsequently sent to a county asylum, whence he was discharged to his wife's care in a few months. He was a patient under my care in the Richmond Asylum from February 6th, 1905, to May 19th, 1905. To the somewhat indefinite symptoms which he had presented when I saw him before there were now added suspicions as to his wife's fidelity. Nevertheless his wife removed him from the asylum. During his stay his essential symptoms were stationary, though he gained

sufficient self-control to make him say that his suspicions of his wife were groundless. This man presented a number of small, subcutaneous, painless tumours, which were apparently lipomata. One occurred on the front of the left thigh, one on the left flank, one on the outside of the left arm, one on the inside of the left arm, one on the inside of the left elbow, and one on the inside of the left forearm. They did not appear to increase in size while he was under my observation, and Dr. Travers Smith had drawn my attention to them about two years before. At the latter date the patient said they had come on while he was serving in South Africa, a couple of years earlier.

There is probably some connection between the nervous trouble in this case—be it general paralysis or not—and the existence of lipomata. Less close, perhaps, but still probably existent, is a similar connection in the case of a patient whose case has been communicated to me by Sir Thornley Stoker. This patient, an elderly lady, wife of a barrister, sustained surgical injuries in a motor accident. On examination she was found to suffer from numerous painless lipomata of old standing on the arms, legs, and trunk. She is a person of bad nervous heredity, two of her sisters and one of her daughters having been insane.

The nervous connections of Dercum's disease have, of course, been pointed out.

(1) Read at Irish Divisional Meeting, July 6th, 1905.

DISCUSSION

Dr. LEEPER said that he had a case of typical general paralysis which about two months ago developed a series of cutaneous tumours, first on the clavicle, and then all over the body, which broke down into ulcers. There was a syphilitic history, and the patient got well as regarded the cutaneous lesions after a week or two of treatment with biniodide. Could the lipomata have any bearing on subcutaneous gumma?

Dr. DRAPES asked if Dr. Norman meant that general paralytics were more subject to lipomata than sane persons. He had himself had a case of general paralysis who suffered from multiple adenomata, but had regarded this as merely a coincidence.

Dr. FITZGERALD, speaking of general paralysis at large, inquired whether it was Dr. Norman's experience that melancholic symptoms are commoner in females than in males suffering from that disease. He also mentioned the case of a general paralytic in his practice, suffering from urinary incontinence, who suddenly regained control of his bladder and never lost it again.

Dr. NORMAN, replying, said that he did not think that Dr. Leeper's case had any bearing on that described by him, in which the tumours were true lipomata. He had not seen any other case of lipoma in general paralysis, but Magnan and Serieux mentioned lipomata as a tropho-neurosis of the disease, and others as

occurring in tabes. It was said that melancholic symptoms were commoner in females, but he himself had met with them oftener in men. One general paralytic had tried to hang himself, but no general paralytic woman had attempted suicide in his experience. Female cases were often quietly weak-minded. He had had several cases of general paralysis in which the control of the bladder had been regained.

Some Clinical Notes upon Urine-Testing and Results.⁽¹⁾

By ROBERT JONES, M.D.

THIS fragmentary paper is to suggest rather than to inform. It is a bedside analysis of the urine in 969 female patients consecutively admitted into Claybury Asylum, and the notes cover a period of several years. Although the facts are many, the deductions are few, and although possibly nothing new is related, yet these notes involve an extensive collection of common details, and there has been some labour undertaken to present them. The summary may, I venture to hope, serve as an incentive to others to contribute more detailed statistics upon an aspect of mental diseases which is at present much talked of and much written about, *viz.*, the relation of insanity to auto-intoxication and its dependence upon changed metabolism, particularly in an alteration through this changed metabolism of the normal functions of the kidneys, and I propose to run somewhat rapidly through the following headings. And first as to—

(1) *Quantity*.—The amount of urine secreted in each case during the twenty-four hours has not been noted, and therefore I will make no statement whether, as is asserted, there may be any greater amount of urine passed in cases of mania than in cases of the depressed form of insanity, attributed as it is to the relatively greater activity of the metabolic (or the katabolic) process believed to occur in this form.

(2) *Colour*.—Again, although no tint test has been used, the impression gained by the record is that the colour of the urine is darker in the insane upon their admission into the asylum, when the mental condition is somewhat acute, than it is in normal persons. It must be remembered, however, that the tint of the urine fluctuates widely, even in health, and that this depends not only upon the degree of dilution but also upon the

reaction, an acid urine being darker than one which is alkaline, even when they are equally concentrated, and the relative proportion of acid urine to alkaline met with in the cases recorded has been almost as 50 to 1.

(3) *Reaction*.—The reaction taken with litmus paper showed 821, a proportion of 85 *per cent.*, to be acid, due, probably, to the acid phosphate of sodium (NaH_2PO_4) and not to the presence of a free acid; 123 cases, 13 *per cent.*, were neutral, and only 17, or 2 *per cent.*, alkaline. The patients were admitted after a journey and a considerable time after a meal, so that there was no “meal-tide” alkalinity. No quantitative estimation of acidity was made, nor is this said to be of any clinical value, for the intensity of the red colour produced in the litmus-paper is most often a sufficient indication of the degree of acidity.

(4) *Consistence*.—No special observations have been kept as to the consistence of the urine, but there have been variations, as may be inferred from the fact that in a small percentage of cases sugar, bile, mucus, pus (in one case of pyelo-nephritis), and other constituents have been present.

(5) *Odour*.—No notes have been kept under this head, but the urine in some cases has presented a high odour, probably due to the presence of aromatic sulphates, and possibly indicative of auto-intoxication through the absorption and retention of some of the intestinal contents. The presence of ethereal sulphates in the urine, owing to the combination of organic radicals—such as indol, skatol, phenol, etc.—with sulphuric acid has been investigated by many foreign workers, and Dr. Townsend recently contributed an interesting article (*Journal of Mental Science*, April, 1905), upon the presence of indoxyl in the urine of cases of melancholia. This constituent is an oxidised product of indol, a normal factor in the disintegration of albuminous substances. It is said to be absorbed into the blood, whence (uniting with potassium sulphate to form indoxyl) it is eliminated in the urine. There are several similar fatty acids formed by the breaking up of albuminous substances, but it is not ascertained whether their presence is the cause of the mental depression, or whether they are the consequence, and due, therefore, to impairment of nerve tone and power caused by the insanity which thus interferes with normal metabolism. At any rate, this substance has been taken as an index of the

intestinal putrefaction and of the absorption of such products of disintegration into the blood.

The whole question of the katabolism of protein has recently been worked out by Otto Folin (*American Journal of Psychology*, February and March, 1905), to whose contributions reference may be made. In regard to the poisonous effects of human urine upon the lower animals, experiments carried out as to its toxicity have not yielded much result. It is even stated that normal urine contains more toxins than that of insane persons, and no conclusion as to the mental state of the patient can be arrived at from experiments of the kind referred to.

(6) *Density*.—This, as ascertained by the urinometer, has been investigated in 963 cases, and the specific gravity thus ascertained is recorded in the following table :

Specific Gravity.				
1000 to 1009	.	.	.	5 cases.
1010 to 1019	.	.	.	364 "
1020 to 1029	.	.	.	420 "
1030 to 1039	.	.	.	159 "
1040 to 1049	.	.	.	15 "
				—
				963
Not ascertained	.	.	.	6
				—
				969

It is known that the specific gravity in healthy normal urine varies from 1015 to 1025, tending to be somewhat higher in children than adults, and it does not materially change by the presence of albumen. The specific gravity in normal urine is in direct proportion to the amount of urea present, and this was especially the case with the urines of high specific gravity above recorded. High specific gravity and abundant urine indicate diabetes mellitus, and low specific gravity with abundant urine are the symptoms of diabetes insipidus or of chronic renal disease.

(7) *Chemical constituents: Phosphates*.—These were present in excess in 240 cases out of the 969 examined—*i.e.* in nearly 25 per cent. of all the cases. Phosphates were not mostly present in alkaline or neutral but in acid urines. It is only too well known that phosphorus exists in the animal body in

large quantities, either unoxidised and combined with albuminous compounds as in nervous substance, or in the form of phosphates in the body fluids and particularly also in the bones, and only in 68 cases (*i.e.* in 28 *per cent.* of the phosphatic cases) were the urines alkaline or neutral, a proportion less than that found in normal persons (33 *per cent.*). Most of the phosphorus present in the urine no doubt comes directly from the food, as is seen in the rise of the earthy phosphates after meals, but in my notes the presence of phosphates was not due to food, as no meal had been taken for some time before admission ; but it is not improbable that some is derived from the oxidation within the body of the phosphorus of albuminoid tissues. Dr. Bence Jones formulated opinions that in acute inflammation of the brain there is an excessive amount of phosphorus in the urine, and that when the inflammation becomes chronic no phosphates can be shown to exist. It is significant in my cases that phosphates were more common in cases of melancholia than mania (*viz.*, 138 to 77 cases), although the proportion of cases of melancholia admitted into the asylum were only slightly more numerous than those of mania. It was also significant that the highest proportion occurred in cases of puerperal insanity, where we know that the mental symptoms may be very acute ; the next highest proportion occurred in cases of epilepsy and in those of general paralysis, in which it has already been shown by competent observers that there is a considerable breaking-up of lecithin into glyco-phosphoric acid and cholin, or neurin. It is curious to relate that phosphates were almost absent from the urine in cases of alcoholic insanity and that they were in excess as constituents of the urine in cases of melancholia, puerperal insanity, and epilepsy.

(8) *Albumen.*—Of the important morbid constituents, possibly the first in point of seriousness is albumen, and it was present in a greater or less amount in 69 cases (7 *per cent.* of the whole). The ordinary examination of the urine for albumen merely shows the presence of a proteid, but does not indicate which of the proteids of the blood-plasma may be present. Recovery occurred in 20 cases of the 69 cases (29 *per cent.*), and death in 15 cases (22 *per cent.*). An analysis of the mental state showed 30 cases (43 *per cent.* of those with albumen) to be suffering from the melancholy form of insanity (*i.e.*, 3 *per cent.* of all the 969 cases

recorded), 21 cases (30 *per cent.* of those with albumen) to be those of mania (*i.e.*, 21 *per cent.* of all the cases recorded), and 18 cases to be dementia (*i.e.*, 18 *per cent.* of the whole). The result in the 30 cases of melancholia was death in 6 cases (20 *per cent.*), recovery in 11 cases (37 *per cent.*). Of the 21 cases of mania, 9 recovered (43 *per cent.*) and 3 died (14 *per cent.*), and in the 18 cases of dementia 6 died (33 *per cent.*). Of the 15 cases which died and in whose urine albumen was present upon admission, chronic Bright's disease was the specific cause in 1, but renal cirrhosis and vascular degeneration were present in 7 cases (46 *per cent.* of the total deaths). Death in the others resulted from cerebral hæmorrhage or softening, from lung trouble (tuberculosis), bronchial states, and heart affections—probably consequent upon renal changes. The kidneys in the majority of cases which died presented the appearance of greater density than normal, the capsule was adherent and thickened, and it did not readily strip. The cortex was granular and diminished in thickness, measuring from 4 to 6 mm., and there were cysts present, with congestion, and in some cases fatty changes.

(9) *Sugar*.—As to sugar, it has been suggested that traces of glucose occur in normal urine, but sugar was present either as a slight trace in six cases, or in a greater amount in twenty-five cases—a proportion of 25 *per cent.* of all cases recorded. In twenty-six other cases the urine reduced Fehling's solution, but the presence of sugar was not confirmed. In no case was there diabetes mellitus, and the sugar disappeared eventually from the urine of all. These statistics do not agree with those of Dr. Bond (*Journal of Mental Science*, April, 1897) where his investigations showed sugar to be present in 535 *per cent.* In ten cases, or 32 *per cent.*, the mental state was mania. In eight cases (a proportion of 22 *per cent.*) sugar was associated with melancholia. Five cases were associated especially with the puerperal period of lactation, and the presence of lactose in the urine of these cases has been attributed to the recession of the milk (in asylums patients do not nurse their infants), and the carbohydrate constituents of milk appear in the urine in consequence. The mental state in one case was associated with alcohol, and the age was fifty-three. Three suffered from general paralysis, at an average age of thirty-nine years, and the fact of general paralysis being associated with a

roughening of the ependyma of the fourth ventricle may suggest some association with physiological glycosuria. One was an epileptic, æt. 37, and two were senile cases. Nine cases (30 *per cent.*) out of the total recovered—including all the puerperal and lactation cases.

Those who died in whose urine sugar was found were six, but primary renal disease was not present in a single instance as a cause of death or as a contributory factor. The youngest age at which sugar was found was fourteen years, a case of adolescent melancholia with acute symptoms, which recovered, and the oldest was a case of senile insanity, æt. 82, and in whom the kidneys each weighed 128 grammes, the capsule stripped readily, the cortex measured 6 mm. to 8 mm., and the density was decreased.

It is accepted that drugs such as chloral, chloroform, and the salicylates may reduce Fehling's solution, but in this respect the previous medical treatment of these patients could not be ascertained. As already stated, lactose, which also reduces Fehling's, may be present in the urine of women who are nursing. Physiological conditions also, such as the presence of glycuronic acid, of uric acid in excess, and the presence of cretinin or hippuric acid, may also give the same reduction, but the fact that none of these cases died from diabetes mellitus is evidence that glycosuria is certainly not common in the insane.

(¹) A paper prepared for the Annual Meeting in London, July, 1905.

Dr. Koch, at the Annual Meeting, said that we could not judge anything at present of the mental condition from the mere analysis of urine. We might be able to draw some general conclusions as to the state of nutrition, especially in cases of under-nutrition, such as phthisis and wasting diseases, when we could tell if the patient were losing nitrogen. Urine analyses have recently been put upon a very accurate basis by Otto Folin, of the McLean Hospital for the Insane at Waverly, Massachusetts. The method requires, however, to be carried out by a trained chemist, and does not at present permit of any conclusions as to nervous metabolism, which is evidently of a very special kind. Indican (indoxyl potassium sulphate) in the urine indicates bacterial decomposition in the large intestine, and probably does not itself influence the mental state, although some of the bacterial toxins may lead to states of depression, frequently observed also in people not afflicted with mental disease. Phosphates are so largely derived from the food directly and may be metabolised by so many tissues of the body that the breaking up of nerve-tissues would not necessarily lead to an increase which could be detected by analysis with any degree of definiteness. Numerous attempts to correlate mental activity with phosphorus excretion have demonstrated this.

A Note on Psychiatric Terminology and Classification.⁽¹⁾

By THOMAS DRAPES, M.B., District Asylum, Enniscorthy.

IN any department of knowledge worthy of the name of science I think it will be admitted that one of the most important elements is terminology. The accurate (and adequate) expression of facts by appropriate words is a prime essential in the advancement of knowledge; the absence or imperfection of such is one of the greatest hindrances to progress. And perhaps no more forcible example of this can be adduced than the case of psychiatry, that sphere of knowledge in which all who are members of this Association are supposed to be more or less expert students. I doubt if any branch of science has suffered more than our own from the disability of an imperfect terminology, a point which it is hardly necessary to argue. I may, however, by way of illustration remind you of the numerous schemes of classification of insanity which have from time to time appeared, a matter with respect to which every writer on the subject seems to have done that which was right in his own eyes. But what would be thought of any science—say botany, chemistry, or zoology—if a new system of classification, and even new terms for genera and species, were to be brought out with the same frequency, or anything like the same frequency, as in the case of insanity? Can anything be more bewildering to anyone commencing the study of insanity than to take up book after book and find each writer adopting a different classification, and grouping cases under one heading or category which the next authority he takes up places under another and quite different one? Surely there ought to be, in the first place, agreement amongst authorities as to the meanings of terms, and in the next place at least some permanent basis of classification which all can accept, capable, no doubt, of expansion and modification with the advance of knowledge, but not liable to continual changes, not to say upheavals, in its fundamental structure.

The fact that so many abortive attempts have been made to evolve a classification of insanity which shall obtain general acceptance, that there has been such a signal failure in constructing a satisfactory working basis for the study of that condition, is indicative of one of two things: either that our

information on the subject is so imperfect that the data requisite for a proper scientific classification are wanting, or that there is such an essential difference between insanity and all other departments of knowledge, that the construction of a system of classification on the usual broad principles which obtain in the case of all other branches of science is impracticable. Probably each of these factors forms an element of difficulty in greater or less degree. Our knowledge of mental action is as yet very imperfect, and as regards a great deal of it merely conjectural; and, again, mental functions differ so radically from all other functions of the body, our methods of investigation of them are so totally dissimilar in the one case and in the other, that attempts at classification of mental disorders by similar methods to those adopted in the case of other bodily diseases have up to this spelt failure. Is the unravelling of these causes to be regarded as impossible? Until they are discovered it is to be feared that their effects, from which we have been so long suffering, must be looked on as irremediable. I am fully conscious that anyone who enters upon the thorny path of the subject of classification is as likely as not to be pointed at with the finger of scorn as a case of "fools rushing in." At the risk of meeting with this fate, however, I venture some considerations on the subject which must be regarded in the light of suggestions only.

Disease or disorder of any bodily organ is recognised by symptoms which are mainly referable to the functions of the organ affected. They are the outward expression of the internal disturbance; and they may be objective or subjective, patent to an outside observer, or only appreciable by the patient himself. Cough, vomiting, paralysis are evident to any outsider; pain, giddiness, or nausea are only cognisable by the person who is the subject of them. But disease is also revealed by physical signs, and these are wholly objective. I need hardly say to which class a physician attaches most importance. The physical signs of disease and the objective symptoms are what he mainly relies on as helping him to a diagnosis. The subjective symptoms have a certain value, but in many instances, and notably in the case of functional nervous disorders, they have to be largely discounted.

Insanity from a clinical and diagnostic standpoint presents some special difficulties. Except in the case of general paralysis

there cannot be said to be any specific pathological conditions corresponding to any of the forms or varieties of insanity; so that pathology, which forms the basis of classification of so many diseases of other organs than the brain, is inapplicable to that of mental derangements. This is one, and it is to be feared an insurmountable, difficulty. Their clinical features are, then, almost the only available basis. And these differ so in character and in course and progress as to present another great difficulty to the would-be classifier. Insanity, taken in its widest sense—that is to say, insanity in the abstract—is an aggregate of symptoms, comprising all abnormal mental phenomena referable to the intellectual, emotional, and volitional departments of mind; and for the production of any individual case of insanity we could almost imagine that all these symptoms were thrown into a hat, well shuffled, and a certain number drawn out at hap-hazard by some invisible hand, so as to form a group or so-called “variety” of insanity. No two cases of mania, no two of melancholia, or of dementia, follow a similar course—that is, in the sense that two, or for that matter a dozen, cases of pneumonia, typhus fever, or Bright’s disease can be said to follow the same or a similar course. In diseases of organs other than the brain well-defined and discoverable pathological conditions give rise to very similar symptoms, which run on the whole a very similar course, and the personality of the individual is but slightly, if at all, affected. But in the case of mental disorders in the large majority the pathological conditions are very indefinite, if at all discoverable, while the character and personality are profoundly altered. And while stomach, heart, liver, etc., functionate in an almost identical fashion in any number of individuals, their minds, which represent the functioning of their highest cerebral centres, are wholly and entirely different in their action.

The functions of the nervous system, taken as a whole, are, as we know, mainly three—sensory, motor, and mental. Derangements of the sensory and motor functions are comparatively easily recognised and located. The departures from the normal are but three: the function may be in excess, or in defect, or perverted. Thus, hyperæsthesia, anæsthesia, and paræsthesia on the sensory side, spasm or convulsion, and paralysis on the motor side, sum up the symptomatic phenomena presented by these “lower centres.” But it is far otherwise

with mental symptoms; they are as diverse and as complex as the operations of the healthy mind itself. Still, we find types of mental derangement corresponding broadly with those of motor or sensory character. We have in the excitement of mania an example of excess or over-action in some highest centres, in the condition of apathy and stupor we have defect, and in delusion we have perversion of these centres. And it is a question whether in any classification of insanity it might not be well to start with some such division as this, so bringing its symptomology into line with that of the disorders of the lower centres. In old days an impassable gulf was made to separate mental from all other functions of the body, but the less the functions of mind are divorced from those of other parts of the same nervous system, whether they are in normal or abnormal operation, the better for the progress of mental science.

In derangements of the lower centres physical signs, and very significant ones, can be elicited which are of high value in determining the seat and nature of the disease which produces them. In mental disorders, on the other hand, such signs are almost wholly wanting. We cannot palpate or auscultate the brain. We cannot locate a delusion or a focus of mental excitation as we can a lesion of sensory or motor centres. The nearest approach to physical examination that we have in such is inspection of the condition of the fundus oculi with the ophthalmoscope, and it is only rarely that any help in diagnosis is obtained in this way. We are therefore debarred from one of the principal methods of investigation in the case of "bodily" disease.

It would seem, then, that anything like a complete or satisfactory classification of insanity in the present state of our knowledge is an impossibility. The most we can do is to classify our cases on some basis on which all or the great majority of psychologists can agree. There are different considerations, each of which might serve to form a basis of classification. For instance, all cases of insanity could be grouped according to the duration of the disease, or according to the degree of intensity, or according to the period of life at which they occur, or to the predominant mental condition, such as excitement, depression, stupor, etc. Any of these expresses facts, and facts upon which everyone would be in agreement. No one would be at a loss to understand what was

meant by saying that a patient was the subject of recent melancholia, or of acute adolescent insanity. Each term expresses a fact about which there can be no dispute. But when in a few cases a certain grouping of symptoms, and that by no means identical in any two cases, occurs, and a special name is given to such casual combinations, it does not in the least assist in the better understanding of insanity; rather the contrary, it makes confusion worse confounded. I ask anyone to read with an unbiassed mind the descriptions given by different authorities of the so-called "varieties" of insanity designated by the terms "katatonia" and "dementia præcox," and say in all honesty whether he has found any mental enlightenment therein, or whether he has not rather found himself reduced to a condition of intellectual bewilderment, more or less. Possibly the discovery, or quasi-discovery, of a new variety of insanity has a special attraction for some minds, as the discovery of a new species of plant gladdens the heart of the enthusiastic botanist, who hopes his reputation will be enhanced by the transfer of his own cognomen to the new discovery, as *Smithii*, *Jonesii*, or *Robinsoniani*.

But no matter what basis of classification is adopted, there should be an absolute agreement as to the precise meaning of terms. This is far from being the case at present. As an instance of the ambiguity of terms which is, unfortunately, so marked a feature in psychiatric literature, let us take the very simple word "chronic." It would seem scarcely possible, scarcely credible, that there should be any difference of opinion as to the exact significance of a word with apparently so obvious a meaning, and in constant every-day use. Yet so it is. For the term is used with reference to (1) duration of the disease, *i.e.*, chronicity in the proper sense of the word; (2) intensity; (3) incurability. Can we not come to some agreement to have, if it must be so, even an accepted technical meaning attached to the word "chronic"? Some cases of mania and melancholia are just as acute in their symptoms six, nine, and even twelve months after their inception; and if "chronic" is used to imply a certain degree of intensity below what is regarded as acute, then a case may be as acute after twelve months as after three. But if duration is to be taken as the meaning of chronicity, in such a case we have—it sounds uncommonly like a bull—a chronic state of acute insanity, which *appears* a contradiction

in terms. But it need not be. For, on the whole, having regard to the etymology of the word, it would be better to use the term "chronic" exclusively with reference to duration than in either of the other senses, as thereby there would be no doubt as to its application in any particular case, and facility of application is the great *desideratum* either in terminology or in classification. But some one meaning should be selected and adhered to by all. The complementary term to "chronic" should be "recent," not "acute," recent referring to occurrence in point of time, while acute denotes intensity. And in this way to say that a case, although of chronic duration, was acute in character would not be the contradiction in terms which, at first sight, it might seem to imply. We might adopt, as regards the duration of an attack, a scale of three degrees—recent, sub-chronic, and chronic, meaning cases of, say, three, six, and twelve months' duration respectively; and as regards intensity we might also have three degrees—acute, subacute, and mild. The use of these terms would at least give definiteness to our ideas, and, what is equally important, they would be generally understood.

Take now the word "dementia." By most alienists, and up till recently by all, this term was held to denote a general failure of all mental faculties, such as occurs so frequently in old age. Here the mind fails in all departments—intellect, emotion, volition, conduct. The process may be slow or rapid, and of various degrees, from mere impairment to, in advanced cases, total abolition of the mental functions, of which memory is generally the first, or one of the first, to become affected. It is a condition which is found under long-acknowledged and well-recognised circumstances, *viz.*, as the terminal stage of all forms of insanity, as a result of organic disease of the brain, and as the effect of senility, and therefore the old classification of dementia into secondary, organic, and senile has a sound basis of fact underlying it; and, again, it is easy of application to any particular case, and probably on this point the vast majority of alienists will be found in absolute agreement. The form "primary dementia" was, of course, also included in this classification, but I venture to think that it would have been wiser if such a term had never been employed. The term "dementia" is associated in our minds for the most part with an incurable condition, the privative particle *de* denoting the loss of something once possessed, and, in my opinion, it would be

well to limit the term to incurable break-down, the destruction of function, and not such phases of insanity as those included in "primary dementia," from which recovery not infrequently takes place."

If the use of the term "dementia" is not altogether satisfactory, what are we to say of that unfortunate modern discovery "dementia præcox"? No doubt it has been ushered into existence, at any rate brought into prominence, by a very distinguished authority, with respect to whose writings I am sure no one here would wish to utter one word of even seeming depreciation. In the sphere of psychiatry Kraepelin holds a well-earned reputation which nothing that I may say can either injure or enhance. But I am inclined to think that a good many alienists in this instance find themselves unable to see eye to eye with the master. At the annual meeting of the British Medical Association at Oxford last year Dr. Conolly Norman read an exhaustive and well-reasoned paper on "Dementia Præcox"; and his conclusion, after a most careful consideration of the subject, was that the facts did not justify the adoption of such a designation for any combination, or grouping, or course of symptoms at present known to us—"The existence, either as a distinct entity (which Kraepelin does not affirm), or as a practically useful homogeneous group, of any condition which can be called by the name 'dementia præcox,' does not in my opinion admit of proof." (I may add that another example of divergence of opinion on an apparently simple matter is to be found in the same paper, in which Dr. Norman characterises judgment as the most adult of all the mental functions, whereas Tichener speaks of it in his *Outlines of Psychology* as "the most elementary form of intellect"; and again, in his *Primer of Psychology*, he says, "The simplest thought process, the unit of thinking, is the judgment." Can it be the same faculty which these writers allude to in such apparently contradictory language, or does the word "judgment" convey a different meaning and content to each?)

To return to dementia præcox, Kraepelin, in his recently published *Lectures on Clinical Psychiatry*, says that "the peculiar and fundamental want of any strong feeling of the impressions of life, *with unimpaired ability to understand and to remember*, is really the diagnostic symptom of the disease." Does it not seem rather strange to apply the term "dementia" to a mental con-

dition where there is unimpaired ability to understand and to remember? Surely this is a misapplication of terms. If comprehension and memory are unimpaired, what is dementia? (I refer to the dementia with which we are all familiar, or think we are familiar.) Let us hear Kraepelin himself on a case of senile dementia in the same work: "The most prominent feature of the case is the almost complete failure of the power to retain impressions, which far exceeds anything we have observed in other forms of disease. . . . Absolutely no connected chain of ideas ever comes into existence . . . clear impressions are far more slowly arrived at than is the case with healthy people. Hence many of our patient's ideas vanish before they have really become clear. It is easy to understand how the united effect of these two disturbances may produce the condition presented by her, which we will call 'senile bewilderment.'" It would be difficult to discover by what process of reasoning these two forms of mental derangement are classed together as varieties of the same genus dementia. To call by the same name groups of cases in which on the one hand one of the diagnostic symptoms is unimpaired ability to understand and remember, and on the other mental distraction and bewilderment, with very slow comprehension, and complete failure to retain impressions, is not this to take an unwarrantable liberty with language, and to give a latitude of meaning to a term outside the limits of reason and common sense? As long as psychiatry permits such totally different, even contradictory, significations to be given to the same term, it seems hopeless to expect that we shall ever arrive at anything like a scientific classification of insanity.

But the position may be defended in this way. The term "dementia," as used in dementia præcox, does not imply that there is a condition of dementia present from the first, but that sooner or later the train of symptoms described under that designation will end in dementia, premature in its onset. If that be the essential inwardness of dementia præcox, then it differs not at all from all other forms of insanity, which also, sooner or later, if the patient is not cut off by intercurrent illness, end in dementia. In fact, to follow the precedent of Mark Twain in connection with the claims of Michael Angelo, why not lump all insanity together and call it dementia præcox? Which would seem the most satisfactory way of

settling the question. As other writers as well as Dr. Norman have taken strong exception to the use of this term, and have no belief in the existence of such a distinct form, I should not have referred to the matter were it not that in the first draft scheme of classification of insanity drawn up by the Statistical Committee the variety dementia præcox was included with primary dementia. The Committee evidently considered that opinion in these countries was too much against the employment of such a debatable term, and have, wisely, dropped it in their amended scheme. But we have escaped the adoption of this exotic, as it were, by the skin of our teeth.

The terms "hallucination" and "illusion" are even still occasionally used promiscuously, but more in the case of general practitioners than by psychiatrists. But it would be well if a definite meaning were attached to each, the meaning which almost all authorities support—that is, that an hallucination is a false perception without an object, and an illusion a false perception with an object, a misinterpreted perception. It is unfortunate that the French have no word "delusion," and use the term "illusion" to denote what we mean by delusion. If we are ever to have, as is the dream of some, an international terminology and classification, it would be well if our neighbours could see their way to incorporate the English word "delusion" in their language, which could be so readily done without any difficulty except an alteration in pronunciation, and so find another opportunity of showing the *entente cordiale*.

I would suggest that any classification of insanity which may ultimately be adopted should be preceded by definitions of those terms upon which there is general agreement amongst psychologists, leaving those of doubtful meaning to take care of themselves until a stage of greater preciseness and accuracy in terminology is reached.

I have called the foregoing observations a "note." They do not claim to be anything more, and being of a fragmentary character, are not deserving of any more dignified title. If they serve a suggestive purpose, which is all they are expected to do, the object with which they were written will have been attained.

Note.—At the time this paper was written I had not seen Dr. Easterbrook's able contribution on "Statistics in Insanity: a Universal Scheme," in which he takes exception, as I have

done, to the ambiguous sense in which the terms "acute" and "chronic" are used. But, while hesitating to differ from him, I can hardly think that he has suggested the best way out of the difficulty, although he quotes high authorities in support of it. Dr. Easterbrook is inclined to discontinue the use of the terms "acute," "sub-acute," and "chronic," and to substitute for them "recent," "sub-recent," and "persistent." I venture to submit that the terms "acute" and "sub-acute" are not properly correlated with "chronic" at all, but should be used to express degrees of intensity alone, which, as I have suggested in my paper, might be three in number—"acute," "sub-acute," and "mild," and that there should also be terms available for expressing three degrees of duration, such as those which Dr. Easterbrook suggests: "recent," "sub-recent," and "persistent," or, preferably as I think, "recent," "sub-chronic," and "chronic." Dr. Easterbrook asks: "Who has not heard a chronic maniac during one of his attacks described as being 'acutely' maniacal? How a person can be described as being at one and the same time both acutely and chronically ill is difficult of comprehension in the ordinary medical meanings of these terms." But, nevertheless, it is a fact that there are patients whose insanity is of considerable duration, say over a year or longer, and who are as acutely maniacal as they were twelve months previously. Here the illness is surely chronic in duration, but acute in intensity; and we should have terms to express these facts clearly. It does not matter much whether we call such cases "persistent acute" mania, or "chronic severe" mania. But what I do urge is that, in any scheme of classification, degrees of intensity and degrees of duration should be kept perfectly distinct, and that appropriate terms admitting of easy application should be employed to denote them.—T. D.

(1) Read at a meeting of the Irish Division of the Medico-Psychological Association held in Dublin on November 22nd, 1905.

The David Lewis Manchester Epileptic Colony. By
ALAN MCDUGALL, M.D.

THE David Lewis Colony is one of the latest results of the sympathy for the epileptic spread, if not originated, by Pastor von Bodelschwingh, of Bielefeld.

How the colony came into being is explained in the following passage from an official prospectus :

A committee was constituted a few years ago with the view of establishing a colony for this district, where outdoor and indoor employment might be found for those of both sexes suffering from epilepsy, for the purpose of medical treatment and study of the disease, with a view to elucidating its causes, and with the further view of providing a home for the more severe cases. The committee have been able, through the generosity of a few friends, to collect a sum of about £13,000, which has been invested. The committee approached the Manchester Committee of the David Lewis Trust, with the view of securing a substantial grant from their fund, and their appeal resulted in the Trustees, after a very thorough inquiry of their own, most generously offering to provide the necessary land and buildings for the colony, and also to furnish and equip the same, and hand it over to the committee ready for occupation. The committee most thankfully accepted this munificent offer, and an estate in every way suitable as regards soil and surroundings was acquired by the trustees. It is situated midway between Alderley Edge and Chelford, in Cheshire.

The David Lewis Colony is peculiar in having been built and furnished by a body quite distinct from the one that maintains and administers it. An advantage of this is that, through the splendid generosity of the Lewis Trustees, some of the buildings and furniture are in a style that would be unjustifiable had their cost been defrayed out of the rates or by money collected from the public.

The colony has accommodation for men, for women, and for children, for the rich as well as for the working classes. It was not built for the very poor, as the Manchester and the Chorlton Board of Guardians are now building a colony for these.

Nor is the David Lewis Colony intended for epileptics needing asylum treatment. There is no wall round the estate ; any of the colonists could break bounds if they chose to do so ; all the doors are open, there are no barred windows. Indeed, two public footpaths cross the grounds.

Of the 115 acres forming the site of the colony about 80 are farm land, the remainder is laid out as lawns, orchards, flowerbeds, and paths. The soil and the air are both very good ; the neighbourhood is flat, peaceful, and beautiful.

Through the middle of the colony there stretches a line of buildings which, including the intervening spaces, is over a quarter of a mile long. These buildings, in order from north to south, are the administration block, the recreation-hall, the observation (or quarantine) block, the central kitchen, the greenhouse, the schools, and the farm buildings. To the east of these are the three houses for women, to the west the three for men. A building containing boilers and plant for generating electricity, various workshops, and the laundry stands to the west of the schools. The sewage works, with its septic tanks, stands far away from the other buildings at the extreme south-west.

There are two pairs of cottages, one near the entrance gates, the other near the engine-house. Each of these cottages has been built and furnished to lodge a married workman and three colonists.

The administration block is the only three-story building on the colony. It is built in the Cheshire black-and-white style, the oak forming part of the framework of the building. It has on the ground-floor the Board-room, separate offices for the director, the matron, and the clerk, the attendants' dining-room, a pantry (corresponding to a ward-kitchen); the grocery stores, the central telephone-room, and the director's quarters. Above are the living rooms and bedrooms of the matron, the attendants, and the servants.

The recreation-hall is a large room capable of seating some four hundred people. It has a stage with dressing-rooms at one end. At the other end, under the gallery, there is a recess that contains the chapel appointments. This recess can be hidden from sight by a wooden curtain when the hall is not being used for religious purposes.

The observation block and the hospital are near together and are connected by a covered passage. They are usually unoccupied. The hospital has two wards, each containing four beds; each of the halves of the observation block has a dormitory for three or four colonists and a day-room. The dispensary is situated in this block.

The kitchen (in which food is cooked for all parts of the colony) is large, and will not need extension should new houses be added to those now built. In addition to the large central room, the block contains a smaller kitchen, a vegetable-room,

a dough-room, bread-oven, a bread-room, seven good store-rooms, a servants' dining-room, lavatories, and a coal-house. The steam used in the cooking is generated in a vertical boiler in this block. Most of the rooms are faced with glazed white bricks; to keep the brass splendid occupies the whole time of one of the colonists.

The farm buildings consist of stables for seven horses, six pigsties, stalls for a dozen cows, a dairy fitted for both butter and cheese-making, a barn, lofts, and cart and carriage sheds.

The machinery in the engine-room is in duplicate to lessen the risk of a breakdown, for we have to depend on ourselves for the lighting of the colony. The laundry machinery and the pumps at the sewage-works are driven by electric power. At this season of the year the storage battery makes it unnecessary to drive the engines at the week-end or at night.

The houses for men are three in number and are to the west of the central line of buildings. There are two for third-class men; each of them has twenty-four beds. One of the houses has a staircase leading to the dormitory. On the ground floor there are three large living-rooms (one a central room accessible from the verandah, one a sitting-room, and the third the dining-room), a small kitchen, a scullery, a boot-room, lavatories, and the quiet-room. There are four external doors to this house; one of them is quite close to the boot-room, and is intended to be used by colonists returning from the fields. The architect has arranged a similar entrance to each of the houses. The upper story is occupied by a large dormitory holding twenty-four beds, an attendant's room, bathrooms and lavatories, and a quiet-room.

The other house for third-class men is a bungalow. It is without corridors, the rooms opening directly out of the central living-room. It has two dormitories of twelve beds each, separated by the attendant's room, and has only two living-rooms instead of the three found in the two-story house. In other respects it is the better house from the administrative point of view.

The third house for men is intended for the first and second-class colonists. It is furnished for ten of each class. The only distinction between the two sets is that the first-class colonists are to occupy single-bedded rooms, while the ten second-class share two small dormitories. All will meet in the general rooms, though there are smaller sitting-rooms that can be

reserved for groups of colonists. The style of the furniture in this house and in the corresponding house for women is probably unequalled in any other colony.

On the east side of the colony there are three houses for women. These, except as regards the furniture, are an exact copy of the men's houses.

The building in which the children live serves both as their home and their school. It is licensed by the Board of Education for twenty-one boys and twenty-one girls. It has two stories; the upper, consisting of dormitories and bathrooms, is used only at night. There are high padlocked gates at the head and at the foot of each staircase. There are two good school-rooms and two large living rooms, together with the necessary small rooms and lavatories. The playground is being completely fenced in, to meet the requirements of the Board of Education, and to separate the children and the adult colonists. Covered playgrounds are being provided.

From the numbers given, it will be seen that there are beds for 10 first class men, 10 for second class, and 48 for third—68 in all. There is corresponding accommodation for an equal number of women. There are thus beds for 136 adults and 42 children. But this is not all; for, leaving the hospital out of consideration, the observation block would lodge eight or ten people comfortably; and there are four cottages, each of which is to hold three colonists. That is to say, we can accommodate 200 colonists.

It was in September, 1904, that the Lewis Trustees handed over the colony to the committee; a month later the first colonists arrived. They were admitted one or two at a time; it was necessary for us to feel our way, for the new colony was unlike anything that existed; it was possible to take hints, but not to copy exactly.

And as we are still in our first year, I am not in a position to tell you how a colony ought to be worked, I can only tell you what we are doing at the present time.

To each house of twenty-four colonists there are three attendants, and these are women, but there is a man who gives baths to the men and boys, cuts their hair, and shaves the men, in addition to his other duties. Two of the attendants are on duty by day, the third is up all through the night. The word "patient," like the word "fit," is avoided on the colony;

the attendants are called "sisters," the head attendant of each house is called the "staff-sister." The two third-class houses for men are now in occupation; one staff-sister has charge of them both. This arrangement makes it easy to transfer to the bungalow a colonist belonging to the two-story house whom one wishes to keep in bed for a day or two—an economy in administration and a lessening of anxiety. We may later be able to work these two houses with five instead of six attendants—three by day and two by night. We have managed to do without wardmaids in these houses; all the housework is done by the colonists and sisters.

The men get up at half past six; breakfast is at a quarter past seven. Then each does his share of the housework—scrubbing, dusting, polishing, washing up, or whatever else may require to be done. From ten to twelve all who are well go to some occupation away from the house, most of them working in the grounds or on the farm if the weather is favourable. But some of them have special occupations in various parts of the colony. Dinner is at a quarter past twelve. It is cooked in the central kitchen, and is brought to the houses by the colonists in special tricycles. At two o'clock the colonists return to work, and remain away from the houses till five. Tea follows soon; after that they amuse themselves with games and music. They are in bed before ten o'clock. They are very jealous of their Saturday afternoon holiday. Both staff and colonists flock to the recreation-hall every Saturday night to sing and dance. On Sunday there are services at eleven and half past six; and often some member of the staff takes colonists for a walk in the neighbourhood.

Up to the present not much skilled work has been done by colonists; during the coming winter some of them may be taught trades in the shops; but at present we keep them out of doors as much as possible, and last winter was spent in the heart-breaking toil of teaching them to do simple things, such as scrubbing and digging. We have tried some of them in the office, and taught them typewriting, but there are better occupations.

The women's time-table much resembles that of the men. They are kept occupied with housework, sewing, mending, knitting; some of them are useful in the laundry, others will

later be occupied in the dairy, and we are at last succeeding in getting them to work in the garden.

The children receive instruction from the schoolmaster and the schoolmistress provided by the Manchester Education Committee. They help to keep their house clean, and work in the garden under the supervision of a gardener.

Gradually, as the colonists become trained, new occupations will be found; but at first it is, I think, best to put them to tasks that can be performed almost mechanically, but which at the same time produce an obvious and useful result. He who can be taught to polish a spoon may some day rise to scrub a floor.

The colonists have learned to play as well as to work. It was as difficult to teach them the one as the other. In the early days they tried to spend their evenings sitting round the fire telling sad stories of the fits they had; but now the pianos may be heard after breakfast and in the dinner-hour, as well as in the evening; cricket matches have been played; croquet and tennis are in full swing; and at the Saturday night entertainment the only difficulty is to find time in two hours and a half for all who wish to perform.

And with what result? In the short time that we have been in existence the diminution in the frequency of attacks has been less striking than the remarkable improvement in the mental and general condition of the colonists. This improvement is obvious to the staff: it is still more obvious to the friends of the colonists.

The colonists themselves recognise it. Though they look forward to return to the world some day, they are content to remain with us; they are happier than they were at home.

DISCUSSION.

At the Annual Meeting in London, July, 1905.

The PRESIDENT characterised the paper as a most interesting description of a really splendid institution, which, as it became more widely known, would be taken great advantage of. As Dr. Milsom Rhodes was a member of the committee of the institution, the meeting would be very glad to hear any remarks from him.

Dr. MILSOM RHODES said he thought Dr. McDougall had given the information respecting the colony so well that very little remained for him to say. But he wished to make one observation—namely, that there was too much sentimental gush in connection with some institutions. The paper just read, however, was written in cold blood, and was a good description of what had been done. The treatment of epileptics had not received as much consideration in England as it

deserved, possibly because people had not yet realised the enormous amount of epilepsy existing at the present time. He was sure 15 per 1000 of the population was the minimum of persons afflicted with epilepsy in England. One reason why it had not been properly treated was that, whereas insanity was a disease of adult life and old age, epilepsy was chiefly a disease of youth. When he was in the United States, Dr. Spratling, of the Craig Colony, was kind enough to give him statistics of two thousand cases which had been received in the last few years. Of these, 38 *per cent.* of the cases of epilepsy commenced before the age of ten years, 42 *per cent.* between ten and twenty years, and 10 *per cent.* between twenty and thirty years. After thirty years of age there were only 10 *per cent.* altogether. Thus epilepsy was a disease of early and adult life. Some people advocated the prevention of marriage by epileptics. That was the law at the present time in several of the States of America. He asked some of the asylum superintendents when he was over there what was the result of the law, and the general reply was that they were afraid there had been no result at all. He believed the best results would be obtained, not by passing laws against marriage, but by taking those people and properly providing for them in colony asylums. (Hear, hear.) At the present time what was known about epilepsy? He thought anyone who answered that question honestly would admit that he knew very little about it. By getting those people together and carrying on scientific research, as would be done in the David Lewis Colony, the problem of the causes of epilepsy would be elucidated, and by that means much would be done towards elucidating also the causes of insanity, which troubled alienists so much; he believed that epilepsy was due to a toxine. He was quite certain that those cases could not be dealt with in a small airing-ground. He had travelled over Europe and America, and wherever he had gone he had found one thing—namely, that employment on the land was the best thing for epileptics. The men and women in the colonies were far happier than in their own homes, and they were always at a discount when mixing with other people. People said, "I do not like him to come here; he may have a fit at any time." There, however, one man or one woman was as good as another. He believed the proper thing was for the State to take the matter up. He was very glad the Lewis Trust had established the institution which had been so well described, and he was happy to think he had some share in it. But these efforts would not do in themselves; the State must take it up. Just as it had provided proper accommodation for the insane, so it would have to provide for the epileptic. He was sure the thanks of the whole nation were due to the David Lewis Trust for providing this splendid institution. In Dr. McDougall they had a medical officer who took the greatest interest in his patients, and he augured the happiest results from his superintendence.

Dr. ROBERT JONES asked whether any medicine was given to the patients in the David Lewis Colony as a routine measure. He and his colleagues had tried this at Claybury. Many of the epileptics who were insane there were put on bromide of potassium and borax, half a drachm of each, as a routine measure, and a record had been kept of all fits by day and night throughout the year. To his mind, there was a very marked cessation of fits by that treatment. It had been suspended from time to time, and during those intervals the patients had more fits. He also wished to ask Dr. McDougall what he found with regard to the heredity or inheritance of epilepsy in epileptics. He (Dr. Jones) was recently speaking to an eminent authority about the inheritance of epilepsy, and was informed it was very rare indeed at Queen Square to get a history of fits in the parents. He had also spoken to another authority who was well known for his valuable work upon epilepsy, who stated that he found a large number of epileptic parents of epileptic patients. From his (Dr. Jones's) own personal observations and inquiries at Claybury, he thought there was a very definite history of epilepsy and neurosis in the ancestors of epileptic cases, more so than among the ordinary patients in the asylum.

The PRESIDENT asked whether the colonists were voluntary boarders.

Dr. MCDUGALL said they were absolutely voluntary; they could walk out of the place at any moment, but it was usual to require that their friends would give a month's notice of removal.

The PRESIDENT asked what would happen if one of the patients were to leave without notice.

Dr. MCDUGALL replied that the officers had no authority to bring him back.

The PRESIDENT asked what steps were necessary to procure admission to the colony.

Dr. McDougall replied that application forms were sent in to the Committee, and they dealt with them.

The PRESIDENT assumed there was no delay about the admissions as yet, because there was sufficient accommodation.

Dr. McDougall said there was room still. There were now thirty-three men for forty-eight beds, but the numbers of applications were constantly increasing.

Dr. McDougall, replying on the general discussion, said he did not put all patients on bromides as a routine procedure. Patients were seldom put upon that drug before the expiration of a fortnight after admission. At present his usual practice was to leave them for some days after coming in without any treatment at all. Some of the patients were much worse on bromides. One of his men could not eat anything if the drug were administered, while others were better for it. Most were at present on 30 grs. a day. A chart of fits was kept at the colony, and if the patient were left for a time, and then bromide were given, the fits sometimes at once diminished. Still, more trust was placed in outdoor work and attention to the general health—especially the state of the alimentary tract—than in anything else. Sundays were extremely difficult days at the colony; there were two services, and the patients were taken out, but following the idling they relapsed, and on Monday morning everybody appeared to be in a bad temper; so that Sunday was rather dreaded. He had not gone very much into the question of heredity himself; but there were carefully-taken histories. He believed a history of migraine in the parents of epileptics was more common than one of actual epilepsy. It was said that of six children of an epileptic parent, one would be the subject of epilepsy.

Notes upon the Incidence of Tuberculosis in Asylums.

By GEORGE GREENE, M.A., M.B.Cantab., Assistant Medical Officer, Claybury Asylum.

IT is the prevalent opinion that phthisis is the scourge of our English lunatic asylums, and that these institutions are, literally speaking, hotbeds for the growth and distribution of the tubercle bacillus. In the Irish asylums, where the death-rate from phthisis alone amounts to nearly 30 *per cent.* of all causes of death, there seems to be just grounds for this belief. In the English asylums, however, the mortality is much lower, and is but little, if any, greater than that amongst the general population. This can be verified by examination of the Registrar-General's Report, from which it appears that phthisis accounts approximately for one in twelve of all deaths. These figures probably represent less than the true proportion of deaths from phthisis, since *post-mortem* examinations in the majority of cases are not made, and thus, doubtless, many cases of pulmonary tuberculosis are overlooked.

The general practitioner, moreover, is often loath to assign phthisis as a cause of death when other reasons can be stated,

because he fears to stamp upon the living members of the deceased's family the stigma of an hereditary and transferable disease. It is notorious that many sedentary occupations, clerking and tailoring, for example, predispose strongly to the development of pulmonary tuberculosis, and it is at least probable, for obvious reasons, that many such deaths are assigned to other causes. In the female sex also, particularly in the case of young girls living by their own exertions, millinery, dressmaking, and the like, especially when associated with deficient food and recreation, there is developed a predisposition to phthisis which is responsible for a large number of deaths which, for the reasons stated above, will not necessarily be certified as due to pulmonary tuberculosis. Again, in the Registrar-General's Report, a large number of deaths are due to such causes as the exanthemata, rickets, premature birth, and accidents, which, as affecting mortality in asylums, are practically non-existent, thus tending to make the proportion of deaths from phthisis lower in the general population and higher in asylums than would at first sight appear to be the case from the evidence of statistics.

Osler states that phthisis is directly responsible for one-seventh of all deaths.

Statistics from the Report of the Commissioners of Lunacy and the individual asylum Reports show that phthisis is the cause of a little under one-seventh of all deaths occurring in asylums. For instance, at Claybury Asylum, in 1902, there were 207 deaths, of which pulmonary tuberculosis accounted for 33. These figures represent a fair average of the death-rate from phthisis in other years. Comparing these latter figures with those of Osler, it would appear that the mortality from phthisis is slightly lower inside than it is outside asylums; but, on the other hand, the comparison with the Registrar-General's Report shows that phthisis is less prevalent amongst the general inhabitants than in asylum patients. The errors above pointed out in the latter Report would, however, minimise the difference, if not equalise the proportion in the two cases.

Again, poverty, unhealthy hygienic conditions, and especially alcoholic excess, are potent factors in the production of pulmonary tuberculosis amongst the general population but have no influence upon the residents in asylums. Most asylums are

built on high and healthy sites, where the atmosphere is pure and abundant. The amount of air-space in the day-rooms and dormitories would compare favourably with that enjoyed by the general population, and is indeed vastly superior to that of the filthy and overcrowded slums of our larger towns.

The enforced regular and daily exercise is also an important factor, all patients in asylums taking at least three or four hours a day in the open air, and for many this period is considerably extended.

Again, since the phthisical insane rarely recover their mental stability, there tends to be an accumulation of these patients in asylums, who remain only to die and magnify the death-rate from pulmonary tuberculosis. This statement is in part borne out by reference to the various asylums Reports, when it is seen that it is chiefly in the older asylums that the highest mortality from phthisis occurs, namely, those in which patients affected with this disease have in the course of time accumulated. The insane do not as a rule afford opportunities for the communication of the disease by the dissemination of desiccated sputum, both coughing and expectoration being comparatively rare symptoms.

Lastly, the evidence of the *post-mortem* rooms gives striking proof against the theory that the bacillus is disseminated in asylums. Out of forty-seven *post mortems* showing tuberculous lesions of the lungs performed at Claybury last year, the condition of the lungs, together with the time the patients had been in residence, showed that twenty cases had certainly developed the disease previous to admission and that only one had acquired it in the institution, the remaining twenty-six being classed as doubtful. Carefully balancing the foregoing statements, it is hence not improbable that there is little or no difference in the incidence of the disease in the general population and in the residents of asylums, but that whilst in the case of the former external environment is an important factor in causing the development of the disease in persons who would otherwise remain healthy, in the case of the latter the much greater susceptibility of the insane to the disease is largely counteracted by better hygienic surroundings and the absence of the different varieties of mental stress.

In the insane death from phthisis is relatively and absolutely more frequent in females than in males, as can be ascertained

from inspection of the Commissioners' Report, where it appears that out of 3994 female deaths 597 were due to phthisis; whereas out of 4369 male deaths only 582 were due to this disease. These figures show the proportion of female deaths due to pulmonary tuberculosis as compared with that of males to be approximately in the ratio of 15:13. On the other hand, in the sane population, the statistics of the Registrar-General show that phthisis is a little more prevalent in males.

The smaller proportion of deaths from pulmonary tuberculosis in the male insane may be explained by the fact that in this sex general paralysis accounts for one quarter of all deaths, phthisis being relatively uncommon in these.

It has been already stated that a large proportion of the insane who die in asylums with tuberculous lesions were suffering with this disease on admission, and it is not unlikely that the debilitating effects of phthisis are, in a considerable number of cases, largely responsible for the time of onset of the mental symptoms. This applies particularly to cases of Dementia Præcox and of simple melancholia in young people. Many of these cases run a relatively rapid course, with wasting and fever as the prominent symptoms. Many similar cases, which show no physical signs of tuberculosis on admission to asylums, die of the disease after a longer or shorter period, and frequently show few or no symptoms beyond those above referred to. It is perhaps hardly necessary to state that in such cases the ordinary physical signs of pulmonary tuberculosis are relatively difficult to elicit, and especially so in the absence of special experience in the clinical examination of such cases.

Of the inhabitants of asylums a certain proportion exhibit the ordinary physical signs and symptoms of pulmonary tuberculosis, but in a considerable number of these cases the course is chronic. In other cases a much more rapid form of the disease develops in association with a broncho-pneumonia or an unresolved lobar pneumonia. In some such cases infection from without has doubtless occurred, but in others *post-mortem* examination demonstrates the existence of auto-infection from an obsolescent focus in the same or opposite lung.

These cases are difficult to distinguish in their physical signs and clinical symptoms from the not rare cases of insular pneumonia which are especially common in demented general paralytics on account of the habit which these patients have

of bolting their food, there being a deficient laryngeal reflex. The majority of cases of pulmonary tuberculosis, however, which occur in asylums differ from the above varieties. The patients are usually chronic lunatics with a moderate degree of dementia, and are of a type which constitutes a large proportion of asylum populations. They may be depressed or excited or delusional cases, according to their original type, but the essential feature is the existence of a moderate degree of dementia. Such patients when tuberculosis is developing—and this occurs more commonly during the winter months—become depressed, dull, sullen, stupid, spiteful, or resistive. They tend to hide themselves, crouching in the corners of the wards or airing-courts, are solitary in their habits, and are frequently violent or abusive if disturbed. The early and constant clinical feature is a progressive decrease in weight. Such patients not infrequently become depressed and dull and lose weight in the winter, becoming more excited and noisy again as they regain their weight during the summer, a steady progress, however, taking place year by year in the course of the disease.

Of the male population of the London County Asylums about one-twelfth are general paralytics, and, contrary to what might be expected, although inhalation pneumonia, frequently associated with gangrene of lung, is common, tuberculosis is relatively rare in this class of patient.

The clinical symptoms and physical signs of pulmonary tuberculosis in the insane differ from those of the sane, in as important particulars as do those of the disease in the adult as compared with those in the child. Such symptoms and signs therefore require special experience in order that they may be satisfactorily elicited and interpreted.

Of all symptoms in the class of patient under discussion, the most constant and the one which is most readily observable is progressive wasting; this may occur continuously until the termination of the disease, or may intermit with increase of weight during the summer months.

Almost as common as wasting is a change in the mental state. The patients may become depressed, dull, or stuporose, or they may be irritable and complaining, making frequent and groundless charges against patients and attendants. Pyrexia is much more common than is generally supposed to be the

case, for in the early stages it is inconstant and irregular, and frequently only occurs for short periods when the patient has acquired a slight cold from some indiscretion or change of weather. Cough, at any rate during the day, is not a common symptom, but during the night or early morning this symptom is less uncommon, and may be elicited by inquiries from the patients who sleep in the adjacent beds.

It is unusual for insane patients to expectorate, most of them, like children, swallowing their sputum. Hæmoptysis also is of rare occurrence.

Diarrhœa is an uncertain sign ; it not uncommonly occurs in patients in whom *post-mortem* examination shows no intestinal lesion, and on the other hand cases which at autopsy show the most extreme intestinal ulceration, with at times one or more perforations and peritonitis, have never suffered from diarrhœa at all. The absence of diarrhœa in the above cases is probably due to a general inactivity of the reflex centres, the patients being as a rule too depressed and stuporose to react to stimuli in the same manner as do the sane.

The physical signs of tuberculosis in the insane more frequently require interpretation than do those in the sane. Increased resistance and dulness on percussion are often the first signs obtainable, and these are found to be indicative of active disease when they are associated with an abnormality of breath sounds, frequently bronchial or tubular, which is out of proportion in degree to what would be expected were the lesion an old one. In some cases adventitious sounds are not readily discovered, but it is not unusual for careful and prolonged examination to enable rhonchi or even fine râles to be elicited. The latter signs are especially difficult to obtain in patients who are neither able to breathe or cough when requested. In later cases, when the patient is very ill, the mental condition in many cases shows improvement and the ordinary physical signs of pulmonary tuberculosis may be obtained with ease.

In chronic, disseminated tuberculosis the case may have advanced to a considerable extent without any affection of resonance, resistance, or movements being discernible. A slight cold in such patients frequently causes cog-wheel breathing, rhonchi, and even fine râles to make their appearance. These signs may clear up in the course of a few days, but are very important for diagnostic purposes when associated with pro-

gressive wasting and mental depression or a general tendency to be irritable and to complain about trifles.

In the physical examination of insane patients it is most essential that the case should be considered as a whole and the evidence carefully weighed. If care is not taken in this direction, the disease will not be diagnosed.

It is probable that the statement, which has frequently been repeated, that the physical signs of tuberculosis in the insane are indeterminable, is in many cases due to a neglect of proper precautions and to an endeavour to obtain evidence of the disease from a stethoscopic examination alone.

DISCUSSION

At the Annual Meeting in London, July, 1905.

Dr. ROBERT JONES quoted from an article by Dr. Menzies in the current number of the *Journal of Mental Science*, which was in the hands of members of the Association. In that article Dr. Menzies stated that the death-rate from tuberculosis in asylums was at least ten times higher than among the general population in England and Wales. He did not think there were data available for such conclusions, as tubercle was either active or obsolete, and such information could not be got from its incidence among the general population. Until 1874 the certificate did not even give the cause of death. He explained that the recognition of obsolete tubercle in the *post-mortem* room was the finding of scars and cicatrices in the apices of the lungs, also of calcareous glands, but it did not include pulmonary adhesions, which might be pleuritic, and might, therefore, be possibly non-tubercular. Dr. Mott and Dr. Watson had already pointed out in their Annual Report that the cases in asylums in whom the tubercle bacillus was often found were cases of melancholia and of dementia præcox, so-called; and that the date of onset of the phthisis corresponded more or less—much more, he thought, than was generally known—with the attack of the mental disease. He encouraged Dr. Greene to present his statistics to the Association purely for the reason that that gentleman found from his experience that phthisis was not so common as was asserted; whereas, as already pointed out, Dr. Menzies was very strong on the statement that it was at least ten times as prevalent in asylums as among the general population outside. There was no doubt that phthisis was an endemic communicable disease, and he (Dr. Jones) had long felt it was most desirable to approximate the treatment of phthisical cases in asylums to that adopted at sanatoria. It was impossible to get sanatoria for the insane, the rate per bed would be prohibitive, certainly over and considerably more than £300 per bed; and building a sanatorium for 200 insane persons would mean building it for all classes of the insane. At Claybury the blinds had been lowered five inches at the top—*i.e.*, there was no blind for the upper five inches of the windows, so that all the upper sashes were kept open day and night, and the wind did not cause the blind to rattle and interfere with the comfort of the patients. Excluding air was as important and as vicious as excluding daylight. During the last two years he had also made a special point of prescribing an ounce extra of fat in the shape of "dripping" for phthisical patients on the male side, and with very marked good effect. The weight of the patients had not only been kept from diminishing, but in many cases had been increased. The dietary in asylums generally he regarded as certainly deficient in fat, more especially for this class of patient. There were stated to be 58,000 persons who died from tubercle every year, 48,000 succumbing to phthisis pulmonalis, and it was stated there were 100,000 poor persons who were consumptive, showing that the question in regard to tubercle was a very important one, both within and without the asylums, and

there was accommodation for only a few of those 100,000 up to the present in sanatoria. In Ireland the phthisis death-rate was rising, but it had diminished slowly in this country from 1880 to 1890, and more rapidly still since 1890, the date of the discovery of the tubercle bacillus by Koch, and there had been a gradual improvement outside asylums—more so, he thought, than within these institutions. He regarded it as very important that there should be in many asylums an independent pathologist who would himself conduct the *post-mortem* examinations. The number of phthisical patients at Claybury was not more than about 4 per cent. of the resident population. At that asylum a list of all cases which were phthisical was furnished to the pathologist once a month, and out of that list 10 per cent. had recovered, showing that even cases which were phthisical when admitted to the asylum got well from it while there. He would give the details and percentages. For two years the pathologists had performed the *post-mortem* examinations, and during that time 183 male autopsies had been carried out. Active tuberculous lesions were discovered in 20 per cent., and obsolete tubercle was found in 35 per cent. of the others. Those figures referred to the males. Among the females 162 *post-mortem* examinations had been performed in the same period, and 27 per cent. of those had active tubercle and 30 per cent. had obsolete tubercle. This was not in excess of statistics outside the asylums. Therefore he thought the statement that tubercle was so very common in asylums required further consideration; for although active tubercle was present, as stated, in about 23 per cent. of the whole, yet tuberculosis was not the cause of death in all of them, and he had yet to learn whether hospital statistics or general statistics among the population at corresponding ages would show a less incidence of tubercle. Unfortunately, there were no reliable statistics upon these points, and at present it was mere guess-work to institute comparisons. He thought that the question of dietary was a very important one. Dr. Menzies referred to a "facies" of tuberculosis, and that gentleman pointed out what he (Dr. Jones) had considered for many years to be a very definite fact. It was what might be described as an anæmic, harried, thin, and anxious look. Dr. Menzies recommended that the temperature of all cases should be taken at least four times a day. At Claybury the temperature of new cases was taken on the female side night and morning, but he could not say that temperature records had greatly aided in the detection of phthisis. He regretted that Dr. Greene had been unable to attend the meeting, because he would have been able to give a personal interpretation of his paper, which a reader could not do. He believed, with Dr. Greene, that phthisis was now on the decline among the general population, and he (Dr. Jones) was at the sanatorium at Frimley the other day when he heard the question asked, Why should the construction of sanatoria be hurried? because in a few years' time the need for them would be gone. The reply given was that those buildings would then be handed over for the reception of patients suffering from some newly-discovered disease! It had been said that by 1924 phthisis would have disappeared altogether. He gave the statement for what it was worth, but he hoped that this consummation would arrive by the continued attention to preventive treatment.

Dr. URQUHART.—The question of phthisis in asylums was surrounded by many difficulties. It was very doubtful if it could be diagnosed on admission in every case. General physicians admitted those difficulties, even in ordinary sane cases, and asylum physicians might admit errors and omissions on similar grounds. It certainly was prudent to take the temperature of all new cases, but that was not a new idea. It was the usual custom on the other side of the Tweed to seek for all possible information preliminary to treatment, and indications of phthisis might be forthcoming consequent on that particular practice. If phthisis had been temporary and quiescent, the difficulty was very great, even if the patient were sensible enough to obey the instructions of the physician and aid him in his diagnosis. An illustrative case might be briefly stated. A physician, obeying an appointment in a hospital for consumption, was admitted to Murray's Asylum in May, 1898. His family history was quite free from tuberculosis, but he had worked hard in the hospital and for long hours. There was no evidence of phthisis on his admission, and during his residence in one of the succursal houses of Murray's Asylum he lived apart from any taint of tubercular infection. In March, 1902, four years after admission, he developed a cough, and the accompanying expectoration contained characteristic bacilli. From that time his disease ran

a very rapid course, and he died on April 8th. After his death a medical friend of his informed Dr. Urquhart that during his residence in London the patient was at least suspicious of his own condition, because he had been taking a course of creasote. It was therefore concluded that the phthisis had become quiescent before admission. From 1827 till 1879 the average death-rate from phthisis in Murray's Asylum was 13 *per cent.* The institution was old, and it was crowded with paupers. Three patients slept in rooms of 800 cubic feet each. The death-rate at that time from what was called "gangrene," to which the term "bed-sores" was now applied, from cholera, and other diseases, was very heavy indeed. But the death-rate, on the whole, was rather less than it had been of late years, because there was a different class of patients. The death-rate from phthisis after 1879 was moderate until, in 1897, a very bad case of phthisis was admitted from another asylum. There was a good deal of expectoration, and the patient could not be induced to respect the cleanliness of the institution. After that, phthisis seemed to gain a distinct hold in the new hospital. Six male patients developed phthisis, and it became essential to add to the institution special sanatoria for the treatment of phthisical patients. A brief recital of the following cases may be of interest: No. 18—Admitted September 24th, 1886. Male, suffering from dementia and incipient phthisis. Phthisis diagnosed September 12th, 1901. Apparently recovered, and in excellent physical condition of late years. No. 19—Admitted September 19th, 1900. Male, suffering from melancholia. Phthisis diagnosed on admission. Recovered physically and mentally February 18th, 1901. Has managed his own business since, and reports himself in excellent bodily health. No. 20—Admitted September 19th, 1899. Male, idiot. Phthisis diagnosed January 20th, 1901. Apparently recovered, and in good health since. No. 25—Admitted February 9th, 1902, suffering from melancholia. Phthisis diagnosed March 19th, 1903. Discharged recovered July 2nd, 1903. Reports himself as quite well and strong, and has been in business since. No. 27—Admitted July 10th, 1902, suffering from dementia. Phthisis diagnosed on admission. Apparently recovered physically and in excellent bodily condition. No. 29—Admitted April 1st, 1903, suffering from melancholia. Phthisis diagnosed on admission. Direct infection from his brother, who was treated until his recovery at Nordrach-on-Dee. Discharged recovered mentally and physically on June 13th, 1903. Is reported as well and strong, in business in South Africa. No. 31—Admitted February 7th, 1903, from another asylum, suffering from melancholia. Phthisis diagnosed in April, 1904. He has been resident in a new villa quite apart from possible infection. At this date he has apparently perfectly recovered physically. The fatal cases treated in the sanatoria were: No. 26—Admitted August 19th, 1898. Female, suffering from melancholia. Phthisis diagnosed September 1st, 1902; died May 17th, 1903. No. 28—Admitted November 5th, 1895. Male, idiot. Never brought into contact with other phthisical cases. On admission he was suffering from a severe gunshot wound of the lower jaw, and phthisis was frequently suspected, but no bacilli found until May 8th, 1903. He died on April 22nd, 1904. No. 32—Admitted January 31st, 1895. Phthisis diagnosed May 18th, 1904; died May 29th, 1904. This case is of definite interest, as illustrative of the extreme difficulty of diagnosing phthisis in certain insane patients. She was entirely silent, obstinate, resistive, and not only unable to communicate her sensations, but continually objecting to examination, and rendering any fine diagnosis quite impossible. There was some œdema of the feet, and it was noticed that she was falling off in flesh, but at the age of sixty that did not appear to be important. The first symptom of serious mischief was on May 18th, when her pulse was found to be 120, her respiration 30, her temperature 103° F. She persistently suppressed any cough, but with difficulty a little sputum was obtained, and tubercle bacilli found. *Post mortem* there was deposit in both lungs and a cavity in the left apex. During the last twenty-five years there have been 32 cases of phthisis under treatment in Murray's Asylum—14 died, 12 were treated to physical recovery, 2 improved in bodily condition, 8 were treated to mental recovery, and 1 improved. Of those still remaining, 5 have been treated to physical recovery, or at least the phthisis is quiescent, and 1 remains under treatment—an old case of fibroid phthisis of many years' duration. The total number of deaths in Murray's Asylum during the last twenty-five years is 214—14 being due to phthisis, equal to about 6.5 *per cent.*, as compared with 13 *per cent.* formerly. I attribute this remarkable difference to the improvement in sanitary

conditions generally, and that result is definitely in accordance with the general experience of the country. I am hopeful that the results of treatment in the new sanatoria will be still more satisfactory; at least, my recent experience points in this direction. The physician to whom they in Scotland looked for authoritative opinions in regard to phthisis was Dr. Philip, of Edinburgh, who had developed the well-known Victoria Hospital for Consumption, and the great dispensary where so many cases had been treated, when possible, in their own homes. What was the verdict of Dr. Philip as regards asylum hygiene? He saw that our troubles are greatly owing to defective methods of ventilation. All the patent systems he regarded with perfect horror. (Hear, hear.) Dr. Philip simply desired that windows should be kept open. What they had been too much afraid of during all those years had been pneumonia, of patients catching cold, and so on. But Dr. Philip's emphatic opinion was that pneumonia and similar troubles had their origin in foul air, and that if asylum patients were living under the same conditions as he himself pneumonia would be practically unknown. Of course that was very startling, because they had desired to keep asylums at a temperature of not less than 60° F. There had been many plans for improving ventilation and maintaining warmth, and now they were told they had been working on wrong lines, and must go back to the methods of Nature, and live as much as possible in the open air. Dr. Philip could say from his experience—and he risked his reputation in making the statement—that if plenty of fresh air were introduced into the ordinary asylum wards the phthisical death rate would be very much diminished, if not extinguished. The other day Professor Ray Lankester assigned fifty years for the extinction of those diseases. He (Dr. Urquhart) felt sure that the phthisical death-rate was a thing which it was very much within the power of the nation to check. He also desired to state that his sanatorium was merely a glass and wood house in convenient proximity to the hospital. The patients in it practically lived in the open air, and they were under the observation of the nurses from the hospital. It contained four beds. For a small asylum it was far better to put up buildings of that sort. The two buildings had only cost £186. Probably they would be as cheap if built of bricks and wood.

Dr. CROOKSHANK said he had listened with very great interest to the paper by Dr. Greene, but had been much surprised at some of that gentleman's statements. Dr. Menzies had been attacked for stating that the death-rate from phthisis in asylums was ten times the rate from that disease among the general population. He (Dr. Crookshank) was responsible for having first stated that fact. He would read to the meeting the version which he wrote six or seven years ago. Yet so far as he had been able to gather that afternoon Dr. Greene did not controvert the statement that the official death-rate in English asylums was about 14.6 per 1000 living. So Dr. Greene and he were in practical agreement on that point. But at the time he wrote his paper he was in correspondence with Dr. Tatham, the Registrar-General, who told him that for the quinquennium 1891 to 1895 the phthisis death-rate was, for all ages and both sexes of the general population, 1.463 per 1000 living. That was the basis of the statement that the official asylum death-rate from phthisis was ten times that of the general population. As Dr. Greene admitted the truth of the statement so far as asylums were concerned, he understood that what Dr. Greene did not agree to was the Registrar-General's statement that the phthisis death-rate was 1.463 per 1000 in England and Wales.

Dr. ROBERT JONES said Dr. Greene referred, not to the average living, but the average of phthisis deaths to total deaths.

Dr. CROOKSHANK said the phthisis death-rate had been confused with the proportion of deaths due to phthisis. What Dr. Menzies said, and what he said, was that the death-rate from phthisis in asylums was ten times the death-rate for all ages in the general population. But as there was an abnormally high incidence from nervous disease in asylums, the ratio of deaths from different diseases was no basis for argument at all in this case. He did not think Dr. Greene had said anything in his paper which invalidated the conclusion which he (Dr. Crookshank) came to, and which, he was glad to say, others had substantiated. Another point which Dr. Greene made was that phthisis was understated, or overlooked, by the general practitioner, and therefore in all probability the number of deaths which the Registrar-General ascribed to phthisis was less than it should be. Speaking as a general practitioner, and knowing many others, he did not think any statement

could be more wide of the mark than this. One particular desire of the general practitioner was to diagnose phthisis at the earliest stage, to be able to tell the relatives at once when phthisis was present, and to avoid the usual statements of "specialists" that "the patient ought to have gone to a sanatorium months ago." He felt certain no practitioner would hesitate to state the true cause of death, so far as he knew it, on the death certificate. "Phthisis" appeared on death certificates, in fact, with undue frequency, because sometimes, in rural districts, carcinoma and other wasting diseases were overlooked, and in such cases phthisis was often put down as the cause of death. He was sure that "phthisis" appeared on the death certificates supplied by general practitioners at least as often as it ought to. In asylums the case was different, because many people who died with phthisis there were general paralytics, and their deaths were commonly ascribed to general paralysis, or to "chronic brain disease," which bulked so largely in the Commissioners' returns. A great part of Dr. Greene's paper was taken up with an attempt to demonstrate that phthisis did not occur with undue frequency in asylums because of certain advantages in the matter of soil and position with which asylums were favoured. No doubt phthisis ought not to be common in asylums. Dr. Greene, however, did not prove that it was not common—only that it should not be common. There were the actual figures showing that, in spite of the advantages of soil and position, it did occur with undue frequency. What he (Dr. Crookshank) and others had tried to do was to point out the reason why, in spite of the obvious advantages of soil and position, it did occur so frequently. It was because hitherto but little trouble had been taken in segregating phthisical cases. He believed Dr. Jones said that a certain amount of differentiation could be made at *post mortems* between those cases which acquired their phthisis before coming to the asylum and those which acquired it afterwards. He (Dr. Crookshank) had the greatest respect for the pathologists at Claybury, but when he was doing pathological work at the Brompton Hospital he did not know any physician who took it upon himself to say what the date of origin of a scar found in the lungs was—whether it had occurred five or twenty-five years before the *post mortem*.

Dr. ROBERT JONES said it was not so much obsolescent as recent tubercle that had been located in point of time. In a certain number of cases in which a *post-mortem* examination had been made, although death was certified as due to causes other than tubercle, recent tubercle was present, and it was possible in some recent admissions to fix a limit for the onset of this lesion.

Dr. CROOKSHANK said he thought the statement had been made that *post-mortems* had proved in a certain number of cases that the lesion was too old to be attributable to the patient's residence in the asylum.

Dr. ROBERT JONES said this was so in regard to the date of commencement of some cases of recent and active tubercle.

Dr. CROOKSHANK rejoined that even so it was difficult to assign the date of the commencement of the tubercle.

Dr. ROBERT JONES said that in cases of dementia præcox of a certain duration and in other recent cases it was not impossible to make a fairly satisfactory estimate of the date of the commencement of the tubercle.

Dr. CROOKSHANK said the point was this: it was known that 20 *per cent.* of the persons examined in workhouses and other places after death were found to have had tubercle at some time or other during life. But if a person at twenty years of age had a tuberculous lesion which lasted a few weeks or months and then healed up, and that person went to an asylum some time afterwards, and acute tuberculosis supervened, he did not think that anyone finding the old scar would be warranted in acquitting the asylum of being a factor in the fatal result. He was glad to hear that the deficiency of fat in asylum diets was receiving attention at Claybury. It was an important matter, and its being removed one of the most important steps which could be taken. If, as he had no doubt, it were a fact that the mortality from phthisis at Claybury was not now so great as it was six years ago, in his (Dr. Crookshank's) opinion, it was no doubt due to the measures of prevention which Dr. Jones had so ably directed. But the state of affairs at Claybury at the present time did not in the least invalidate his statement as to the general prevalence of phthisis in asylums throughout the country six years ago. The figures which were quoted with respect to the *post mortems* at Claybury he did not quite grasp. He believed that the results of 163 *post mortems* on males and 157 on females had been

cited, but he did not think the meeting had been told what proportion these 320 *post mortems* bore to the total deaths during the year—what, if any, principle of selection governed the *post mortems* made. Of these 163 cases of males and 157 of females, 20 *per cent.* in each class were found to have had acute phthisis, and 30 *per cent.* obsolescent phthisis. Those figures agreed exactly with what he (Dr. Crookshank) stated six years ago to have been found at Northampton. On Dr. Jones' own showing, out of 320 cases 20 *per cent.* died with active phthisis, or one fifth. He did not think Dr. Greene had brought forward a single argument to show that the death-rate in asylums from phthisis had been, by those who had devoted attention to the subject, over-estimated in the least. With the clinical remarks made he was in general agreement.

Dr. WEATHERLY said he did not in any way want to pose as an expert on the question of consumption, neither did he wish to speak as one who had held the position of Chairman of that much-abused Tuberculosis Committee, excepting to emphasise the fact that every member of that committee stood by every word in their Report, and were satisfied that tuberculosis was more rife in asylums for the insane in this country than it ought to be. He wanted that day to speak especially as one who had a heartfelt interest in the crusade that was now being carried on against this disease, and to answer certain statements in Dr. Greene's paper. He was quite satisfied that consumption would still add greatly to the death-rate in asylums unless something much more definite than at present was carried out in every asylum in our land. Segregation of consumptives in asylums was absolutely essential. (Hear, hear.) As to how this could be done, and some attempt at treatment at the same time be made, was, of course, a large question, but not so hopelessly impossible a one as Dr. Jones seemed to make out. Additions were now continually being made to many of our county asylums. Given an asylum suitably situated, as to protection from prevailing winds, and with plenty of sunshine, and with a suitable subsoil, he did not see why a sanatorium properly adapted for the insane should not be built to which consumptives from other asylums not so suitably situated could be transferred. The removal of these consumptives would make room for the increase of patients always going on. There must be several asylums so situated, and he believed the cost would not be much more, if as much, than the present additions for a corresponding number of patients that were continually being made. The benefit of such a plan would soon be evident. With reference to Dr. Greene's statement concerning the body weight of patients in summer and winter, he was at complete variance with him. His experience was just the reverse, for consumptives in sanatoria made much better progress and increased far more in weight during the winter than during the summer months. With regard to temperature, when any man told him he looked to the register of night and morning temperatures as of great diagnostic value, he felt inclined to suggest that he might be living in a fool's paradise if he only took temperatures night and morning, as in his experience he had often seen the highest temperature at any hour between one and six, while the night and morning temperatures were normal. Dr. Weatherly then went on to explain what Germany had done during the last few years with regard to the treatment and prevention of consumption, and how it had greatly diminished the death-rate from this disease at a far more rapid rate than we had in the same time. With regard to diagnosis, Dr. Weatherly was not in accord with the remarks made by Dr. Crookshank. He believed from his experience that consumption in the very early stages was, by ordinary methods, a very difficult disease to diagnose. He was certain that it would be found that many cases were sent to sanatoria by well-known medical men, classified, may be, as Class I, in which the disease was found on admission to be of a much more advanced character. This in the case of the poor was, no doubt, often caused by the fact that, owing to the scandalous lack of sanatoria for the poor in our land, many cases had to wait so long before they gained admission, and no disease ran a more riotous course than consumption in the badly situated dwellings of the poor, with their scant food and their defective ventilation. He was certain we should not be able to give the open-air treatment a fair chance in this country among the poor until the number of sanatoria for them were very largely increased. At present thousands were seeking admission in vain, and when the vacancy took place the disease had made such progress that little could be done for them with any hope of ultimate recovery. Dr. Urquhart had touched

upon the very vital question of ventilation. He (Dr. Weatherly) did not believe in any of the modern, much-vaunted, systems of ventilation. He was satisfied from his own experience that the only perfect system of ventilation was the open window. He thought that the commissioners had never made a greater mistake than when they advocated the absence of protection for the windows and suggested that instead of such protection the windows should be blocked so that they could not be opened more than a certain small distance top and bottom. He felt this very strongly in visiting many large asylums and inhaling the tainted air in the associated rooms and corridors. It was impossible with such small open space in the windows to get proper and adequate ventilation, and, if this were so with the dwelling-rooms, how much worse was it in the case of the sleeping departments! He had no hesitation in saying that he believed the dormitories of asylums were the very hot-bed of breeding-places for this dreadful disease. In the institution over which he had presided for some years he entirely disregarded the wishes of the Commissioners in this matter, and he had ornamental bars to his windows, enabling them to be opened to their fullest extent. The result had been that he had constantly heard from Commissioners and visitors the remark made that they never seemed to inhale the usual asylum smell when visiting his institution, while the sleeping rooms were always well supplied by specially constructed windows with plenty of fresh air. He could tell them of numbers of cases of consumption having been developed in healthy constitutions, simply through their having either slept in rooms with consumptives or having had to work long hours by day in an ill-ventilated room with another workman or workwoman who was consumptive. He was satisfied that this disease was very often acquired in asylums, and that strong and definite measures, on the lines which the Tuberculosis Committee laid down in their Report, were the only means of diminishing this danger and preventable loss of life. Nothing to his mind was more certain than that with strong and universal efforts on the part of the Government and the authorities, backed up by the determination of the public, consumption could be stamped out, just as typhus fever and smallpox had been almost stamped out, and that such a happy result might be reached in, comparatively speaking, a few short years. Without any legislation, without any governmental suggestion, asylum superintendents could do much in this direction, and he sincerely hoped that ere long their asylum Reports would show that by their determined efforts the death-rate of consumption in their institutions had very materially decreased.

Dr. DRAPES said Dr. Greene's paper bore out, in reference to England, exactly the conclusions he had come to five or six years ago in relation to Ireland. Up to that time he had held, as he believed was still held by the majority of psychiatrists, that there was a close and intimate connection between insanity and phthisis, and that one was a predisposing condition to the other. He consulted the Registrar-General's figures and the asylum records with respect to the mortality from phthisis, and in relation to the mortality among the sane and the insane, and he found when one took the age-period, which was an important matter, that at the phthisical age, from twenty-five to forty-five, the mortality among the sane and among the insane was almost precisely identical; whereas if one took the older patients in asylums, *viz.*, at age forty five and upwards, the asylum death-rate was exactly double the rate amongst the sane. The conclusion he drew was that it was not insanity but asylum life which predisposed to phthisis, and of that he was still more persuaded from what he had heard that day. At the time of its publication he drew attention to Dr. Crookshank's paper, in which the greater prevalence of phthisis in asylums than outside was referred to, and he pointed out the fallacy involved in basing that calculation upon cases of phthisis as compared with the living population and not the relative mortality from other diseases. And, as Dr. Jones had shown that day, if the phthisical mortality was ten times as great in asylums as elsewhere, the general mortality in asylums was also high. In the paper which he (Dr. Drapes) published in the Journal he gave a tabulated schedule of the commonest diseases, as compared with consumption; and it showed that every one of those diseases, including phthisis, was more prevalent in asylums. The most important matter in regard to the asylum was ventilation. Up to five or six years ago they had no artificial system of heating in Enniscorthy asylum, which was only a small establishment, and only one case of phthisis in one year, or at most two. It was

intended to make alterations in the matter of heating, but he succeeded in stopping it. However, after a time opinion went against him, and steam-heating was installed. The result was that during recent years there had been very many more cases of tubercular disease in the asylum; instead of one death there were as many as seventeen or eighteen. He believed it was started by the system of heating, and accordingly persuaded his Board to stop it, and there had been a reversion to the open fires and plenty of ventilation. A fact of that sort was worth a dozen arguments; and he thought, with Dr. Weatherly, that if dependence were placed upon plenty of open windows, fresh air, open fires, and ventilation, the mortality of phthisis would be more effectually reduced than by any other means.

Dr. LLOYD ANDRIEZEN said that the subject of the open-air treatment and segregation of tuberculous patients had been for a long time dear to him, and he had paid great attention to it in many ways. From time to time he had made summaries of the latest progress, and published them in various medical journals during the last five years. He had also gone round and visited many asylums in this country where the system was beginning to be adopted, and he had arrived at certain conclusions, which he would briefly lay before the meeting. There could be no question that the phthisical insane must be segregated. However much the question might be discussed and disputed, all were agreed upon the fundamental proposition that the phthisical patient had no right to live among the general asylum population, but must be segregated, either in villas at some distance from the main building or in blocks of some sort. With regard to the diagnosis of phthisis in cases on admission, that was largely a matter of skilled knowledge and insight. Some people would never attain to the necessary skill in diagnosis whatever length of experience they may have had. But the average asylum physician, with his long knowledge of phthisis, his intimate acquaintance with it, his skill in the use of tuberculin, and by taking temperatures eight or ten times a day, so as not to overlook those exceptional temperatures which had been referred to that afternoon, was almost certain not to let a case of incipient phthisis escape him from among the admissions. There could be no excuse for saying that the difficulties of diagnosis were great—they should not be.

Dr. URQUHART asked what was a case of incipient phthisis.

Dr. ANDRIEZEN replied that that was purely a question of pathological definition. With regard to treatment, the fresh-air or open-air treatment was what all would agree upon. The patient required an abundance of fresh air at all times, sheltered, of course, from violent winds and storms—whether cold or warm was a matter of little difference. Also, everybody acknowledged the benefit of plenty of sun. He referred to the excellent results which Dr. Macdonald, of the Manhattan State Hospital, had obtained by the adoption of tents for tuberculous patients.

Dr. GEORGE ROBERTSON said that one of the most important points which had been raised in the discussion had been the effect of defective ventilation in aiding the development of phthisis in asylums. He agreed entirely with the remarks of Dr. Weatherly in regard to the imperfect ventilation of asylums, and not only in those asylums which had adopted some of the methods of ventilation which had been referred to. The majority of the asylums had not, he thought, adopted any of the special methods of ventilation. But there was the fact that the Commissioners had induced them all to do away with iron bars, and insisted upon the blocking of the windows. He (Dr. Robertson) was exceedingly strong on that point when the Commissioner visited his asylum, telling him that it was a mistake to block the windows, and that the best method was the old-fashioned windows at the asylums, with two separate sashes, one which had no pins and the other having pins. That enabled one to draw the upper sash and leave the whole half of the window open. Dr. Urquhart, he noticed, had one or two of his old windows remaining in his asylum, but the Commissioners had induced most of the superintendents in Scotland to remove those windows. He thought some window should be invented which would enable better ventilation to be provided—some system of iron bars or ornamental ironwork which would enable plenty of fresh air to enter the asylum wards. Another point had been the expense and difficulty of building sanatoria for asylums. That was a question which had cropped up in his asylum, and had to be faced. He felt the difficulties which Dr. Jones had referred to, and he believed sanatoria were, at the present time, in the transitional stage, and that it was not right to spend heavy sums of money such as had been expended on some of them.

Sunlight and fresh air were the things chiefly wanted, and they could be obtained with a wooden shelter. He did not think it had yet been decided what type of sanatoria should be had in asylums. It had been pointed out that a sanatorium for an asylum required to be a small asylum, and to have accommodation for all kinds of patients, and there was no sanatorium yet devised which met the need of an asylum. He had advised his Board not to build a special sanatorium, but to make some alterations in the existing structure. Another point which Dr. Jones referred to, and which confirmed his own views, was that many patients came to the asylum suffering from insanity who at the same time were probably the subjects of incipient phthisis, and probably the insanity was due to the phthisis. A proportion of the cases classified as "dementia præcox" were really those who were suffering from early phthisis. He (Dr. Robertson) had a case recently which he regarded as one of typical dementia præcox; the patient was in a stuporose condition, and although careful examination was made no phthisis was discovered. In a week or two after a course of thyroid treatment he showed signs of commencing tubercle, and in a month he was dead of acute tuberculosis. Another important point was the diagnosis of cases of phthisis. He wished it were possible to be absolutely certain on that point. Every year all his chronic patients were examined with that object. Not only was the body-weight taken, and the temperature, so as to discover whether there was a rise due to tubercular infection, but a careful physical examination was made. No doubt many cases of phthisis were overlooked, and he wished to know whether it was possible, by the methodical use of tuberculin, to discover whether a case was phthisical, and whether there would be justification for trying it in every case coming into the asylum.

Dr. URQUHART said he would like to do justice to one of the Association's honorary members in the matter, Dr. Toulouse of Paris. Dr. Andriezen mentioned the work of Dr. McDonald at New York, but Dr. Toulouse, some dozen years ago—long before the tuberculosis cry was heard—instituted the system. Of course Dr. McDonald's method had been very beneficial, as Dr. Andriezen explained. In his own experience, if a dirty dement was put into the fresh air and sunshine of a sanatorium he almost invariably improved in every respect.

Dr. GEORGE ROBERTSON said a point which he omitted to mention was the methodical treatment of the wards by formaline sprays. At every spring-cleaning the whole walls of the asylum should be treated with formaline spray.

Dr. HAYES NEWINGTON said Dr. Robertson had made a remark which he himself had intended making. It was difficult to build sanatoria for all classes of patients. Patients suffering from phthisis required, not only disinfection, but also appropriate treatment for their mental condition. It would have to be a very complicated machinery which would do justice to all such patients. A remark had been made in depreciation of heating by means of steam. He understood it was simply in regard to that, not to ventilation.

Dr. DRAPES said there were ventilators in each room.

Dr. NEWINGTON said he could quite understand objections being made to certain systems of ventilation, because they consisted of connecting trunks which went over every part of the asylum. He, however, could not see any objection to heating by steam or by hot water, provided there were open windows. He did not see how the disestablishment of the old-fashioned fireplace and the substitution of a new form of heating could produce phthisis if there were a thoroughly efficient ventilation. Perhaps the place was over-heated. But the chief point was in regard to the form of ventilation; and cross-ventilation was most important. Dr. Robertson spoke about half or whole windows being taken off. If all the windows were on one side of the room, nothing less than a whole sash being up would be sufficient, and even then it would take time to clear a room of all *materies morbi*. If the wards had windows on both sides, a small amount of cross-ventilation would prove adequate. The whole place sweetened then in a minimum of time.

Dr. WEATHERLY desired to say a further word on hot-water or steam heating. If a proper open-air treatment were carried out, he would defy anybody with a double service of hot-water pipes to get the temperature of the establishment on a cold winter's day more than two degrees above that of the outside air. It had been tested in his establishment in every way. Where the patients slept in asylums they should be thoroughly safeguarded in reference to the warmth of their bedding, with plenty of free ventilation.

The PRESIDENT said that after the valuable discussion which had taken place it was evident the meeting was unanimous that segregation should be carried out as far as possible in institutions for the insane. But if sanatoria were going to be established in connection with institutions for the insane, it must be remembered that not only insanity had to be treated, but also the physical disease phthisis; and to do that, as Dr. Robertson had properly said, one could not have open windows so generally unless bars were retained. There must be some means of preventing patients jumping out of the window. If the sentimental objection to bars at the windows could be overcome and the bars retained and the windows thrown open, many more phthisical patients could be treated in asylums as they already exist. But it would need some pressure to get the commissioners to see the matter in the same light that some of the members of the Association did. He agreed with everything Dr. Crookshank said about the difficulty of diagnosing phthisis.

Dr. ROBERT JONES, in reply, said he wished Dr. Greene had himself been present. Statistics formed a most debatable matter, and it was the privilege of every person who could count his fingers to consider himself a statistician. Dr. Crookshank, who had written largely on the subject, had picked out one or two points which perhaps he (Dr. Jones) ought to have made clearer in his remarks. The numbers he had returned were the complete *post-mortem* examinations for two years at Claybury, and *post-mortem* examinations were made in nearly all deaths; the tubercular statistics may for all practical purposes be considered the percentage calculated upon the total deaths. No selection was carried out, and all the numbers were recorded. In these numbers active tubercle was found in 23 *per cent.* of all cases, and obsolete tubercle in 32 *per cent.* of the rest, but was this higher or as high as in the ordinary deaths in hospitals, or in the general population? He was sure the discussion would do good. Whether it was the heat, or the air, or the statistics, or the fact that Dr. Weatherly felt, like himself, that enough was not being done, that gentleman's explosion was pardonable. But he (Dr. Jones) felt that enough was not being done in asylums, and that was the object of bringing the paper before the Association. A certain number of cases were phthisical on admission into the asylum, of this there was no possible doubt, and, these were especially recorded, but of those thus recorded and of whom definite knowledge was obtained, and which were registered monthly to the pathologist at Claybury, 10 *per cent.* got perfectly well. So perhaps the asylums were not so bad as people outside thought them to be. Nevertheless, the reduction of phthisis was a matter of concern among our asylum superintendents. Dr. Urquhart had given interesting statistics showing that deaths due to phthisis had been reduced from 13 *per cent.* to 6 *per cent.*, and there had been a little lowering of the phthisis death-rate at Claybury. He did not know what was the actual proportion of phthisis in people outside asylums between the ages of 15 and 50, and in regard to this we had no correct statistics, as in private practice no *post-mortem* examinations were made; also the statistics of general hospitals were unreliable, for definite microscopic search for the tubercle bacillus was not systematically made. He could state that at Claybury, among the total average numbers resident, phthisis was found to occur in about 4 *per cent.* He did not think that the general practitioner—to whom much credit was due for knowledge and great tact—was always so keen upon certifying phthisis as Dr. Crookshank would have them believe; he (Dr. Jones) had known certificates which, to save the stigma and reproach of having a relative who had died from a preventable infectious disease, had influenza, cardiac failure, or pneumonia as the cause of death in phthisical cases. There was no doubt that phthisis varied very much in incidence in the different asylums, and one object he had was to suggest to members of the Association whether it would not be possible to combine in the smaller asylums, and have one pathologist in common, and so have proper and definite statistics published without the fallacy of the personal equation so inevitable when collective investigations took place. He gave the proportion of the deaths at Claybury, not with the view of showing the excessive phthisis rate in asylums, but of showing that it is not higher possibly in asylums than it is among hospital patients or the population generally, and also to show the difficulties of diagnosis. Dr. Clifford Allbutt recently quoted to Dr. Jones certain statistics from the careful consecutive *post-mortem* examinations of a German investi-

gator, which tended to demonstrate that tubercle was present in 40 *per cent.* of all deaths. The fact that the phthisis rate did vary was a very important one, as further showing the unreliability of statistics unless compiled by one authority. In one of the asylums of London—although he returned his own phthisis rate at something like 14 *per cent.*—the rate was returned as 4 *per cent.*; but there was a special pathologist at Claybury, upon whose statistics reliance could be placed, and who did the *post-mortem* examinations. What Dr. Lloyd Andriezen said about the Manhattan establishment he was already aware of, and showed the pictures of the tent treatment of tuberculosis at the recent Congress of the Sanitary Institute in London. Dr. A. E. Macdonald in America had found this method an economical and practical one of getting fresh air, and it bore out, as Dr. Weatherly said, that it was not the warm air which suited those patients, because they lost weight in the summer and gained it in the winter, July being the month of greatest loss of weight. Camp life caused a definite gain in weight in these phthisical cases. Dr. Robertson referred to a similar experience to his own, and also with regard to heating by means of the abominable Plenum system. He had held lighted tapers to see how the air was moving in the extracting shafts and found the current to be in the opposite direction, so that, instead of exhausting, these shafts were supplying foul air into the wards. One never knew which way the air-currents in these channels and shafts were going to act. It was so bad that he recommended that this method of heating should be cut off entirely in many wards in Claybury, and heating by radiators in the wards with cold air coming in direct from outside over the radiators substituted in its place, which answered admirably, providing there was cross-ventilation. As to bars to windows and a sash to throw up, the Colney Hatch fire was a desperate fright, and now every bar had been removed, and therefore the sash only opened up for the regulation five inches, instead of, as formerly, the whole way up.

The Necessity for State Interference on behalf of the Imbecile. By F. E. RAINSFORD, M.D., Medical Superintendent, Stewart Institution.

THE few remarks which I have to make in dealing with the subject of this paper are only fragmentary, and are intended merely to direct your attention to the subject, and to elicit a resolution embodying your views which can be sent on to the authorities responsible for the government of Ireland.

The question of what can be done for the imbecile is one that is slowly forcing its way into public notice. For a long time the public regarded this question in an apathetic manner and either remained in complete ignorance of the existence of such a class of mentally defective persons, or else remained satisfied that they got all the care they needed. I am glad to think that gradually a more enlightened and liberal view is being taken, and it is not Utopian to think that eventually the public will be induced to see that this is a problem that must be solved.

In the United Kingdom, at present, there are now various institutions established for the care and treatment of imbeciles, but all of these are (with certain exceptions, to be afterwards mentioned) maintained by charitable donations, and cases to be admitted have to enlist such an amount of interest and sympathy as is often quite impossible to people in poor and humble circumstances.

To prevent the overcrowding that must necessarily ensue in course of years, these institutions elect all cases for a fixed period of years, at the expiration of which the cases, unless improved, have to be removed by their friends, and in the majority of cases drift to the district workhouse or county asylum, so that the latter end of the patient is too often worse than the first.

These institutions, therefore, while doing admirable work, must necessarily be quite incapable of dealing with the constantly increasing number of mental defectives which the stress and vices of modern life are constantly producing.

Briefly, and in a very imperfect way, to outline what might be done for this large class, for whom nobody cares, is the object of this paper.

I think I can in no better way set forth what might be done than by very shortly recounting how the Metropolitan Asylums' Board deals with this class in the metropolitan district of London.

This Board is practically the only public body in the United Kingdom that has made an effort to remove from the workhouses and other unsuitable surroundings the chronic, harmless lunatics and imbeciles. As their courteous Chief Clerk succinctly states in a letter recently received from him: "The usual insane patients who come under the Board's control are such harmless, chronic lunatics and imbeciles as could be lawfully retained in a workhouse. They come to the Board on the order of the various Metropolitan Boards of Guardians, and the cost of maintenance of each patient is charged to one or other of these Boards. To accomplish this work the Board has now under its control four large institutions, each under the management of a medical superintendent, and a smaller one for about 150 patients under the control of a trained matron and school-mistress with a visiting medical officer, and aided by a specialist in imbecility. In these four large asylums there are now roughly about 7000 inmates. In the earlier stages

of their inception the managers found their work greatly hampered by the constant influx of epileptic and helpless imbeciles, who crowded out the younger and more improvable cases, interfered with the educational work, and imposed onerous and exacting duties on the staff. To remedy this they devised a scheme whereby a small institution was started for 150 children of either sex of the improvable class, drafted from the large institutions, officered by a matron and a visiting medical officer, and advised by a specialist in imbecility. This is reported to have given very satisfactory results, which would probably have been better had the accommodation been more extensive, and had it not been difficult to retain the males after they had reached the age of puberty." It is added, however, "the training arrangements including kindergarten and school work, and industrial training in basket-making, boot-making, tailoring, laundry work, and ordinary household occupations, including cooking, have met with most encouraging success."

To further extend this excellent work the managers have recently published an extended scheme whereby, at Darenth Schools and Asylum a threefold arrangement shall prevail, viz. a school for training improvable juvenile imbeciles, an industrial colony where patients can be accommodated and employed at remunerative industry on their transfer from the Schools, and an asylum (pavilion) for the helpless and unimprovable cases. To further help the difficult work of classification all imbeciles are, in the first instance, admitted to the new asylum at Tooting Bec, are there kept a short time under observation, and are then distributed to whatever institution is thought to be best fitted to receive them. The industries proposed to be taught at Darenth Schools are carpentering, firewood-chopping (already a remunerative industry), plumbing, painting, basket-making, boot-making, tailoring, brush-making, tinsmith work, upholstering, baking and garden work. These for the males, and for the females laundry and kitchen work, needlework, etc., all, of course, supplemented by careful school teaching and kindergarten. This is no doubt a formidable list, and the managers have set a high ideal before them to strive after. Time alone will tell how far their views are being justified by results. One must, at any rate, give them credit for an honest and generous attempt to grapple with a difficult problem.

I make no apology for thus prefacing my remarks, as what I

have indicated as having been done by a public board is, to a great extent, a guide as to what might be done on a larger scale by the State. Let it be remembered that there is in Scotland but one institution exclusively devoted to the care and training of imbeciles, that at Larbert—in Ireland but one also, the Stewart Institution—with these exceptions the action taken by the Metropolitan Asylums' Board is the first organised effort by a public body in the direction of helping to develop the dormant faculties and mental activities of the feeble-minded.

It is only right to mention, however, that some of the county asylums have established annexes to their buildings for the reception of the younger imbeciles, but this movement, while admirable in many ways, does not, to my mind, at all deal with the difficult problem.

As regards our own country, in which there is said to be 8000 imbeciles, we must, in the first place, remember that we cannot hope for the same results dependent on a large pecuniary outlay, nor, on the other hand, have we to face the problem of the constant large increase in the admissions necessitating frequent changes of methods and increased buildings. Yet I think you will agree with me in saying that something more might be done than is done at present, and it is high time that some organised effort should be made to impress, either on our county councils or on the various members of Parliament, that this is a work that should be done, that would yield remunerative results, and would tend to lessen crime and increase morality. The imbecile at large is a danger to the State, and it is, therefore, in the interest of the State to see that he is placed where he can do the minimum of harm and receive the maximum of benefit. I am no optimist in my conception of the amount of valuable work to be got out of an imbecile, but I am sanguine enough to think that a good deal more can be got than one might at first imagine, and that as one's experience in their training was widened the results would be correspondingly better. At present, in Ireland, the Stewart Institution is the only institution where anything has been attempted in this direction. But there, while encouraging results have been attained, they fall very far short of my ideal. For this there are many explanations. Smallness of the number of the inmates (average about 100), necessitated by financial considerations, the institution having nothing to

depend upon but the charity of its friends; difficulty of getting cases suitable for training; the election difficulty; the labour involved in getting a case elected not always compensating for the loss of service of a hopeful inmate; the expense in starting industries in which, owing to the paucity of the numbers who could be employed, the results would be unremunerative. Yet, despite all these drawbacks, a good deal has been done in the way of teaching habits of order, cleanliness, and method, domestic work, outdoor occupation, mat making, and tweed weaving, and in not a few cases inmates have been so improved that at, or before, the expiration of their period of election they have become able to be useful in the home or to earn their living at some simple occupation.

Now, the solution of the difficulty is by no means easy, and I am desirous, in anything I may suggest, rather to elicit your opinions than dogmatically to put forth my own. Yet, bearing in mind what, though imperfectly, has been done by a public body, could not something similar be done in Ireland? Suppose there were two administrative boards for Ireland, for the north and south respectively, consisting of delegates from the various county and rural district councils, the county members of Parliament, etc., who would get a building for each district and receive from the workhouses and county asylums all the imbeciles under their care, together with such harmless chronic lunatics as are at present in the workhouses, and whose care there is a blot on our civilisation, the cost of maintenance to be paid *pro rata* by the various boards to which the patients would be chargeable, supplemented by a Government grant per head. Necessarily, the initial expense of acquiring suitable building and a sufficiency of land attached would be large, and I think the duty of providing this ought to lie on the State, as it would derive the greatest benefit by the removal of the unfit out of public life. I understand that there are in Ireland several disused workhouses, any one of which might, with the expenditure of money, be made suitable for the purpose required. One essential condition should be that there should be a good-sized farm attached, as, in this class of work, I believe the greater proportion of the inmates would find an agreeable and suitable employment. This building thus acquired should, I think, be divided into two sections, viz., a school and an industrial colony. The former would

take all inmates say from six to sixteen years of age, the other division would provide occupation for those of maturer years. Such an institution should, as far as possible, be divested of all that pertains to the ideal of a county asylum, and should be looked upon as an industrial training school and colony for the feeble-minded.

The first efforts would be directed to the children, who would be trained in habits of cleanliness, discipline, order, and obedience; in fact, civilised. They would then enter into the school division, and be taught by trained instructors first in kindergarten, and later in the ordinary school subjects. As they grew up they would be trained in such industries as they were judged most likely to acquire skill in, and for as many hours as was suitable to their health. Later, when their school days were over, they would be retained in the industrial colony working at various industries, and, we will hope, in the majority of cases remuneratively.

I confess I am met with the difficulty as to how to deal with the helpless, unimprovable, and epileptic imbeciles who would tend in time to crowd up the institution and hamper its educational aims. This difficulty might be met by sending all imbeciles, in the first instance, to the central institution, and, after treatment there, those found unsuitable might either be transferred back to their local workhouses or to places where special accommodation was provided for such in each province. This special accommodation could be provided by making use of some of the disused workhouses already alluded to, and could be cheaply maintained and officered as no elaborate equipment would be needed.

I freely grant that a scheme such as I have thus outlined is Utopian, at least as far as Ireland is concerned, still by formulating a high ideal one may attain to something, which, though very far short of that ideal, may yet be a very respectable result.

It is, however, generally acknowledged that something should be done to remove the younger imbeciles from the demoralising environment of the asylum and workhouse, where they get no chance of developing any little powers they may possess, and sink into a pitiable state of physical and mental degeneracy. I feel that the plan I propose is one open to many objections, but I hope at least that in all I have written

there is something that will elicit discussion, and that more experienced and wiser heads than mine may, by their views, help us to formulate a scheme which we may put before the public as something to strive after.

A definite well-thought-out scheme set forth by an association such as ours should have considerable value in influencing public opinion.

I think myself the main objection to any well-furnished scheme will be on the score of the cost. Ours is a poor country, and local taxation is already a heavy burden, and to suggest anything which will tend to add to this burden is to court disaster. If, however, our paternal Government could be got to see that this is a question which interests them, and doing so would come forward with a promise of financial assistance, something might be done. If the initial cost of building and equipment was met by the Government, and in addition a grant per head, I think the local authorities might very reasonably pay the difference. The withdrawal of a large number of cases from the county asylums and work-houses will relieve the local rates to a small extent so that the increased cost of the imbecile in the suggested institution will be more apparent than real. If the local authorities are to be represented on the Board of Management they must reasonably expect to contribute something towards the upkeep. The expenses would, no doubt, be higher than in a county asylum, and it would be a great mistake to run such an undertaking too economically. The officers, male and female, should be carefully selected and well paid. The various craft instructors should be persons of the highest intelligence, experienced in instructing mentally deficient persons, and they should be well paid for their work. Then at first there would probably be little or no profit from the industries, but I have every confidence that in time as the instructors got more experience and the pupils more skill their work would become of value to the institution.

DISCUSSION

At the Meeting of the Irish Division.

Dr. McKENNA thought that many imbeciles at present in asylums could be made very useful if trained in youth. Such patients could be taught to do farm work, and even industrial work in an automatic fashion. He was of opinion that 50 or 60 *per cent.* of the imbeciles of Irish asylums could be so trained.

Dr. NORMAN said that the treatment of imbeciles was more than usually difficult

in Ireland, owing to the poverty and political unsettlement of the country, and he was afraid that it would never pay any politician to take up their cause. He was in thorough sympathy with the greater part of what Dr. Rainsford had said. Many idiots repaid teaching, and he could think of six such cases in his own asylum; *e.g.* he had been much surprised lately to find that a hydrocephalic idiot regarded as hopeless had been taught to read by another patient. Another imbecile, who was aphasic and could not be taught to read and write, had learnt to reel wool off bobbins and to sort yarn, and possessed a good deal of intelligence. Such cases were of constant occurrence, and he agreed with the last speaker that 50 or 60 *per cent.* could be taught at least something, while a considerable number could be made wage-earners, and a considerable number more self-supporting. It was disgraceful that there should be only one small institution for idiots in the country, and that such patients should go without all treatment simply because cures could not be reported.

Dr. LEEPER had had experience of such cases in workhouses, and thought they should be taken over by the Government. He considered that a fruitful source of insanity was the production of a numerous progeny by high-grade female imbeciles, who ought to be permanently detained, as was done at the Leavesden Asylum. It was a question whether the patients should be kept for life in imbecile colonies, or should be transferred to asylums at a certain age.

Dr. FITZGERALD concurred as to the necessity for doing something in Ireland for the imbeciles, especially pauper imbeciles, large numbers of whom had been admitted to Carlow Asylum, where little could be done for them. No persons of unsound mind should be in workhouses. He knew of a family that for three generations had produced illegitimate children, and thought this sort of thing would continue if such patients were left in unions. He believed it to be the duty of the Government to provide for imbeciles, but he did not think that imbecile institutions could be worked more cheaply than asylums, nor that the asylums would be relieved by them, as there were patients in the workhouses waiting for admission.

Dr. NORMAN wished to add, with the permission of the meeting, that an Act had been passed thirty years ago enabling an asylum for imbeciles to be erected in each province of Ireland. If this could be revived it might meet the case.

Dr. RAINSFORD thanked the members for their reception of his paper, and said that imbecile patients could be taught to do very well *one* class of work automatically, which raised the hope that with proper training much could be attained. Some institution was to be desired where patients could be sent on a simple order, not certified. It was unfortunate that an imbecile might after a time have to be sent home or to the workhouse, and he endorsed the views expressed as to the danger of having female imbeciles at large. He did not think that institutions for imbeciles could be worked economically, as there must be well-paid officers and good food. There might be a small lessening of expense to the district asylums, but it would probably not be much.

Dr. NORMAN then proposed, and Dr. FITZGERALD seconded, a resolution that a committee be appointed, consisting of Drs. Fitzgerald, Rainsford, Leeper, and Dawson, to draw up a resolution in accordance with the views expressed, to be forwarded to the Inspectors for transmission to the Lord Lieutenant. This was unanimously passed, Dr. Norman's name being added to the committee.

The Employment of Female Nurses in the Care of Insane Men in Asylums. By GEORGE M. ROBERTSON, M.B., F.R.C.P.Edin., Medical Superintendent, Stirling District Asylum, Larbert, N.B.

The Mothering Instinct in Women.

THIS system of care rests on the solid foundation of a principle of human nature—the mothering instinct in women. This is not restricted in its operation to a woman's own offspring, but extends in a certain degree to all children as well, and often manifests itself in the most striking manner in those women who have no children of their own. Nor is it reserved for the helplessness of childhood alone, but it includes within the scope of its action the weakness of the sick person and the infirmity of the aged. As a consequence of this, a liking exists on the part of most women for sick-nursing, which in some amounts to an instinctive craving which must be gratified, and almost all for the same reason possess a natural aptitude in picking up the practical details of nursing and care which amounts in not a few to a species of genius. If we exclude the care of insane men from our view, it can be said that wherever we have weakness and suffering and the need of personal care, there women find an opportunity for the exercise of what is a natural vocation, there we find them acting as “ministering angels.”

If women have captured the whole field of sick-nursing from the opposite sex, or have excluded them from it, it must be admitted, according to the doctrine of the survival of the fittest, that men have either less love and aptitude for this kind of work than women, or that their natural instincts, paternal or otherwise, find a more valuable outlet in other channels. There is an element of truth in both explanations. Many years ago Dr. Clouston, an accurate observer of human nature, pointed out that his female nurses all longed to work in the hospital attached to the asylum, whereas his male attendants all wished to be kept out of it, and preferred outdoor work, and that he never saw a man enjoy sick-nursing in the same way that many women appeared to delight in it. On the other hand, not only does the employment of women as nurses harmonise with the

scheme of our domestic arrangements, but in our social system the capacity and endurance of men are more usefully employed in other occupations which are not only more congenial to them, but are better paid.

If there exist a fundamental principle in human nature of the kind indicated, namely, an active sympathy for the suffering and the weak in womankind, it is bound to be an important factor in the evolution of our humanitarian agencies. It is bound, sooner or later, to assert itself in an unmistakable manner, in spite of all temporary impediments. Among the most important of these modern agencies is the care of the insane in asylums, and it may be recorded that the first asylum in Scotland, the Royal Lunatic Asylum, Montrose, built in 1771, and incorporated by Royal Charter in 1811, owes its existence, primarily, to the suggestions and exertions of a woman, Mrs. Susan Carnegie, of Pitarrow and Charleton. Nor is it possible in more recent times to pass over the name of a remarkable woman who consecrated her life to the fearless advocacy of the cause of the insane, and to whose exertions, it is said, no less than thirty asylums, mostly in America, owe their origin—Miss Dorothea Dix. With regard to what she did for the insane of Scotland, it may be said that the modern system of the care and treatment of the insane, of the management of asylums, and of lunacy administration, is founded on the Act of 1857, and this Act was practically the outcome of the Report of the Royal Commission appointed in 1855. Miss Dix had found the insane so disgracefully treated that she laid the facts before the Secretary of State and the Home Office, and these were so startling that, “at her instance, and without any public movement on the subject, a Royal Commission was appointed to inquire into the state of the lunatic asylums in Scotland.”⁽¹⁾ These two are very outstanding examples of the influence that woman’s sympathy for the suffering has exercised on asylums for the insane; but the special point which we desire to consider in this article is the part women have played in the personal care and nursing of the insane of the male sex in our asylums.

The Exclusion of Women from the Care of Insane Men.

Till recently women have had little or nothing to do with the special care of male lunatics; indeed, this duty has almost

without question been regarded in the past as being outside their province altogether. There is, however, an interesting exception to this statement in what has been the practice at the General Hospital of Amsterdam. This institution, which, it is interesting to note, is under the matronship of a lady who was trained at the Royal Edinburgh Infirmary, now contains a pavilion for insane patients, in which the men are to a very large extent cared for by the nurses of the hospital—a six months' course in these mental wards being part of their regular training. The Wilhelmina Gasthuis, as this fine modern hospital is called, replaced the old Buiten Gasthuis or infirmary, and in this building at one time lepers were cared for by religious women. As leprosy died out in Holland, insane patients took the place vacated by the lepers; but these same women, or their successors, with the help of male attendants, who were subordinate to them, continued to discharge their useful and humane duty of caring for the insane as they had previously done for the leprous inmates. Thus the leper-house was converted into the asylum; but evolution did not stop here, for by the admission of patients suffering from ordinary sickness, the asylum finally developed into the general hospital, with special wards for mental cases. The history of this hospital presents many unusual and interesting features; and while the mental wards of a general hospital are only partially comparable to the more complex arrangements for all classes of the insane in a regular asylum, it is instructive to note the fact that from an early date up till now women nurses have continuously cared for insane men in this institution.

There is no difficulty in accounting for the anomaly that while women are born nurses, and have nursed most successfully all sorts and conditions of sick men in hospitals, they have not till recently nursed and cared for insane men in asylums. This is due, in the first place, to the fact that in our country the original conception of a madhouse was not that of a home for the comfort and happiness of a dependent class, nor even that of an asylum or retreat for the care and protection of the enfeebled in mind, and certainly not that of a special hospital for the cure and treatment of a disease. Had the purpose for which madhouses existed been for any of these objects, women would almost certainly have been employed in them. The madhouse was a special prison for the safe custody and con-

finement of a dangerous class, and as this special prison was managed much as other prisons were, the care of its male inmates was naturally not considered within the province of women. The taint of this prison heredity still clings to our modern mental hospitals; it is seen, to give only one example, in the retention of the practice of locking up patients like so many prisoners in single rooms or cells at night, which, as a routine measure for the treatment of the symptoms of a disease, should be discarded by the modern physician. This taint would have disappeared long ago were it not that the physiological laws that develop our habits make us conservative, and that asylum superintendents are even more stereotyped in their ways than most other classes of people. This peculiarity is partly due to the fact that supreme authority is vested in one individual, and partly to the special nature of the task of managing the insane, which is not, and cannot be, openly subjected to public scrutiny, and which, therefore, does not benefit as it might from the suggestions of fresh minds and from healthy criticism from the outside.

In addition to these explanations for the non-employment of women it must be borne in mind that, as a consequence of the ill treatment to which the insane were subjected in the first half of last century, the patients were very violent and vindictive and there was real danger to life on the male side of asylums. So much was this the case that the Metropolitan Commissioners dreaded the results that would follow, even to male attendants, so late as 1844 from the abolition of mechanical restraints. The wards on the male side were therefore not in a sufficiently safe condition to receive female nurses. Moreover, as female nursing had not then developed to its present pre-eminence and to its present degree of perfection, there was not then the same strong reason for introducing it in preference to male nursing as there is now. There was not then the same determination also to see that the insane should receive, so far as was possible, the same privileges and benefits as the sane enjoy.

Finally, there was the obvious sexual danger that arose from placing together within the wards officials of two sexes. There is no doubt whatsoever that this danger was very real, and that recognition of this fact delayed for many years insane men from receiving the benefits of skilled female nursing and those refining influences that good women bring into the lives of

men. In connection with the existence of this danger, and the difficulty of overcoming it, two modern developments must be kept in mind. The man or woman who became a keeper in the madhouse of the past was usually of a most dissolute and brutal class. No intelligence and no moral character were needed for the post, provided the applicant had the necessary qualification of brute force, and desired to enter the ranks of a despised occupation. Haslam wrote of it in 1808: "Although an office of some importance and great responsibility, it is held as a degrading and odious employment, and seldom accepted but by idle and disorderly persons—

"All that at home no more can beg or steal."

The men and women who are now entering asylum service are of a very different order; every year it is improving, and we not only expect a good moral character in our staff, but it is bare justice to many honourable men and women to say that we get it. In the next place, in the past the supervision of the staff was of a most elementary character, and the keepers were seldom disturbed by the visits of those in supreme authority. At the present time it is not certain that the supervision that exists is as perfect as it ought to be, especially by night, and for that reason the introduction of a more reliable system of supervision by means of assistant matrons or sisters is advocated, but in any case the supervision of the staff that is now practised everywhere, especially by day, is very much more perfect than was employed in the past. These are some of the reasons why women in the past were excluded from the occupation of nursing insane men.

History of the Introduction of Female Nurses.

I have inferred on general grounds that women would influence the evolution of the care of the male insane, and that sooner or later this influence would show itself in an unmistakable manner. This is not the time to describe in detail all the attempts that have been made in our country to employ women on the male side of asylums. It is perhaps sufficient to say that the attempt has been very frequently made during the last sixty-five years, and this of itself is strong proof that the practice is based on some fundamental truth and is not of the nature of an individual fad. There can be no doubt too,

judging by the careful precautions that almost invariably accompanied these attempts, that the difficulties and dangers connected with the employment of women loomed large in the minds of the pioneers of the system, and prevented many from introducing it who nevertheless recognised in principle the merits of woman's care.

I. *Women employed in Household Duties and as Auxiliaries to Male Nurses.*

There is evidence that women very early in last century were occasionally employed in household duties on the male side of asylums, but this was probably done after the male patients had been turned into the airing-courts. We have here evidence that even then household duties on the male side were recognised as being within the province of women, but that it was not thought safe to bring women into personal contact with male patients.

The first important step that I am aware of was taken in 1841, at the Gloucester General Lunatic Asylum, when an attendant's wife was employed to assist in her husband's ward, and this proved so successful an experiment that it led to the extension of the practice. The fact that attendants' wives were employed, and that they only assisted their husbands, shows us that the possibility of sexual misconduct was feared and provided against. On the other hand, it is noteworthy that the husband of the woman who was first selected had charge of the refractory ward, so that the possible danger of violence and injury from patients was not considered an insuperable obstacle to the employment of a woman. The practice of employing attendants' wives to assist their husbands was adopted between 1860 and 1870 in several English asylums, and in some of these asylums this step was taken, not merely to introduce gentler and less forceful methods, but also for the sake of the better nursing of the sick.

The credit of initiating this movement belongs to one whose memory we must ever cherish with interest, namely Dr. Samuel Hitch, the "first secretary and chief organiser" of our Medico-Psychological Association. I am informed by his widow that he was led to employ women in the care of the insane men in the Gloucester Asylum because of the harsh manner in which

male attendants were then disposed to treat the patients under their charge. The fact that the first woman engaged was employed in the "refractory ward," as is stated in the minutes of the asylum, is confirmatory proof of this statement.

A further step in the development of the practice of employing women was in operation at the London Asylum, in Canada, in 1883. Here three women were employed on the male side of the asylum; they attended to household duties, supervised the indoor work of the male patients, and associated with them in the wards. They were trusted to conduct themselves in a proper manner under the ordinary supervision of the asylum, but they were women who were specially selected for the good character they bore, and they were all widows. At the London Asylum the female nurses worked and associated with the male patients in perfect safety, but it would appear from the precautions taken that the Superintendent, Dr. Bucke, realised that there were obvious dangers of a sexual character to be guarded against. Dr. R. M. Bucke died in 1902, and he was one of the most striking personalities of the American Medico-Psychological Association, of which he was President in 1898. He was regarded as one of the foremost men in medical circles in Canada, and he has this additional claim to our respect, that he introduced the system of non-restraint into Canada.

A few years later another step in advance was taken at the Royal Edinburgh Asylum, under Dr. Clouston. In the male hospital block Dr. Hitch's plan of employing the wife of the charge attendant to assist in the care of the patients had been in force since 1877, but about the year 1890, the husband having died, the widow was placed at the head of the hospital, with the male attendants under her authority. This was an innovation, but a more important step was taken when permission was granted to this female charge nurse to engage the services of two young women to assist her, while she was held responsible for their good behaviour. I think this experiment—which was quite successful—marks the end of the first stage, that of employing one or more women in household work on the male side, and as auxiliaries to the male attendants in the care of insane men. We find it demonstrated that women can mix among the male patients in some, at least, of the wards of modern asylums without danger of violence from them, and without being subjected even to insults. With regard to the

method of diminishing the risk of misconduct with the male attendants, there were drawbacks connected with Dr. Hitch's original plan of only employing attendants' wives in their husbands' wards, as it was found that it was seldom the case that a husband and a wife were both satisfactory. We find it, however, at length demonstrated at Morningside, and confirmed at Larbert, in 1894, by Dr. J. Macpherson, that under the reliable supervision of a good charge nurse it is possible to employ in the male wards the same class of young woman as takes to nursing in the female wards without running much risk of misconduct. Without this reliable supervision there will be failure, as occurred at the Melrose Asylum, when the experiment of employing two female nurses in the male sick ward was made in the year 1873; but with it even female patients may be safely employed, as has been done at Morningside and elsewhere.

Finally, with regard to the merits of this system of employing women as auxiliaries only to male attendants, we have the recently expressed opinion of Dr. Clouston, who has had longer experience of this particular system than any one else, that it has proved successful, and is certainly of benefit to the patients.

II. *Women having entire Charge of insane Men.*

The second stage is a short but an interesting and important one. It begins with the observations of a Nurse Goodlet, who had charge of the male infirmary of the Sunderland Asylum in 1895 and 1896, while Dr. Elkins was the medical superintendent. She stated in writing that from her own personal observations while in the male ward she was quite certain that the male patients in the hospital could be entirely managed by women in perfect safety, and that the nursing of the men would be better done if the women were alone, as there were many nursing duties a woman could not undertake with male attendants in the room watching her. As I was interested in the subject at the time, Dr. Elkins, at my request, forwarded this document to me. In the meantime, and quite independently, Dr. Turnbull opened in 1896 a new hospital at the Fife and Kinross Asylum, in which the male and female sick wards adjoined one another, and he there placed the male ward, containing thirty patients, entirely under the charge of three

nurses by day. He had originally intended to staff this sick-ward with male attendants, who were to work under the supervision of the hospital nurse, but she and the matron preferred to undertake the responsibility of managing this ward with the assistance of other nurses rather than in association with male attendants. Dr. Turnbull was willing to make the experiment, and it proved to be a success in every way. It is difficult to over-estimate the value of this demonstration. Fortunately for Scotland, the Commissioners in Lunacy immediately realised its true nature, and congratulated the District Board and Dr. Turnbull on having made so important a step in the improvement of asylum management. Sir John Sibbald was then the Senior Commissioner, and this honoured and sagacious counsellor, whose recent and irreparable loss we all deplore, encouraged the then superintendents of the Murthly, Gartloch, and Hartwood Asylums to place the male hospital wards in each of their asylums entirely in the charge of female nurses by day. Other asylums soon adopted the system as well, and three years later, in 1900, at the Stirling District Asylum, the experiment begun by Dr. Turnbull may be said to have been finally completed by placing female nurses in full charge of male patients, not only during the day, but during the night as well. This final development has also since then been adopted in other asylums in Scotland.

Before passing to a description of the most recent developments of this system, I desire to emphasise the importance of the fact Dr. Turnbull first demonstrated by actual experiment, that women are able to take complete charge of insane male patients in asylums for this reason, that it makes it quite certain that the male patients get the benefit of female nursing. In those asylums where one, two, or even three women were employed to assist the male attendants, the greater bulk of the nursing continued to be done by the male attendants. The women fed some of the patients, and by personal attentions no doubt added greatly to the comfort of others, and by their presence checked exhibitions of violence and improved the tone of the ward; but the work that they were largely engaged in was household work, such as the care of the clothing, the cleaning and decoration of the wards, and all the work connected with the ward kitchen. When patients are completely handed over to the care of women a revolutionary

change takes place, and they at once enter with thoroughness and zeal into the real work of personal care and sick-nursing. While the practice of having women as auxiliaries to male attendants was a great step in advance of the system of having no female aid at all, yet it is only when women are in complete and responsible charge that the full benefits of the system of female care and nursing can be enjoyed. In one or two asylums a male attendant, or more than one, is associated with the female nurses to assist in case of any emergency arising, and to perform duties that women could not undertake. The employment of an attendant to act as an auxiliary to female nurses is not open to the same objections as the converse practice, but nurses have said that the constant presence in the wards of male attendants hampers them in the performance of some of their duties. It will be noted that by the practical exclusion of male attendants from those wards in which women are employed the danger of misconduct has ceased to be the serious question it was at one time. With regard to the danger of violence from male patients, that is now for practical purposes eliminated by reviewing the cases before they are placed under the care of women, and excluding impulsive patients and those with sexual proclivities from their care, or by removing them immediately these symptoms show signs of developing.

(¹) Parliamentary Debates.

(To be continued.)

DISCUSSION.

At the Annual Meeting in London, July, 1905.

The PRESIDENT remarked that the members present had listened with the very greatest pleasure to the admirable paper read by Dr. Robertson. His enthusiasm for the subject was well known, and members appreciated the enormous amount of work which he had done.

Dr. ROBERT JONES said he was personally very much obliged to Dr. Robertson for responding so readily to the request to read a paper on that particular subject, on which, as the President remarked, he was an enthusiast. He (Dr. Jones) had particularly desired to invite Dr. Robertson upon this subject as a compliment to the President's address on the question of nursing which he had anticipated, and thinking that the material brought forward by the President which we could not discuss in a presidential address, and by Dr. Robertson which we could discuss, would afford the opportunity for members to express their views. Dr. Robertson seemed to regard or recognise certain limitations in the working of female nurses for male patients. Personally, he had no knowledge of this form of nursing, but he had made a request to be informed on a previous occasion whether the employment of women on the male side was in part on account of considerations of expenditure, because one knew that women were paid less than men, and that the

advantage was in part—he would only say in part—on account of the maintenance rate. He felt, without much experience in the matter, that Dr. Robertson must have surmounted a considerable number of difficulties to have carried out the nursing of men by women. He could foresee many difficulties to this in a large asylum, where the matron already had her hands full, and he felt loth to make her responsible for working a part of the male as well as the female side; but he believed there were present those who, even in large asylums, had had some experience in the matter.

Dr. BRISCOE said that he wished to add his testimony in support of the adoption of female nursing for male patients. He referred to the desirability of giving mental nurses a training in a recognised hospital.

Dr. TAYLOR said he had listened with interest to Dr. Robertson's paper. On the opening of Hellingly it was arranged that one or two of the male wards should be staffed by female nurses. He feared he could not go so far as Dr. Robertson had done, but with regard to the infirmary, he had had one ward staffed by females, by night and day, since the institution was opened, and the plan was very satisfactory. And while every endeavour had been made to train female nurses and make them as skilful as possible, there were also in the institution trained male nurses to look after patients who needed them. One point mentioned by Dr. Robertson was that female nurses preferred not to have male nurses associated with them in the charge of the ward. That question was raised by the female nurses at Hellingly, and he mentioned the matter to the charge nurse, who said she would not like to have a male attendant present; for two years she had managed the ward successfully. He agreed that females could nurse a certain class of male patient, but he felt he could not dispense with male nurses, and an attempt should be made to render the latter as efficient as possible.

Dr. D. G. THOMSON said he had written upon the subject now under debate rather in opposition to Dr. Robertson, and wished to express his appreciation of the able way in which that gentleman had again brought the subject forward. But Dr. Robertson rather balked discussion by saying it was incapable of settlement by an academic debate, and that experience and a trial of the method was the only solution. If that were so, discussion was useless. Still, a few matters might be referred to in connection with it. He admired the tremendous enthusiasm with which the Scotch superintendents, who, however, were not unanimous, worked out the nursing of male patients by females. He (Dr. Thomson) wished somebody would advocate the male nursing of female patients, because his difficulty was to get good female nurses. He had admirable male nurses, far better, as asylum-trained nurses, than his woman nurses. Then, with regard to the enthusiasm of the Scotch in the matter, he invited his hearers to look at another side of the picture. He went to an asylum in the Hague, an almost new institution, and probably its proximity to this country had caused it to be known to some of his hearers, who would support what he said. There were female nurses in nominal charge of male wards. In some wards which he went into there were male attendants also. And when he asked the superintendent if he had any difficulty socially with those young people being together (male nurses and female nurses) his reply was a significant shrug of the shoulders and a reference to "human nature;" from which he (Dr. Thomson) gathered that he had his troubles. Not only so, but the "calming influence" of the females which had been alluded to by the advocates of the system was not indicated at the asylum at The Hague. The ward was what was known in England as a "day corridor," a gallery of single rooms, and the female nurse was seated, nicely dressed, at a table engaged in knitting. But in each of the single rooms was an excited male patient *in seclusion*. That, of course, was not worthy of approval. He did not say it was done in Scotch asylums, but it was right the Association should know the facts when continental advocates of the system were quoted. He was naturally interested in the patients, and in insane foreigners still more so; he was kept back by the doctors, who warned him to take care lest the patients attacked him. There seemed to be no nursing attention paid to the patients, or anything of the kind. That was an asylum staffed by female nurses for male patients. He could only speak of what he saw, and he saw what he had described. He quite admitted that, speaking generally, women were more suitable for the nursing profession than men; but in all walks of life in which women, as a rule, had the natural pre-eminence, the few

men who adopted these avocations, such as dressmaking, cooking, etc., absolutely excelled the women. It was the same with nurses. If one secured a good male nurse, he knew no woman nurse who could equal him, and he had seen many nurses in his twenty-seven years' experience. People seemed to harp on the *sick-nursing* aspect of the question, which he thought was greatly exaggerated. He had an asylum of 1000 beds, yet how many people would be found in bed or ought to be in bed? He found perhaps ten or a dozen, or at most, in the winter, fifteen. The Scotch asylums were about half the size of the English as a rule, so that the amount of "*sick-nursing*" in asylums was small. (Hear, hear.) What 99 *per cent.* of the insane wanted was attendance in the widest sense, and it was more decently and better done in nine tenths of the cases by men than by women. The male side of the asylum presented no difficulties of attendance; it was the female side which was the difficulty. Of course female nurses would naturally prefer to nurse male patients. First, there was the natural instinctive preference for the opposite sex, and the second reason was that the male patients were comparatively easy to nurse and attend to. As far as he could remember, in the delirium tremens wards at the Edinburgh Infirmary which nearly corresponded to the "acute" wards in asylums, there were men to look after the male delirium tremens and other acutely delirious cases. Then, if what Dr. Robertson said was true, and if what he advocated became the universal practice, male nursing, as understood in all nursing organisations, was doomed and done for. Not that that would be any argument for its continuance, but it must be kept in mind, as the President had already hinted in his admirable address. He thought that these fragmentary observations were all that he could contribute. He was sure that the movement in favour of the employment of female nurses for insane men could not have had an abler advocate than Dr. Robertson, who was most clear and logical, but Dr. Robertson referred to the limitations of the practice, and it was upon those that the disagreement arose. He (Dr. Thomson) could not imagine where the continuity, even of ordinary supervision, not to speak of discipline as ordinarily understood in England, came in when a woman nurse handed over an acutely suicidal patient to a male attendant to take into the w.c. or the bath. It was essentially on such points as those that the difference came in in the two views. A hospital nurse would attend any one man in bed, and do it well he did not doubt, but the ordinary patient in a hospital, as soon as he got up, attended to his daily functions himself. Not so in an asylum—he did them there under supervision. Some seemed to want that supervision to be carried out by females, but he agreed with the lady quoted in the paper, that it was not in accordance with the proprieties and conventionalities of life.

Dr. BOND said he desired to make a few remarks, because he had had the opportunity of acquiring some practical experience in the line which Dr. Robertson had sketched out. He had listened to the paper with great interest. Some of the instances to which the reader had alluded where the system was at work he (Dr. Bond) had seen. Most of his hearers knew that his (Dr. Bond's) institution was a colony for epileptics. There was no part of it which was not staffed by women in some way. Of course, it was not entirely comparable to the ordinary asylum; but every unit of the institution—each unit being a villa—was staffed to some extent by women; *e.g.*, each male villa had at its head a man and his wife, and he could most strongly say he was in hearty sympathy with what Dr. Robertson said as to the influence of the other sex upon the general tone of these male villas. It was true that perhaps the bulk of those women's work consisted in domestic matters, such as maintaining the cleanliness of the villas, cooking, attending to the clothing, etc. That was mainly the kind of work for which he held them responsible. But after the work of the day was over, anyone going into the villa would see these nurses seated among the men and playing games, etc. He had not the slightest doubt about the influence for good which they had upon the patients. He would not give up the system, but as the colony grew he would extend it. The same system of staffing was to be seen also in the one villa set apart for acute cases and for those bodily ill, for a man and his wife were also at the head of that. But the woman, of course, was not called upon to deal with the sudden and violent epileptic manifestations with which all were familiar; that was an illustration of the limitation to which Dr. Robertson alluded. With regard to the female nursing of the sick in large asylums, he had had the opportunity of

witnessing its effect there, and was in hearty accord with the principle. He was sure Dr. Robertson touched the crux of the matter when he said that to insure success the staff must be entirely female, and not mixed. With regard to the vexed question of hospital training and the introduction of hospital-trained nurses, his own view was that in a large asylum the amount of skilled surgical and medical work was sufficient to give a very adequate training if those who were responsible would utilise it by focussing it, and not scattering it about the building, and by having well-organised hospital wards. In small asylums it was probably difficult to provide nurses with sufficient training in that direction. He thought it would be of practical value if Dr. Robertson would some time, preferably in the *Journal*, give a detailed list of his staff, enumerating the scope and character of each ward, with the number of patients and staff in each. He did it some time ago, but the number of the female staff had now been extended, and one would like to see the exact present arrangement.

Dr. BEDFORD PIERCE said he had had practically no experience on the subject before the meeting, and at the outset those who had not that experience were discouraged from expressing any opinion on the matter. But perhaps he would be allowed to ask Dr. Robertson one or two questions. With regard to nurses in an institution in which middle-class patients were received, did the same conditions obtain as in Dr. Robertson's institution, where he understood the patients were all parochial, and where the nurses were in a better social position than those they were nursing? If the step recommended were taken at the "Retreat," there would be nurses of the same social position as that of the patients, and on this account he thought questions of delicacy would arise and be more difficult to deal with than in a county asylum. He did not think Dr. Robertson covered the whole ground when he discussed why women took up the profession of nursing as they did. He spoke of it as being essentially due to the "motherly instinct" of women; but he seemed to forget the fatherly instinct of man. He gathered that the real reason—or at least a reason—was the social one—that women, and not men, took up the work of nursing in hospitals because there was no possibility of a man earning enough to maintain a wife and family. He thought that, if it were possible, the catheter cases in general hospitals should always be nursed by men; it was only seemly that it should be so, but expense forbade it. The question of kindness was also dealt with in the paper, and that had already been spoken to. His own opinion was that men were every bit as kind as women. It was by no means easy to make comparisons between the nursing on the male and female sides of the institution, and he hesitated to say anything upon such a delicate matter. He need not remind Dr. Robertson of an incident Dr. Robertson had himself related in this room which had happened in the women's side of his own asylum to make it clear that nursing by women did not solve all our difficulties in insuring uniform kindness by our staff. He inclined to believe that the male nurses on the whole were quite as kind as the women nurses, and that, when each were nursing their own sex, he thought the men sometimes had the advantage, especially in relation to some of the smaller, petty details of management. He also thought Dr. Robertson had not done justice to men's capacity for nursing. At his (Dr. Bedford Pierce's) institution there was an attendant who was seriously ill, and requiring an operation. He went to a well-known general hospital, where he was nursed by women. He regretted to say he was not well nursed there by the women nurses; he developed a bed-sore, and generally had a bad time. No doubt such an event was an exception in that hospital. The man was brought back to the "Retreat" and nursed by one of his own colleagues for many months, and the difference in his comfort and in the quality of the nursing which he received was very great, and this the patient most gratefully recognised. Of course that was only a single instance, and to argue on a general question from an isolated case was notoriously fallacious. But it did illustrate the point that there were men who were good nurses, and if Dr. Robertson's recommendation were to become general it would mean that no men who were good nurses would have a chance of developing their faculties or qualities, and that would be a pity. Just as he considered that medical women had a place in the art of healing, so he believed that men had a place in the art of nursing. So, whatever might be the outcome of that discussion, whatever might be the future trend of the question, he hoped matters would be so

arranged that those of either sex who had gifts should have the opportunity of exercising them. (Applause.)

Dr. SHUTTLEWORTH said he would be glad to ask one question. He had had no practical acquaintance with female nursing of male patients in lunatic asylums, but in the imbecile institution with which he was formerly connected there were big youths of not very nice manners, and no difficulty was experienced in employing female nurses in charge of them when ill. The point upon which he sought information was the following—Did the plan adopted by Dr. Robertson, which was also carried out to some extent in other Scottish asylums, of placing women in sole charge of the infirmary wards for men—and so to a great extent cutting off men who had a taste for nursing from opportunities of improving themselves by gaining experience—and also the plan of superseding superior male officers by female supervising officers, at all detract from the supply of good candidates for the posts of male nurses in the asylums? It seemed likely that by removing from the purview of the male attendants the “plums of the profession” or the objects of ambition which would animate a man who felt he had nursing in him, all the better class of male nurses would ultimately be eliminated from asylum service, and there would be left merely what might be called the “bread-and-cheese class,” who would fill up their time at asylum work until they could find something better to do. He merely spoke in order to gain information.

The PRESIDENT said he thought some excellent expressions of opinion had been heard from men of experience in asylum life. There seemed to be a tendency to go a certain way with Dr. Robertson in his advocacy of female nurses for male patients, but every one appeared to admit that this plan had its limits. However good, however angelic, however motherly a woman might be, she was not fit to undertake the care of a violent epileptic. (Hear, hear.) Asylums *must* have male nurses, and those who practised in private must have them—they are absolutely necessary, and it is impossible to treat the very large majority of mental diseases without them, either in asylums or in private practice. His point was that, however excellent the idea brought forward by Dr. Robertson might be, it would not be wise to push it too far, and to belittle the splendid work which male nurses were trained to do.

Clinical Notes and Cases.

Mental Disease associated with “Insangu” (Indian Hemp) Smoking and Tape Worm. By A. D. PRINGLE, M.B., Senior Assistant Medical Officer, Natal Government Asylum, Pietermaritzburg.

Patient.—A native male, *æt.* 31, admitted to the Natal Government Asylum, February 23rd, 1904.

Mental symptoms.—The patient had been insane for about two weeks previous to admission, and had been in the habit of smoking Insangu (Indian hemp), and had been noisy and dirty in habits, resented interference, and assaulted the attendant and another patient, quarrelsome, and abused those around him, could answer questions only in a dazed manner, and after repetition. On admission he was stubborn and violent if interfered with; otherwise he sat quiet and disinterested, except for spasmodic attempts at escape. On one occasion he did get away from the building and ran some 200 yards to the asylum main entrance, threatening to kill anyone who interfered with him; was much

annoyed at being brought back ; would not work. April 19th : Restless, attention and concentration imperfect ; does not answer questions readily, but rambles on incoherently. Latterly, while in the hospital, he had been quiet and depressed. Early in October, 1904, the patient had two slight epileptiform attacks, but none before or after this date. Died August 12th, 1905.

There is nothing unusual in the *physical* condition, except that, although at the autopsy tape-worms were found, no segments had been reported in the stools, despite the fact that at one time while in the hospital the patient had had fairly large doses of compound decoction of aloes. Never at any time did the patient have a "voracious" appetite.

Autopsy.—Nine separate intussusceptions, varying from 1 to 4 inches in length, were found in the small intestine, probably of the "agonal" variety, and had supervened either shortly before or after death. In the intestine were five large tæniæ (*mediocanellatæ*) varying from 4 to 6 feet in length. No segments found in any part of the large intestine.

The principal interest of this case lies, I think, in the intussusceptions and in the mental condition of the patient. These "agonal" intussusceptions are moderately common in deaths where "tape-worm" is found in the intestine. The explanation, I believe, is that in these cases just before, at, or after death, the bowel being in an atonic condition and the tæniæ still alive, the movements of the latter cause these intussusceptions to take place. Regarding the *mental condition*, one could not say how long tape-worm had infested the patient. It is well known that tape-worm (*skellem esimhlope*) is very common among the natives of Natal, but so is "insangu" smoking. Both cause mental upset—patients with tape-worm are usually depressed, insangu smokers have outbreaks of excitement. This patient was depressed and excited at times. It is an interesting question whether the misery and depression caused by the parasite were not responsible for the excessive insangu smoking, which in this case brought on excitement and untidy habits, resulting in the patient being sent to the asylum. Patients as a rule recover quickly from the effects of insangu smoking, and it would therefore appear that the state of depression might have largely been due to the presence of the parasite.

It is fairly safe to infer that in this case the intussusceptions were not produced by excessive straining by drugs, since (1) the compound decoction of aloes had been exhibited for several weeks without causing any invagination : (2) no dose had been given two days previous to death ; (3) the invaginations were recent.

In connection with the above, Dr. Ward (District Surgeon in this division) has kindly allowed me to quote an interesting case under his care at the local gaol. Patient, an elderly native convict, complained of tape-worm, a moderate dose of extract of male fern being given with no effect; this was followed by a larger dose with an appalling result. Tape-worm began to be summarily ejected in large quantities by both mouth and anus. At the mouth they were brought up in such quantity that the patient was literally suffocated by his own vomit and died. At the *post mortem*, mouth, nasal passages, pharynx, and larynx were blocked with tape-worm, and a great number were found along the whole alimentary tract, from the œsophagus to the rectum.

This case warns us that in giving large doses of anthelmintic medicine the patient's life is in grave danger should vomiting supervene, with a large number of *tæniæ* infesting the alimentary canal.

Autobiographic Hallucinations.

THE following is a truthful record of what I felt and saw while in a state of mental collapse consequent upon a severe brain affection. One peculiarity about my illness was that never at any time, except perhaps at the crisis, was I quite unconscious of surrounding objects or of what I was doing, and that assuredly one of the most distressing things connected with that terrible time is the fact that I remember with almost painful accuracy nearly everything that happened. I now feel as sound mentally and as free from hallucination as any normal person can be, but for many years I suffered from an hallucination of hearing, which used to be strongest whenever I laid my head on the pillow at night.

Almost the first thing I can remember about my malady was of walking alone in a part of the London suburb in which I lived and experiencing a feeling of dizziness and vertigo. All sounds were intensified to my sense of hearing. I was to some extent unable to control my thoughts or actions. I must have looked strange, also, because when I reached my rooms my landlady called in her married sister and her brother-in-law to see me, and the lady, when she had looked at me, gave a slight scream and a look of intense fear or horror appeared on her

countenance. That night I lay down dressed upon my bed, while my landlady and the servant sat in the adjoining room to watch, but whether at my request or not I cannot remember. I did not sleep that night, and the next day I felt everything about me stranger than ever. I went to my office and tried to concentrate my thoughts on my work, but soon gave up the attempt, and went out to pay a visit to a friend in another part of the city. I reached his house and was received as usual, and asked to remain and take tea with the family. We had scarcely sat down, however, when I complained of feeling very unwell and asked to be permitted to lie down. I was accommodated in an upper room, and soon after lying down I either went temporarily blind, or, as I believed myself at the time, would not open my eyes for fear of what I might see. I then heard a number of voices about my bed. The voices seemed familiar, but in my own mind I knew them to be the voices of fiends preparing to torture me. I was not surprised, therefore, when I began to feel my face and hands in process of being hacked by these fiends into little pieces about one inch square with knives. I could not move, and I would not or dared not look, so I lay there and suffered. Ah! how I suffered! These were the tortures of the damned indeed, and I know not for how long they lasted. While under this torture, a consciousness came to me that by making a mental effort I could effect a junction of the pieces into which I was being cut. I accordingly made the effort and immediately the pieces of my hands and face apparently joined, to be immediately cut again into little pieces by the fiends about me. This process of being cut into pieces and rejoined went on for I do not know how long, and I found that by a strong effort of will I could suffer the torture which was being inflicted upon me without flinching. At last it was over, and, after an interval of unconsciousness, I awoke to find myself in the same room, and a strange man sitting watching me near the window.

Whenever I moved this man came and pressed me down in bed, until I promised to be quiet, and then he sat at the window and smoked. Either it was very rank tobacco or my senses were abnormally excited, for I never in the whole course of my life smelt such vile stuff. Indeed, it did not smell like ordinary tobacco at all; I was a smoker myself then, and am so still, so anything in the shape of tobacco of an ordinary kind

was not likely to astonish me, but this tobacco fairly filled my soul with disgust. The stench was to me the pungent odour of the very pit itself! During the night I had a wonderful experience. There was a coloured print of our Saviour as the Good Shepherd, or the Light of the World, hanging over the mantelshelf of the room near my bed, and in the middle of the night this figure appeared to come down full life-size and lie upon me, face to face, and was absorbed in my very innermost being, so much so, that from thenceforward it became part of me, or rather became me. I cannot explain it. I can only state what I felt and saw, and that the result was I experienced an intense feeling of bliss and happiness. Some time before or after this I heard a strong rushing or rustling sound as of flames tearing along close at hand. It was surely the sound of the city on fire, and the flames were coming nearer every instant; it seemed horribly close. And now I was two persons: one was myself lying in the room, and whose name was A. B—, but there was another of the same name out there in the midst of the burning city, and the people were thirsting for his blood, and hunting him along the public streets, and he was innocent, while it was I who was the criminal. I could hear their ferocious cries mingling with the roar of the flames, and a great horror was upon me; for, although the man out there bore my name I knew that he was not me, but another identical with me in name and appearance, who had taken my personality upon him in order to save me from the fury of the rabble, and who was to die for me in this horrible manner at their hands. Of course this was a dream, but it was as terrible as reality.

Morning came at last, and a relative and friend came to fetch me to my home, away in the north country. As I walked, or rather tottered, along, supported on either side by their arms—for I was very weak—towards a railway station, I saw a man turning the handle of a barrel-organ. I seemed to see him in a sort of half dream. And truly he was a dream; for such music neither I nor any other mortal man had ever heard issuing from a barrel-organ. That the music heard did not come from the instrument the man was playing was made manifest to my consciousness by a sort of visual delusion, for though the man turned the handle nothing moved! I know this statement is a contradiction, but I cannot explain what I saw in any other way, or express it otherwise. But how shall I express what it

was I heard? Indeed, it would be impossible, for the music I heard was not of this earth. The man who turned the handle of that mean-looking box was but the instrument to convey to my senses such a ravishing flood of melody as I am convinced only spirits are privileged to hear. It was grand, it was majestic, it was sublime. Not the finest organ ever constructed could emit the tones of that wonderful melody. Of course it did not come from the barrel-organ, and I myself was the instrument which was being played upon by the music, but I was unaware of that at the time.

On reaching the station we were soon seated and whirling along on our long journey. It was a terrible journey to me in my weak state. I lay back in a corner of the carriage and looked out of the window and at my fellow-passengers alternately; I felt at one period burning with intense heat, at which times all those in the compartment took on a bluish tinge and looked like devils; at another I chilled with intense cold, when they looked like themselves again. On looking out of the carriage window, the air seemed full of motes or flakes ascending or descending. Some were white like snow, and these were the ascending ones; while others were black and descended. Those which ascended were to my consciousness the souls of the good, the saved ones, going up towards heaven, while the others were those of the lost, descending in a continual shower. The cling, clang of the train sounded ominously to my ears like the sound of the chains clanking in the bottomless pit. By-and-by we reached a large junction, where we had to leave the train and change to another. I knew the station well, having often travelled by that route before, but on this occasion everything was altered. I was in an abnormal condition, consequently I saw things which at other times were not visible to me. For instance, I saw a procession of black-frosted nuns filing through the entrance, gliding like spirits along the platform. Their appearance filled me with dread, and I was glad to get away from their vicinity. We now entered a small hotel near the station and I had some refreshment; while here voices came to me tempting me to do unutterable crimes, but I resisted with all my strength and overcame them. At length we reached our destination, and I was taken in a cab to my home. We sat down to table, and opposite to me was a little child—my own nephew. The little fellow gazed at me open-eyed,

and the sight of him somehow unloosed the well-springs of my being, and I left the table and burst into a passionate fit of weeping. The shedding of those tears, which were hot and scalding, seemed to give me immense relief. I was hurried off to bed, and now I was conscious of receiving every attention my condition required. The women who came and ministered to my needs wore the appearance of celestial visitants, but the men were like fiends. The doctor who came to see me I firmly believed was the evil one himself, bearing all the appearance of a fiend—pale, phosphorescent blue of tint, and having an expression of intense malignity stamped on his countenance, which I can never forget. He seemed to kneel with all his weight upon my chest and tried to throttle me. Now my sufferings were indeed hard to bear. Night after night I lay awake. Sleep would not come to me, so I was induced to take sleeping draughts at intervals of a few hours. My feelings were terrible. At one time in the middle of the night, I recollect, my brain went whirling in mad confusion, and I believed that my last hour had come. There was no one near me, and I had no time to summon anyone to my bedside; so there I lay, while the galloping whirl continued to increase in velocity, until everything went from me but the feeling that I was going—going swiftly to the end. That end could only be in one moment more, when the brain would certainly burst asunder and I would die. Well, I was glad and yet awestruck at the thought, but it was well it should end there. I gave myself up and commended myself to God, but when the crisis came, with an explosion as it seemed of something inside my head, everything became clear again and I was as before. This was only one of my many curious experiences. The tempting voices again visited me, and for many a long day I was subject to their uncanny influences. Once they told me to leap out of my bedroom window, but I resisted. They never took the form of desiring personal violence to anyone except myself, but they continually entreated, cajoled, and argued me into destroying myself by some means or another. I was strong enough, however, to resist all such blandishments, and never attempted to do myself any injury.

When I was judged to be well enough to travel I was taken to a watering-place near at hand. I shall never forget my sufferings at that place. Whether the sulphur springs for which

it was famous affected me prejudicially or not I cannot say, but I felt distinctly worse while I remained there. The smell of the cattle at the farm where we lodged was horrible to me beyond words. It reeked of blood and offal even when at a distance. The dogs howling in the distant kennels affected me most lugubriously; they seemed to be straining to get at me to tear me to pieces. The rocks were full of human faces. When I went up to the well-house the people took awful shapes to my distorted fancy. A little cripple boy resembled the devil in human shape, being palish-blue of tint, and an old lady in black and white seemed to me the embodiment of a shape from the nether regions. One day I was walking in the meadows, and all at once I felt as if there was nothing between me and infinite space. No words can express the awful feeling of isolation that came upon me; it seemed to me that for a moment I stood there absolutely naked of soul, with nothing between me and God. I do not know how I recovered myself, but the feeling passed and I walked on.

I will now relate two of my more remarkable dreaming experiences, but before doing so I should state that every night dreams of the most vivid character visited me, so that I lived as much in dreamland as in the world of actuality.

In the first of the two dreams the sky seemed full of living, flaming thoughts or words, which succeeded one another with the rapidity of lightning; my brain reeled in the effort to follow them, but at length came darkness, deep and impenetrable, in the midst of which I heard one voice, and I felt that I stood in some awful presence and was being judged. I did not doubt then, and I have never doubted since, that at that moment my soul or spirit was in presence of the Judge of all mankind, and that the words I heard were those of my accuser and Advocate. What was said I never could recall or I did not comprehend, yet I knew that I stood at the bar of that dread tribunal where every human soul is destined to be arraigned when it shall have "shuffled off this mortal coil." My name was called and the trial took place. I know nothing of what took place, except that at last I heard the voice pronounce sentence of acquittal, and I came back to earth and the things of sense once more, but whether, like Paul, I was in or out of the body when I went through that supreme ordeal I cannot tell.

In my second dream I seemed to be wandering through some

dark and tangled forest with one by my side upon whom I leaned with confidence, while another beside me continually tempted me to evil. On and on we went together through the tangled brake, which teemed with venomous reptiles, which I was miraculously prevented from treading upon at every stride. I stumbled on in the darkness, encouraged by the presence of my guide, until at last we reached the verge of a river or ocean, and at once I became aware that I had reached the utmost verge of my journey, and that this in front of me was death. One beside me questioned, "Are you willing to enter the tide?" and without an instant's hesitation I answered, "Yes, I am ready and quite willing to go." But I was not permitted to enter the stream at that time, yet I am fully persuaded to this day that I then stood on the dividing-line or verge of life.

Another experience I had was of being in the middle of a horrible pit or shaft full of sounds of the most terrible import, tempting voices, sounds of woe, a clash and din of horrid voices which never ceased, and I felt I was suspended in the pit of hell without the power to lift myself out of it. Sometimes, by agonising efforts of will power, I seemed to rise a little, at others I sank back into its hideous depths, and the struggle appeared to be interminable. After what seemed an infinitude of time, I was rewarded by reaching the outermost edge and I strove and climbed with desperate eagerness to free myself from the surroundings of that horrid place, until at length I was up and over the edge and a free agent once more. In these struggles everything seemed to be spiritual, yet my whole being seemed involved in the effort to rise to the clear air, and when I did so my state of mind was that of being freed from a fearful and awful condition, which I felt to be bottomless.

I cannot remember much more of a definite character pertaining to the acute stage of my illness, except that the voices of which I have already spoken came to me whenever my head was laid on my pillow at night, and even when sitting quietly by myself. They continued to trouble me long after I had attained to normal health, and was pursuing my ordinary avocations. One peculiar feature of these voices was that whatever my thoughts were they seemed to follow and put them into words. For instance, if I repeated mentally a form of prayer, which I did frequently in order, if possible, to relieve my troubled brain, the words were repeated to me in my brain independently of

my thought, and whenever I ceased the voices would continue saying something else, or another would take up the discourse and keep me following it with wearisome persistence. How tired it made me and how I longed for sleep! and yet I could not drive them away while consciousness remained.

At this time I was subject to a sort of nervous shock which came at regular intervals like the thud of a sledge-hammer. As I grew convalescent the shocks decreased in frequency and intensity, and as I recovered they came only occasionally, and at length ceased altogether.

It is said to be a physiological fact that every particle of the human body is renewed every seven years, yet it was nearly three times seven years before I could say I was perfectly free of the singing noises in my head and the voices which visited me at intervals.

In summing up the results of my experiences, I can see that many of them were waking dreams, but to me they were at the time terrible realities. The brain was in such an excited state that it knew no difference between reality and what is called hallucination. But the question occurs, Was it all hallucination? May not there be an exalted mental state where an existence is revealed of colour, form, and sound not apparent to the subject when in his normal condition? Why was everything that seemed to occur as real to me as when I was in the normal state? Are hallucinations glimpses of the actuality that lies beyond our normal senses?

Occasional Notes.

A Diploma in Mental Diseases.

The vast increase in the number of insane persons under care in institutions has correspondingly added to the ranks of the medical men engaged in their treatment, and there is every reason to expect that, as the necessity for medical skill in combating these forms of disease is more fully recognised, there will be a still greater addition to this large body,

beyond that which must accrue from the still rapidly rising numbers of the insane. The medical men in the three kingdoms and the colonies who may be classed as alienists already constitute a very considerable fraction of the profession, as important in point of numbers as that engaged in the army, navy, and public health, and therefore as worthy as they of a special training and examination. The popular idea that insanity needs only a mixture of bricks and mortar with kindness (not for its cure, but to prevent its being a nuisance) has probably obscured the recognition of the need of special training for the discharge of the very complex duties of an asylum, and for dealing with the marvellously varied forms of disease which come under the observation of the alienist.

The necessity for special training and instruction was long since recognised by the Medico-Psychological Association, which endeavoured to impress on the various examining bodies the desirability of instituting a special examination for those entering on asylum work. The habitual lethargy of these corporate bodies made this effort fail. The Association itself instituted an examination, and granted a certificate which it was hoped would pave the way for a more important examination at a later date. This certificate has not been successful in attracting candidates, and bids fair to be abolished, so that this examination, which was never regarded as anything but a stepping-stone to a more permanent arrangement, must be regarded as a failure.

The need of a special course of training and examination would appear to be obvious when it is remembered that the insane are as a rule not treated at the hospitals, and that the student's only acquaintance with mental diseases is limited to a short course of lectures and a few visits to asylums—enough to enable him to sign a certificate, but certainly insufficient to qualify him for treating the insane. Practically many men who intend to devote themselves to the treatment of insanity qualify by spending some time in asylums as resident clinical assistants, as workers in the pathological laboratories, etc., and it is to be regretted that they cannot obtain a diploma which should distinguish them from the candidates for junior asylum posts who merely wish to obtain an opportunity for preparing for their final examinations, and others who are simply waiting for professional openings or other reasons quite unconnected

with any special interest in psychiatry. Such men, who have often distinguished themselves in examinations, etc., unconnected with insanity, bar the way to others, less distinguished perhaps, who are intending to follow the treatment of the insane as a career. In this way many valuable workers are lost to the asylum service, and the junior ranks of it are occupied, not by those who are keenly interested in the opportunities offered, but by those who are simply beating time, so far as the serious study of insanity is concerned.

The need extends, however, much beyond the asylums. There is a great and growing need of medical persons, experienced in the treatment of insanity, to take charge of single cases. In the case of really experienced persons, they may, under certain circumstances, take charge of two (single) cases, in addition possibly to uncertifiable borderland cases, and thus find an occupation that enables them to employ their experience to the benefit of the community.

In the consultant branch of psychiatry such a diploma would also have a beneficial influence. It might not overcome the shyness of the public in consulting psychiatric physicians, but some at least would accept it as an evidence of the existence of a definite specialty and the more intelligent would recognise that a knowledge of the diseases and disorders, the physiology and the structure, of the spinal system does not necessarily connote a similar knowledge of the higher and more complex disorders of the brain. Moreover, with such a diploma in existence, an unskilled physician would possibly hesitate to pose as a psychiatric specialist, as he would at present decline to assume the rôle of a diplomat in hygiene.

A diploma in psychiatry would appear, therefore, to have valid reasons in favour of its establishment, and if the Medico-Psychological Association abandons its examination for the Medico-Psychological Certificate it is to be hoped that it will again approach the degree granting corporations, with a view to this object. The power and influence of the Association has greatly grown since the last effort was made, and these examining bodies are in a much less lethargic condition. Such an effort, if very vigorously made, might now have a reasonable prospect of success.

Lunacy Law Amendment.

The recent change of ministry suggests the question of the probability of lunacy legislation during the coming year, though without pretension to prophetic inspiration, it may be assumed that the likelihood of anything of the kind is not great.

Sir John Batty Tuke recently advocated the appointment of a Royal Commission on the Lunacy Laws, but in view of the Bill which the late Lord Chancellor was known to be willing to promote, it then seemed that the small amount of practical reform so near to hand was preferable to a much larger amount of legislation, in the distant future, based on the Report of a Commission.

The event has proved that Sir John was right, and that the Lunacy Law might to-day have had a much better hope of reform than it now has if his suggestion had been adopted.

The new Physician-in-chief of the Hospitals for the Insane throughout England and Wales, more commonly known as the Lord Chancellor, who is thus suddenly burthened with responsibility for the treatment of some six score thousand sick persons, will possibly require a little time to acquire information before dealing with important questions involving such a vast mass of suffering humanity. The time during which he is acquiring this knowledge might be profitably employed in the concurrent inquiries of a Royal Commission.

Medical men to the number of twenty are seeking election to the new Parliament, and if a half of these are returned our profession will be more strongly represented than in any previous Parliament.

This increased strength of medical representation in Parliament should render it comparatively easy for this specialty, by a vigorous exhibition of its influence, to obtain the appointment of such a commission.

The Lunacy Laws, as they now exist, were begotten by panic out of prejudice, and need to be replaced by a saner production. In other words, the present hotch-potch of regulations which treat, or rather maltreat, the sick insane as malefactors need to be replaced by laws which, while protecting sane persons from being treated as insane, shall recognise that the latter are persons suffering from disease, requiring the greatest possible medical care and consideration, and frequently needing the

promptest attention. The sensation novelist has ceased from raging about asylums just now. While this pest of society is busy with anti-vivisection and anti-vaccination the law could quite safely do something for the unfortunate insane.

Part II.—Reviews.

The Fifty-eighth Report of the English Commissioners in Lunacy, June, 1905.

Among the more important topics dealt with in this Report, perhaps none is of more practical interest than the Commissioners' remarks upon the *transference of aged insane paupers from workhouses to asylums*. A perusal of the annual Reports of asylum medical superintendents will show that for several years this question has been regarded as a pressing grievance and as tending to usurp the proper functions of an asylum. The Commissioners have felt it desirable to obtain definite information upon the subject, and procured returns of all persons *æt.* 70 and upwards who were admitted during the years 1903 and 1904 into the county and borough asylums direct from workhouses. They point out that their inquiry was limited to the pauper insane in workhouses, and did not deal with those removed to asylums direct from their homes, who number approximately twice as many as the former in the age-periods here dealt with. The request for these returns were coupled with an invitation to the superintendents to indicate those who in their opinion could have been suitably cared for in the workhouse. It is stated that definite replies were received from the majority of the superintendents. On reading through some of the replies quoted, a considerable amount of caution is observed to permeate them. The Board fully recognise how troublesome and necessitous many of these senile cases are. But they, nevertheless, as the outcome of their inquiry, are of opinion that in many instances the "transference has not been effected with due discrimination, and has operated prejudicially to the subject of it who has been removed from the environment to which he (or she) has been accustomed." They are further of opinion that "it is incumbent on the Guardians, especially of the more populous Unions, to provide special care and accommodation in their workhouses for inmates whose mental derangement is mainly due to the advance of years, so as to obviate the necessity for sending away from their accustomed abode those amenable to slight control." They add that they urge this mainly in the interests of the patients themselves, but are not unmindful of the fact that if such provision were made it would operate to the advantage of asylums, which yearly show an increasing proportion of aged inmates.

An important pronouncement is made again this year upon the *ratio of increase of insanity* and is referred to in detail below under Statistics.

COUNTY AND BOROUGH ASYLUMS.

The Board was able to state that, with few exceptions, they had reason to be satisfied with the management of these institutions and the condition in which they found them.

By the partial opening of the new Storthes Hall Asylum for the West Riding their number became raised to eighty-eight. They contained on January 1st, 1905, 87,091 patients (40,155 male and 46,936 female). Of the total of 23,208 (11,346 male and 11,862 female) patients admitted into them during 1904, 14·5 *per cent.* were transfers.

Of the deaths, twenty-two were due to suicide. In six instances the patient was absent from the asylum on leave, trial, or parole, and in five the act was committed before admission.

In reference to the frauds discovered at the Horton Asylum, which have already been reported in this Journal, the Board express their full approval of the most important of the recommendations of the Special Committee appointed to inquire into the matter. This refers to the appointment of an independent accountant, whose duties should cover a much wider scope than those of the Local Government Board Auditor.

Among the details concerning suicides and other fatal casualties a lengthy reference is made to the lamentable deaths by misadventure of four female patients at the Portsmouth Asylum, following an overdose of chloral, due to an error in dispensing. With reference to the future dispensing of draughts and the custody of poisons, the six recommendations of the Commissioners who held an inquiry into the circumstances are quoted.

The average weekly cost of maintenance was: For county asylums, 10s. 1 $\frac{3}{4}$ d.; for borough asylums, 11s. 3 $\frac{5}{8}$ d.; or in both taken together, 10s. 5d. Compared with the average weekly cost of the previous financial year, that in county asylums has risen by 1 $\frac{1}{2}$ d., that in borough asylums by as much as 7d., or in both taken together, by 3d. The majority of items of expenditure show some increase, but "salaries and wages" and "necessaries" are the ones mainly concerned.

Temporary buildings still remained in occupation at the Durham, Essex, Glamorgan, Nottingham City, and three of the London County Asylums.

New asylums are in course of erection, sanctioned or approved, for the counties of Essex, Leicestershire with Rutland, London, Middlesex (since opened), and Surrey.

Deficiency of asylum accommodation is mentioned as existing in the counties of Durham, Glamorgan, Lancashire, London, and Shropshire, and in the county borough of Devonport and Swansea.

Zymotic diseases.—There was no marked example of the introduction of infectious disease into asylums, and it was not felt necessary to enter into details concerning them, except in regard to dysentery.

Dysentery showed a gratifying diminution in the number of its cases, as also did "epidemic diarrhoea." In 1903 the registered cases of dysentery were in the proportion of 14·7 per 1000 inmates, and the deaths from this cause amounted to 3·4 *per cent.* of the total mortality.

In 1904 the corresponding figures were 11·8 per 1000 and 2·9 *per cent.* When a similar comparison is made between the two years, separating the asylums into three groups according to their size, a noteworthy falling off of cases of the disease in the larger asylums, where it most prevails, is observed. In their summary of the etiological considerations of the disease, the Commissioners say that, as met with in asylums, there can be no doubt as to its infectivity, but that the degree of the latter is not established, and that there must be conditions which render it at times more infective than at others. In reference to its determining causes, the opinion of three superintendents is quoted, who hold the view that habitual constipation is a powerful predisponent in "asylum dysentery." Of the total number of asylums dysentery occurred in 69·3 *per cent.* A useful measure of its potential prevalence would be a statement of how many *per cent.*, of the total number of patients under treatment during the year, appear on the register as having had at some time or other an attack of dysentery or epidemic diarrhoea. The inception of the register is probably too recent to admit with advantage of such a return.

Tuberculosis.—There were 17·5 deaths from tuberculous disease in every 100 deaths. We would again urge the value that would accrue from the establishment of a register of the incidence of tuberculosis in asylums, analagous to that adopted by the Commissioners for dysentery and diarrhoea.

STATISTICS.

The number of persons in England and Wales known to the Commissioners to be under care as duly certified insane on January 1st, 1905, was 119,829. This was 2630 in excess of the number for the previous year. The increase was satisfactory in that it exceeded the average annual increase in the ten years ending December 31st, 1904, by only 55, and was less than that in the five years ending the same date by 14.

The distribution of insane patients shows that the above increase is again mainly to be found in the county and borough asylums.

Classification of insane patients.—Allusion is made to a difference in practice, among the asylums, as to classification between private and pauper cases. It is laid down that, strictly speaking, whenever the whole cost of maintenance is refunded to the Guardians by relatives or friends the patient should be classed as private. But some asylums, in order to include the interest in the original cost and upkeep of the building, fix the minimum charge for a private patient at a higher rate than the bare cost of maintenance. We drew attention to this point in our review of their Report of June, 1902. It is instructive, the Commissioners say, to find that the increase in the total number of private patients is entirely due to the growing numbers of those who, admitted as paupers, are transferred to the private class. Later on in their Report a further reference is made to this point, and it is shown that, if no transference had taken place between those admitted as paupers and those admitted as private patients, there would have been 421 fewer private patients at the close than there were at the commence-

ment of the year 1904. A reason, other than that of *rate of admission*, why private patients have not increased in like manner to the pauper insane is mentioned, namely the much higher proportion of those *discharged* annually from the private class. Thus, taking a decade's figures, amongst pauper patients the total discharge rate was *44·5 per cent.* (36·5 recovered and 8·0 not recovered), while amongst the private patients, in the same period, the discharges amounted to *78·1 per cent.* (34·9 recovered and 34·2 not recovered). The wide difference between the two percentages belonging to the not-recovered discharges is probably explained by the number of harmless feeble-minded private cases discharged, who, if paupers, would be unable to obtain their living, and would, therefore, require to be retained in the asylum under control. The pauper patients now number *91·1 per cent.* of all the certified insane. As regards the distribution of pauper cases, an interesting comparison is made between England (with Wales) and Scotland and has been set forth in the subjoined table :

England and Wales, January 1st, 1905.	Scotland, January 1st, 1904.
<i>Per cent.</i>	<i>Per cent.</i>
In asylums, hospitals, and licensed houses 78·62	In asylums 69·29
In workhouses (including the Metropolitan District asylums) 16·29	In poor-houses 11·80
With relatives and others 5·09	In private dwellings 18·90

Distribution of pauper insane in counties and boroughs.—In this relation two most instructive maps of England and Wales are supplied and contrasted, one showing the comparative density of population of the administrative counties including their contained boroughs (from the census of 1901) and the other, reprinted from the Commissioners' 57th Report, showing the comparative distribution of the pauper insane. It is stated that, as may be seen from these maps, there is no apparent relationship between the density of the population and the ratio of insane; four of the least densely peopled counties are instanced as examples of the highest insane ratio. But while in no way undervaluing the importance and interest attaching to such a comparison, we would venture to urge that such an inquiry is beset with difficulty, and that certain disturbing factors present themselves. Thus, it has been recognised that there is, especially among the more vigorous of the population, an increasing migration from rural to urban districts, resulting in a lowering of the intellectual level of the rural population. In one of the many counties instanced this migration has been into towns not within that county, but belonging to neighbouring counties, to the inevitable ultimate detriment of its rural inhabitants. There is no doubt as to the value of such a comparison; but we should like to see it carried a stage further and a similar one made between the various counties, deducting first the population of all their towns possessing a population above the fixed minimum, and then a comparison made between towns of corre-

sponding populations. To free these comparisons from another possible fallacy, they should be made in corresponding age periods.

The ratio of the insane to the population was, on January 1st, 1905, 1 to 285; in other words, the ratio of the insane for 10,000 of the population was 35.09, showing an increase of 1.09 per cent. on the corresponding ratio for the previous year. Charts are appended which again show clearly that, whereas in the pauper class the proportion of insane to population has grown almost *pari passu* with the increase of total insanity in the population, there is no such parallelism in regard to private patients.

Ratio of admissions to population.—Excluding idiot establishments, 22,142 (2455 private, 19,450 pauper, and 237 criminal) patients were admitted during 1904 into single care and institutions for the insane. Of these 82.3 per cent. were *first* admissions. The total admissions represent a ratio of 6.56 per 10,000 of the population, and the *first* admissions a ratio of 5.40.

Comparison of 1904 ratios with those of 1869 shows that, in spite of the large numerical increase, "it will be found that when considered in relation to the growth of population the proportion of insane has *not* increased as much as the population." In their previous Report the Commissioners supplied a masterly analysis of figures dealing with this subject, taking as a basis the Census returns for 1891 and 1901 and dividing the persons considered into those *æt.* 20 to 54 and those *æt.* 55 and upwards. The deduction then made was that . . . "if comparison with the actual rate of increase of the population in the ten years be permissible, the rate of increase of the ratio of the insane to population is seen to be *below* the foregoing rate in the younger group, but *above* it in the older. It may therefore be inferred that the growth of insanity amongst those of the community upon whom its burden would most be felt is really lower than the rate of growth in population at the same period of life, and that it is only when that term is past that a rate of increase in excess of that of the population is to be found." The extreme importance of such a statement justifies its repetition.

The annual movement of asylum population.—The Commissioners have in this Report utilised the material in their possession, which has accumulated from the statutory continuation of reception orders, to furnish some very interesting figures. They find that for every 100 patients admitted in any given year not more than 48 will remain after one year, 37 after two years, 28 after four years, 21 after seven, and 15 after twelve years. They state that it is not possible to give the actual numbers of those who were discharged recovered or of those who died. We would venture to suggest the value of somewhat analogous figures in reference to cases discharged recovered whereby it would be possible to learn, from an authoritative analysis of a large number of cases, how many of 100 recoveries took place within 3, 6, 9, 12, 18 months, and 2 years of certification.

The recovery rate in proportion to the admissions (exclusive of transfers and statutory re-admissions) in 1904 was 36.67, which was below that of the preceding year and the average rate for the decade 1895-1904. It was higher amongst females (40.15) than amongst males (33.02). In 1885 it was as high as 41.99, and as low as 36.13 in 1902.

We have on previous occasions expressed an absence of feeling of surprise at such fluctuations, having in view the many fallacies attached to the accepted method of endeavouring to express recoverability.

The death rate, reckoned upon the average daily number resident, was 9.95 *per cent.*, being lower than that for the preceding year, but slightly above the average rate for the decade. A most valuable and instructive table is supplied which permits of the contrast between the insane and general death rates at different age-periods. It is somewhat startling to find that, while there is a slight gradual approximation as age advances, yet even where they are nearest the former is nearly twice as much as the latter, and from twenty to twenty-four the insane death-rate for each sex is nearly twenty times that of the general death-rate. Such figures, besides emphasising the physical basis of mental disease, are of vital importance to those interested in life assurance problems. This question has been at times raised with some urgency, and for its satisfactory answer we believe that to these very valuable figures the addition of certain others are necessary. It is well known that, of those dying insane, an appreciable number have been the subjects of mental disease for very lengthy periods, and might have been accepted as "first-class lives." It seems to us that each set of cases shown in the table as dying at certain age-periods should be capable of being further analysed to show, in a few broad age-periods, the age at which the insanity first appeared in them and the form of such insanity. These two additional data could be incorporated with ease in the statutory "statement of death."

Causes of insanity.—The difficulty of their determination is again alluded to, and caution enjoined as to the use which can be safely made of the figures given in the table. Special attention is directed in this Report to *alcoholic intemperance* as a cause, and a map is supplied illustrating the comparative prevalence of cases associated with this factor in the different counties of England and Wales. There is a marked contrast between it and the map showing the relative distribution of insanity in the counties. Another map is appended, from a comparison with which it is interesting to observe that the counties where the proportion of cases associated with alcoholic excess was large are mainly those in which, from the criminal statistics, crimes associated with drunkenness prevail. If the data are obtainable, we would suggest the addition of another map to show the comparative consumption of alcoholic liquors in the various counties.

The Report concludes with a sympathetic reference to the loss to the Board by death in August, 1904, of Mr. Frederick Andrew Inderwick, K.C., who had been a member since January, 1903. The vacancy thus created was filled by the appointment of Mr. Lionel Lancelot Shadwell.

Forty-seventh Annual Report of the General Board of Commissioners on Lunacy for Scotland, 1905.

THE Scottish Commissioners report a slight increase of 347 insane persons under official cognisance—the numbers having risen from 16,894 to 17,241 during 1904. There has been some alteration in the

main classification of patients owing to the opening of new asylums at Aberdeen and Edinburgh, so that the figures stood as follows on January 1st, 1905:—In Royal asylums an increase of 67 private patients and a decrease of 218 pauper patients; in district asylums a decrease of 37 private patients and an increase of 707 pauper patients; in private asylums a decrease of 2; in parochial asylums an increase of 12; in poorhouses a decrease of 205; in private dwellings a decrease of 2 private patients and an increase of 46 pauper patients. The Commissioners note that the average increase during the preceding five years was 261, so that the increase of 296 during the year 1904 has been somewhat above the average of the quinquenniad.

It is to be noted that the county of Lanark contributes 182, or over 60 *per cent.* of the whole increase of pauper patients in establishments; while Edinburgh comes next with 62, and Aberdeen with 57. Owing to the boarding-out of suitable cases in Dundee, Forfarshire shows a diminution of 63. Twelve counties record a stationary or diminishing number, while twenty-one show a slight increase—in addition to those above mentioned.

It does not appear that the foregoing figures are greatly affected by changes from pauper to private class, and *vice versa*.

The number of private patients admitted during last year was 563, being 91 less than in the preceding year, and 6 less than the average for the quinquenniad 1900–4; the number of pauper patients admitted was 3091, being 118 more than the number during the preceding year, and 83 more than the average for the same quinquenniad. The transfers are, of course, deducted in arriving at the statement first quoted; but information as to this class is complicated by the new asylums opened. It appears that 72 private patients and 871 pauper patients were transferred—220 by authority of Sheriffs and 723 by authority of the Board of Lunacy.

Voluntary patients show a more marked decrease than private certificated patients. There were only 66 admitted during 1904 as compared with 81, the average of the preceding ten years.

The Board of Lunacy exclude transfers from the number of those discharged, on the same principle as they deduct the transfers from the ordinary admissions.

The recoveries were fewer in number in both private and pauper classes, as, indeed, might be expected in view of the exceptional transactions of the year. Private patients recovered were 8 fewer, and pauper patients recovered were 18 fewer than the average of the latest quinquenniad.

On the other hand those discharged unrecovered, excluding transfers, numbered 4 above the average, and pauper patients 57 above the average of the same quinquenniad.

The death-rate shows a decrease as indicated by the following table:

	1900.	1901.	1902.	1903.	1904.
Private patients . . .	8·2	8·0	8·5	7·3	7·3
Pauper patients . . .	9·2	8·5	9·2	9·9	9·0
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Both . . .	9·0	8·4	9·1	9·5	8·8

The changes in the numbers of attendants and servants fortunately indicated some diminution, but it would be of interest to discriminate between the nursing staffs and the domestics and others. The general unrest amongst domestic servants is quite as marked in private houses as in establishments, and while continuity of service is desirable in kitchens and laundries, it is of more importance to ascertain the changes amongst those who are responsible for the direct care of patients. It is evident that much has been done in Scotland to promote the comfort of attendants—houses for married men are increasing in number year by year and nurses' homes are attached to many institutions. On the other hand, men are attracted from asylums to the prison service owing to the better conditions of housing, and the certainty of pensions in old age. The district asylums of Scotland are still denied the reasonable provision of pensions, and even the Royal Asylums have no absolute security. The female attendants are often required in marriage, and both men and women are frequently desirous of undertaking private nursing on the completion of their training in asylums. There are justifiable as well as unjustifiable reasons for resignation, and the Commissioners enter into a short discussion of the conditions, which would be more valuable if embodied in a special return.

The number of escapes was lower than the average shown during the last ten years. The number of fatal accidents was 14, eleven having been apparently due to suicidal impulse.

An interesting table of the progressive history of patients first admitted into asylums in 1898 is submitted.

Year.	New cases admitted.	Re-admissions.	Recovered.	Un-recovered.	Died.	Remaining at 31st Dec.
1898	2539	77	678	135	247	1556
1899	—	132	390	123	160	1015
1900	—	111	93	45	113	875
1901	—	81	51	30	56	819
1902	—	56	52	24	53	746
1903	—	55	43	22	41	695
1904	—	45	29	17	35	659

This shows that at the close of the second year 209 readmissions had occurred, and that at the close of the seventh year the readmissions numbered 557. These figures, with the remarks of the Commissioners, command most careful scrutiny if we are to regard as the important point the life history of each individual patient.

The various institutions under the inspection of the Board are generally commented upon favourably, and there is evidence that a progressive scientific spirit largely animates the direction of these establishments.

The number of insane persons in private dwellings with the sanction of the Board showed an increase during 1904. As compared with the previous year, the pauper patients thus provided for attained the maximum of 2704, being an increase of 46. The table dealing with this matter begins with 1516 patients in 1881, rising to 2700 in 1896, and fluctuating since then to the maximum number; but the proportion of patients in private dwellings has decreased relatively to the total number of the insane and the general population. The usual reports in reference to this class of the insane continue favourable.

Dr. Charles Macpherson has investigated the condition of South Uist and Barra as compared with North Uist. He concludes that the difference is real, and states facts of great value. A careful compilation of observations on heredity is given in the appendix, which should be studied by those interested in these important researches.

Dr. Macpherson says :—"Expressed in proportion of pauper lunatics per 10,000 of population, these tables show :

For North Uist	77	per 10,000.
„ South Uist	47	„
„ Barra	31'4	„

This shows North Uist high above the highest county in Scotland, South Uist as equal to the seventh highest, and Barra as nearly as possible the mean for Scotland." Apart from hereditary taint and bad selection in marriage, the points of similarity are exhausted. The only marked difference is in religion, and Dr. Macpherson refrains from a discussion relative to that.

The Commissioners enter into a consideration of the cost of district asylums at some length, and it would appear that at May, 1904, the pauper patients in these institutions were maintained at a cost of £19 7s. 9d. as rental per bed, the total cost being £46 11s. 2d. per patient. If asylums be grouped with institutions for imbecile children the maintenance expenditure per patient at May, 1904, was £27 11s., for poorhouses £19 18s. 7d., for private dwellings £18 os. 3d., being an average of £25 18s. 3d. It is notable that the gross expenditure fell gradually until 1894, and thereafter rose almost steadily. While "food" has decreased, "salaries and wages" have increased. This must be regarded as a satisfactory cause of increase, for the nursing arrangements of modern asylums are greatly in advance of what was thought sufficient twenty-one years ago.

The Commissioners give a retrospect of the statistics of lunacy in Scotland from 1858 till 1905, and the usual quinquennial retrospect ending with the year 1904. We may reproduce the conclusions of this lengthy study.

There has been, in the period of twenty-five years, a large increase in the population of establishments, both absolutely and in proportion to population, small as regards private patients in proportion to population, but large, general, and progressive as regards pauper patients, especially during the past ten years. The admissions to asylums of private patients in proportion to population show no increase during the past thirty years, while pauper patients show a considerable increase, general and progressive. The increase in proportion to population of pauper patients admitted during the last quinquenniad is small and confined to certain counties, most parts showing a fall as compared with the previous quinquenniad. The rise in the number resident in the last quinquenniad, notwithstanding an admission rate which has in many cases decreased, and which in no case accounts for the extent of the increase in the numbers resident, is due to a fall in the rate of discharge which has been continuous in all parts of the country during the past three quinquenniards, and is specially marked in the five years just ended. This fall is apparently due to various causes, and demands inquiry and action when these causes are within control. The death-

rate of pauper patients in asylums has generally increased throughout the last fifteen years amongst the more densely-populated parts of the country. The number of pauper patients admitted to the register for the first time has undergone no increase during the past five years.

We may gather, therefore, that, in view of the reports of the Scottish Commissioners for the past two years, there are indications of a more favourable nature than we have been accustomed to for a very considerable period in the history of the country.

Recherches Cliniques et Thérapeutiques sur l'Épilepsie, l'Hystérie, et l'Idiotie (Compte rendu du Service de Bicêtre pendant l'Année 1902).

Par BOURNEVILLE, avec la collaboration de MM. Ambard, Berthoud, Blumenfeld (M.), Boyce (J.), Crouzon, Lemaire, Morel (L.), Oberthur, Paul-Boncour, Philippe, et Poulard. [*Clinical and Therapeutical Researches on Epilepsy, Hysteria, and Idiocy.* By BOURNEVILLE and others.] Vol. xxiii. Paris: Aux Bureaux du Progrès Médical, and FELIX ALCAN. Pp. cxx and 304, 38 figures and 10 plates, large 8vo. Price 7 francs.

This volume contains, as usual, the Annual Report of the Fourth (or Children's) Section of the Division for Insane at the Bicêtre, and of the Fondation Vallée, followed by over three hundred pages of clinical, therapeutic, and pathological observations by Dr. Bourneville and his colleagues.

At the Bicêtre there were in 1902, 438 idiotic, imbecile, and epileptic males, and at the Fondation Vallée 216 idiotic, imbecile, epileptic, and hysterical girls. At the former establishment 17 deaths occurred during the year, at the latter 12. New admissions numbered 90 and 47 respectively. It would appear, therefore, that the mortality at the Fondation Vallée was considerably higher than at the Bicêtre itself; 5 of the males and 6 of the girls are recorded to have died of tuberculous disease. Some interesting particulars are given of methods of instruction pursued. Recognition of the printed names of common objects is cultivated by placing upon the dinner-table, adjacent to the articles themselves, cards bearing in large characters the equivalents of *knife, fork, glass*, etc., and a similar plan is followed with regard to *brush* and *comb* and the necessaries of the toilet. Dr. Bourneville rightly insists upon the importance of manual occupations—of whatever kind—to insure the peacefulness as well as usefulness of feeble-minded patients, and complains of restrictions imposed by the administration as regards their employment in little domestic jobs. He lays stress upon the moral influence of labour as an adjunct to school exercises and medical treatment, urging that it is not so much the value of the *products* of industry that should be considered as the beneficial habits of industry inculcated. Referring to the evils of lack of occupation, he traces to this source in many cases the tendency to onanism which he impresses sedulously upon the attendants the necessity of watching for and suppressing.

Dr. Bourneville gives some interesting observations bearing upon the frequent prevalence in institutions like the Bicêtre of ophthalmic affec-

tions. Out of 90 children taken at random in the wards, reputed free from conjunctivitis, he found that in no less than 50 there was evidence of the existence of the diplobacillus of Morax in the conjunctival membrane. This form of contagious eye trouble often escapes the notice of attendants and nurses, whereas the acute form of conjunctivitis (with the "Weeks'" bacillus) is more obvious and more easily dealt with.

The clinical and pathological portion of the volume is replete with interesting observations both of symptoms seen during life and of *post-mortem* appearances. A case of Mongolian idiocy, in which the cause of death was tubercular disease, is described at length. The autopsy showed a brain with few secondary convolutions and a fair-sized thyroid. Full-page illustrations of this brain are given in the valuable collection of plates which close the volume. Several histories of "myxœdematous imbeciles" (sporadic cretins) subjected to thyroid medication are minutely recorded; and in one fatal case a most complete autopsy was effected including the examination of the skeleton, which is well shown in two illustrations. Two brothers who suffered during life from spastic infantile diplegia and idiocy (*affection familiale* as Bourneville designates it) were both found after death to present symptoms of cerebellar atrophy with degeneration of the pyramidal fibres.

As usual, this year-book is a veritable mine of neuro-pathology, and will repay careful perusal.

G. E. S.

Recherches Cliniques et Thérapeutiques sur l'Épilepsie, l'Hystérie, et l'Idiotie, etc., 1903. Vol. xxiv. Par BOURNEVILLE, etc. Paris: Aux Bureaux au Progrès Médical, 14, Rue des Carmes, and Felix Alcan. clxxiv + 346 pages, 72 figures, and 17 plates. Price 7 francs.

This volume keeps up the reputation of its predecessors as a serviceable compendium, not merely of the history for the year 1903 of the Children's Department at the Bicêtre, but of various pathological investigations undertaken by the staff. Commencing with a chapter devoted to methods of training, in which some ingenious devices for teaching children to walk are pictured and physical exercises are described, we learn that Dr. Bourneville has made extensive trials of thyroid medication in cases of sporadic cretinism, mongolism, dwarfism, and obesity. For epilepsy he has tried injections of bromo-hydrate of hyoscine and treatment by cerebrine and calcium chloride (injections of which have proved useful, though inert when given by the mouth). A shapely, strong garment for destructive patients is illustrated. In the section devoted to technical instruction we are told that 159 workers at various handicrafts have produced work valued at 30,000 francs, half of which, Dr. Bourneville urges, should be devoted to improvements in the methods and material used in industrial training.

A weekly consultation is held by Dr. Bourneville at the Bicêtre available for advice on the placing out of backward and epileptic children, and also as to the medico-pedagogic treatment of nervous and backward children at their own homes. No less than 711 persons

availed themselves of these consultations during 1903. Interesting information is given by Dr. Poulard on ophthalmic troubles prevalent amongst the children, which he divides into (1) chronic conjunctivitis (with diplo-bacillus); (2) acute contagious conjunctivitis (with Weeks' bacillus); (3) granular conjunctivitis. The first form is common, though apt to be overlooked; the second was diagnosed in 83 cases; whilst 3 only of the third form were brought under medical notice. Vigilance on the part of the nurse, with observance of minute precautionary measures, was found here, as elsewhere, the only means of staying this very troublesome affection.

It would seem that 428 cases were under care and treatment at the Bicêtre at the end of 1903, of whom 63 are described as "pathological liars," and no less than 177 as onanists; 24 patients died during the year, and 93 were discharged from the "section"; 9 deaths were attributed to tubercle, mostly pulmonary, besides 7 who had other pulmonary diseases. We see no mention of open-air treatment having been tried in any of the tuberculous cases.

At the Fondation Vallée there were resident at the end of 1903, 236 girls, classified as epileptics, hysterics, and idiots or imbeciles; 6 deaths occurred and 20 were discharged. It would seem that tuberculous disease was almost twice as common among the girls as among the boys.

A valuable chapter is devoted to the teaching of speech to idiots and backward children, the exercises being described in full.

In the pathological portion we find the various forms of dwarfism discussed, and good results of thyroid medication are recorded in several cases, which are described in minute detail. An interesting account of the histological condition of the brain, etc., of a Mongolian imbecile is contributed by Dr. Oberthur, and the brain is pictured, showing very coarse and simple convolutions. Other chapters contain notes on autopsies in cases of infantile hemiplegia, of hydrocephalus with pseudo-porencephaly, and of epilepsy. There are numerous illustrations, including seventeen large-sized plates of abnormal brains.

G. E. S.

The Life of Sir Henry Vane, the Younger. By WILLIAM W. IRELAND.
London: Eveleigh Nash, 1905. 8vo., 513 pp.

Biography should theoretically be the particular domain of the psychologist. In practice this is rarely the case, and a work, therefore, by such a well-known psychologist as Dr. Ireland is of especial interest.

The life of Sir Henry Vane has the double interest of being associated with the foundation of the American Republic and of having been connected with the English Commonwealth period from beginning to end.

Dr. Ireland has well brought out the important part played in those historic events by Sir Henry Vane, and has given forcible character sketches not only of his protégé, but also of many of the leading actors, of this historic period.

Sir Henry Vane, *pace* Dr. Ireland, played very much more important

parts, in naval administration amongst others, than he has been generally credited with. Cromwell's achievements, on the contrary, have been greatly exaggerated, according to the author.

This diversity of view adds interest to a book that is thoroughly attractive from its clear and concise account of the events of this period, as well as for the clever psychologic sketches of the leading actors. We can confidently recommend it as worthy of attentive reading, and of a prominent place on the historic bookshelf. The pleasure of reading is enhanced by the excellence of the type.

Part III.—Epitome of Current Literature.

1. Physiological Psychology.

The Psychology of Dreams. (*Amer. Journ. Psychol.*, Jan., 1905.)
Jewell, J. R.

This study is founded on a *questionnaire* sent out chiefly to Normal schools; more than 2000 dreams were received from some 800 people. The author believes that his results are based on a larger mass of data than any previous study of dreams. Puberty is found to work a considerable change in dreaming; before that epoch the events of daily life tend to be immediately reflected in dreams; afterwards the interval becomes much longer. Over 90 *per cent.* individuals have at some time walked or talked in their sleep, and 15 *per cent.* (all young women) frequently laugh or cry. Motor activity during sleep is, however, distinctively a childish characteristic, though it frequently persists into later life. Suggestion is very often efficacious in preventing undesired dreams. The confusion of dreams with real life is almost universal in childhood, and not uncommon in late life. So-called premonitory dreams are usually susceptible of a rational explanation. The influence of dreams upon real life is vastly greater than is usually supposed. Every mode in which the mind functions in the waking state may also occur in the sleeping state. The above and other conclusions are discussed and illustrated.

HAVELOCK ELLIS.

Nyctophobia [*La Nyctophobie chez les Enfants*]. (*Arch. de Psychol.*, Feb.—March, 1905.) Sanet, R.

The author of this paper, who is a professor in the Normal School of Dolores in the Argentine Republic, has studied "night terrors" in 519 children. Between the ages of 7 and 9, all children, boys and girls, were found to be afraid of night or of the dark; even the most courageous children were thus affected. The percentage of children with nyctophobia gradually diminishes after this age. For the whole school period (ages of 7 to 14) 140 out of 160 boys, and 340 out of 359 girls, experienced nyctophobia, sometimes associated with various other nocturnal phobias, but very rarely with any of a diurnal character. Sanet recognises a *crescendo* of phenomena in a child who is liable to the fear

of darkness : (1) A sensation of depression ; (2) increased auditory acuteness and generalised hyperæsthesia ; (3) endoptic phenomena externally projected ; (4) true hallucinations ; (5) terror. He considers that nyctophobia is a phenomenon of intellectual rather than of emotional origin, and therefore secondary to some other fear, such as of robbers. He makes no reference to the plausible atavistic theory of Stanley Hall, who had previously discussed this fear.

HAVELOCK ELLIS.

The Pathology of the Smile [*Pathologie du Sourire*]. (Rev. *Phil.*, June, 1905.) Dumas, G.

In a previous study of the smile, based on analysis and experiment, Dumas has shown that it is susceptible of a purely mechanical explanation, as the necessary result of slight excitation of the facial nerve. He now proceeds to apply this explanation to morbid conditions. All morbid conditions which diminish or suppress the tonus of the facial muscles should, if this explanation is sound, abolish the smile and produce the opposite expression of depression, while morbid causes which increase the tonus of the facial muscles should increase the smile. Dumas proceeds to show that this is actually the case. Thus in passive melancholia, the muscular tonus is diminished throughout the whole body, the arms fall, the head and knees are bent, the thighs are flaccid, and in the face this hypotonus, acting on the zygomatics and the elevator of the lips, relaxes the muscles that cause the smile and produces an expression of dejection. So in facial paralysis, wherever the seat of the lesion may be. In maniacal excitement, on the other hand, there is hypertonus of the whole body. Arms and legs and thighs are firm and elastic, and in harmony with this general muscular contraction the facial muscles assume a smile even apart from associated sensations of an agreeable character. It is the same also in the hypertonus of the expansive forms of general paralysis. The hysterical hemispasm is explained in the same way, hysteria producing without anatomical lesion the same smile as hemiplegia with descending pyramidal degeneration. It is essential, for the production of the smile, that the spasm should be slight, more pronounced excitation of the facial nerve producing a grimace. The smile is thus defined as "the easiest motor reaction of the facial muscles to every slight stimulation of the facial nerve, whether that stimulation is sensory, electric, circulatory, traumatic, or inflammatory." Such an explanation, Dumas believes, renders unnecessary the "extravagant theories" of Darwin and Wundt. The article is well illustrated.

HAVELOCK ELLIS.

A Biological Theory of Sleep [*Esquisse d'une Théorie Biologique du Sommeil*]. (*Arch. de Psychol.*, Feb.-March, 1905.) Claparède, Ed.

The chief current theories of sleep are the circulatory, the neurodynamic, the bio-chemical, and the toxic, with Dubois's recent theory of carbonic auto-narcosis. Claparède criticises these explanations, and then sets forth a biological theory of his own. Sleep, he argues, is not, as the current theories presuppose, a merely negative and passive state. It must, on the contrary, be considered as active and positive, as a function. Cabanis, Myers, De Sanctis, and others have already so

regarded sleep, but they have not put forward any satisfactory theory on that basis. This Claparède attempts to do. He regards sleep, not as the result of exhaustion (which is more likely to prevent sleep), but as a method of preventing exhaustion. He draws an elaborate parallel between the act of sleep and that of micturition, which also is not a passive result of distension but an active manifestation. Sleep, thus considered, is an act of reflex order, an instinct. Physiologically, the author regards the mechanism of sleep as a process of active inhibition, resulting from a stimulation; he also recognises a specific reparatory action (beyond mere repose) in sleep. A discussion on sleep in relation to hysteria follows, and the views of Janet and more especially those of Sollin are acutely criticised. The whole argument of this lengthy study is conducted in the clear and orderly manner, with full knowledge of the existing literature, to which the author has accustomed us in his previous works, notably that on "association." HAVELOCK ELLIS.

A Case of Vision acquired in Adult Life. (Psychol. Rev. Monograph Supplement, University of Iowa Studies in Psychology, 1905, No. 5.)
Miner, J. B.

Observations on the first visual experiences of persons who obtain their sight at an adult age are not very uncommon, but the author believes that this is the first case of the kind in which the modern laboratory equipment has been used to investigate systematically and quantitatively the new visual sense and the learning process. The patient, a young woman, æt. 22, when operated upon, had complete cataract of both eyes from birth, with only the very dim vision usual in such cases. She came under observation some months later, when still very ignorant of common visual processes, though having unusual natural ability, an excellent High School training, and very keen powers of introspection. The eyes had fully recovered from the operation, so that she could carry out extended tests without fatigue, and she was able to read print with some facility, though unable to recognise persons by sight.

In testing the other senses it was found that, as regards hearing, she had a very wide range of tone sensations, but no unusually keen tone discrimination. In localising sounds the most noticeable point was the tendency to move the head. With the æsthesiometer passive touch showed no peculiar sensitivity, but action touch was found to be very acute. Both hearing and touch seem thus to have been improved by training. Her vision, considering that she has no lenses in her eyes, may now be regarded as excellent; her reading glasses have lenses of + 13 dioptries, and with these she can read even very small type when held close to the eyes. In colour vision the subject is decidedly above the average; she can detect colour solutions which were perfectly transparent to the workers in the laboratory, and in the spectrum she can apparently see ultra-violet, which is beyond the usual field of view. With the Lovibond tintometer her colour vision was also found decidedly superior to the normal. It is suggested that the absence of the lens may possibly give a clearer colour vision, or that the powers of the retina may have been preserved or heightened, rather than deteriorated, by disuse. Another remarkable fact is that, reversing the usual

illusion of irradiation, black objects are seen as larger than white objects of the same size. The author believes that this anomaly is of central origin, and suggests that it might be of interest to measure the illusion in persons suffering from melancholia, by whom darker colours are said to be preferred. The subject reacted normally to most visual illusions. Many other interesting observations are brought forward, and the author proposes to publish a more elaborate record of his experiments.

HAVELOCK ELLIS.

Confabulation [Zur Psychologie der Confabulation]. (Neurolog. Ctbl., June 1st, 1905.) Pick, A.

Professor Pick, who has already dealt with various allied conditions of morbid mentality, here discusses a condition which he defines as "the filling out of lacunæ in the memory by falsifications of recollection," and proposes to term "confabulation." He attempts to investigate the psychological foundation of this phenomenon, pointing out its importance, especially for criminal psychology.

Memory defect in hysteria, traumatic amnesia, and allied conditions does not necessarily involve confabulation; and Wernicke, who first gave special attention to the condition, is inclined to connect it with the dream-life, but Pick objects to this that confabulation can usually be voluntarily turned in a desired direction; he agrees with Bonhoeffer that the patient, having discovered a lacuna in memory, is seeking voluntarily to conceal it. Suggestibility also plays a part. The patient is, further, led to confabulation by the need of filling a defect in the localisation of his memories, normal memories requiring to take their part in a panorama of impressions. This is an unconscious need.

HAVELOCK ELLIS.

The Intelligence of the Sparrow. (Amer. Journ. of Psychology, July, 1904.) Porter, J.

Mr. James Porter, in a paper of thirty-three pages, details experiments which have been applied in the Psychological Laboratory of the Indiana University to test the intelligence of this cosmopolitan little bird, which he always calls the English sparrow. Forty years ago it was introduced into North America, where it has multiplied greatly and spread into the Western territories, much to the grief of the farmers. Passing over what has been done in the study of the brain of the sparrow, Mr. Porter gives us a study of its psychology. His methods of experimentation are described in detail. These treat mainly of the intelligence of sparrows kept in captivity in obtaining food under various conditions. In time they learned to raise the latch of a food-box, to recognise the forms of vessels, and to get in or out of passages. Attempts were made to test their sense of colour and their estimation of groups and quantities. Across the Atlantic, the sparrow sustained its character for shrewdness and readiness. It was found quite as intelligent as monkeys, if its ability to profit by experience is taken as a criterion, and its method of learning is empirical, "one of trial and error," but it profits by imitation. It seems unable to profit by any result which does not closely follow its directed effort. The English sparrow never ceases in his efforts to get through or out of the maze. He seldom stops to

preen his feathers, or to sit down and rest. He also returns again and again to get into the food-box—"He is persistency itself." Kept in the laboratory for months, the birds still remained wary and did not become tamed. Sparrows were found to have a nice sense of position, but none of number. A female sparrow distinguishes the standard colours, red, blue, green, and yellow, almost if not equally as readily as a female monkey.

WILLIAM W. IRELAND.

Experimental Studies in Mental Deficiency. (Amer. Journ. of Psychology, July, 1904.) Kuhlmann.

Mr. Kuhlmann comments upon the want of an accurate terminology in the description of mental deficiencies. He observes that the division into idiots, imbeciles, and feeble-minded, according to the degree of general development, is perhaps the most common, yet any one of these terms is applied as descriptive of all degrees. This is scarcely the case in Britain, and certainly not by the same writers. Mr. Kuhlmann hopes to remedy the confusion by proposing further divisions. He is not convinced that an accurate classification based upon the degree of general development is not possible, and believes that the experienced hand can make a further division into low, middle, and high-grade idiots, imbeciles, and feeble-minded, without any serious blunders in the classification of cases. Mr. Kuhlmann, however, need not expect to escape the common difficulties of getting other observers to agree to his nine subdivisions.

Dr. Sommer has constructed a general Frage-Bogen for use in diagnoses of different forms of insanity and arrested development, and Möller has constructed a scale for the latter cases. Mr. Kuhlmann's paper occupies fifty-six pages of the Journal. He gives a natural preference to the experimental methods over the general method of observation, though he admits that any preconceived plan which has been the result of the experimenters' training in a psycho-physics laboratory is doomed to fail. He strangely overlooks the consideration that most of the studies of idiocy and imbecility presented by previous writers have been made from the observations of teachers who have been associated with them for years, and have with marvellous patience laboured to overcome their deficiencies and to exercise and improve their weaknesses. Indeed, he has the hardihood to say that psychological studies made by superintendents and teachers in training schools on idiots are based upon general observations only. The results have been expressed in general terms, but in what other form could they be put, acceptable even to the medical public? In fact, Mr. Kuhlmann uses the same generalisations in his summary, and his conclusions do not differ from those already published by previous writers who have closely studied the subject; if they did, we should scarcely give him the preference. Like them, he has repeated what has been often noted. Surely it is nothing new to learn that imbeciles lack attention, are lazy, and are easily distracted by external stimuli, and soon lose interest in prescribed exercises, and that the memory-span of the feeble-minded falls below that of a normal child, and that they remember some things better than others. We object to any one deficiency, such as want of attention and will power, being used as a criterion. Mr. Kuhlmann might well have given us some observations on the musical capacity, which is sometimes surpris-

ingly great even in idiots of low grade. Most of his observations have been made upon imbeciles, not upon idiots of a low class, who often present interesting features, but naturally are not easily experimented upon with his reaction keys, kymographs, pendulums, metronomes, and other bewildering apparatus from a psychological laboratory. He has given us a detailed description of the mental history and attainments of nine cases of idiocy, some of them too carefully posed to be characteristic. The author has used praiseworthy diligence in compiling his results and computing his averages. He presents at the end a very full collection of the recent literature of the subject, which will be most useful to those who seek to follow in his footsteps.

WILLIAM W. IRELAND.

Studies on the Defects of Perception [Studien über Merksdefekte].
(*Monatss. f. Psychiat., Feb., 1905.*) Boldt.

In making these investigations, Boldt has availed himself of the methods used by Ransburgh, described in the ninth volume of the *Monatsschrift*. He has arranged his inquiries under seven heads: first he applied tests to the memory of heard words, in the second to the recollection of persons, in the third to that of colours, in the fourth to the position of figures, in the fifth to the memory of isolated words, in the sixth to that of names, and in the last to the recollection of numbers. Dr. Boldt experimented with forty persons, thirty-five of whom were insane patients, comprising general paralytics, senile dementes, cases of brain disease, alcoholic and epileptic dementia and imbecility. Dr. Boldt observes that the faculty of memory depends on perception and reproduction. The first step is to ascertain if the patient is able or willing for the necessary attention, and then if he has reached the correct apprehension of what is to be remembered. In normal persons the exercise of memory seemed to improve the answers received. Next day, with the patients contrary results were obtained. Where the mental capacity was but little impaired the greatest defects of memory were found in cases of insanity following drunkenness. One patient had the form of insanity described by Korsakoff, in which aberrations of memory is the most prominent symptom. Instances in which the loss of memory surpasses other mental symptoms are not common. The deepest impairments of memory were found in general paralysis, senile insanity, and arterio-sclerotic degeneration. In the single imbecile examined, a lad æt. 15, the memory was good, though there was a grave deficiency in the intellectual capacity. Dr. Boldt finishes his paper by presenting, in a tabular form, the outcome of his thirty-five patients as to their capacity for recollecting and keeping in memory the exercises used under his seven heads.

WILLIAM W. IRELAND.

2. Etiology of Insanity.

The Relation of Tertiary Syphilis to Tabes and General Paralysis [Ueber die Beziehungen der tertiären Syphilis zur Tabes Dorsalis und Paralysis Progressiva]. (*Neurol. Cbl., Feb. 1st, 1905.*) Hudovernig und Gussman.

Although most physicians who have studied the question are satis-

fied that tabes is of luetic origin, there are others who are still much dissatisfied with the evidence and oppose statistics of their own to those of Fournier and Erb. Gläser found that amongst 759 persons infected with syphilis there was only one case of tabes, another in which it was suspected, and a third of spinal paralysis. In these 759 patients there were six cases of general paralysis. Matthes found in the medical clinique of Jena records of 568 cases of secondary and 130 cases of tertiary syphilis. Of these 160 persons were already dead. By diligent inquiries he so far succeeded in following the rest that he ascertained the proportion of these luetic patients who became victims to tabes to be no more than 2 *per cent.* with the men and 3.5 with the women.

In this state of the controversy, Drs. Hudovernig and Guszman determined to take advantage of the extensive material in the dermatological clinique attached to the University of Buda-Pesth to make a searching inquiry into the neuropathic sequelæ of syphilis. Rejecting all doubtful cases, they obtained information regarding fifty cases in which tertiary symptoms were noted. They accepted Mauriac's estimate that from 5 to 20 *per cent.* of syphilitic patients pass into the tertiary stage.

All these tertiary cases had suffered from syphilis for at least three years. Twenty-four of them were men and 26 were women, in age varying from 24 to 64 years; 23 of them had never had antiluetic treatment, in 15 the treatment was imperfect, in 6 it was more careful, and in only 6 it was thorough. Of these 50 patients there was hereditary tendency and nervous affections in 36 *per cent.*, the incidence of tabes and general paralysis reached 59 *per cent.*, while of the 64 *per cent.* who had no such proclivity only 41 *per cent.* were so affected.

The result of the whole inquiry is summed up in the following table :

Nervous system unaffected in 22 patients	. . . . .	<i>i.e.</i> 44 <i>per cent.</i>
Combined symptoms of :		
Spinal disease in 1 patient	. . . . .	2 "
Suspected cases in 4 patients	. . . . .	8 "
Tabes dorsalis in 12 patients	. . . . .	24 "
General paralysis in 7 patients	. . . . .	14 "
Tabo-paralysis in 4 patients	. . . . .	8 "

The authors consider that these statistics leave no doubt of the intimate connection between syphilis, tabes dorsalis, and general paralysis. But whether syphilitic infection be the sole cause of these two nervous affections, or whether they be distinct diseases or special manifestations of the luetic poison, are questions which cannot at present be decided. It is clear from their observations that heredity plays an important part as a predisposing cause. WILLIAM W. IRELAND.

Syphilis and General Paralysis. [*Prog. Med.*, April 29th, 1905].
Christian.

This short communication deserves the widest possible circle of readers. It is a protest against the doctrine, now in danger of being raised to the level of a dogma, that general paralysis is a syphilitic affection. This teaching has recently been enforced by the utterances of Professor Fournier at the Academy of Medicine. But Dr. Christian asks for proof. Very pertinently he urges that inasmuch as the partisans of this view rely upon statistics, what becomes of that percentage of

cases of general paralysis in which investigation finds no history of syphilis; and this percentage exists. These exceptions moreover resemble in every respect those other cases in which the syphilitic taint is declared. Syphilis, then, can not be the only cause. Further, what are we to say about cases such as this, which Professor Fournier brings forward, and which describe the contraction of syphilis by a young man, his subsequent thorough medical treatment, his marriage five years later, the persistence of excellent health in himself, and in his wife and children, no taint appearing in these. Such an one after ten years develops general paralysis. Is syphilis, then, incurable? and is this apparent good health a mask? and, in the words of the comedy, must we hold that "cette grande santé est à craindre"? It is a maxim of his student days, Dr. Christian tells us, that "naturam morborum ostendunt curationes," but how does this apply to general paralysis? Admittedly, even for those who hold most strongly to the syphilitic theory, general paralysis is entirely refractory to syphilitic treatment. To meet this *impasse* we are now, on the strength of theory alone, to substitute preventive for curative methods, and henceforward the syphilitic is to be subjected during a period of some ten years to a series of vigorous mercurial courses of treatment—he must be mercurialised and re-mercurialised, and again mercurialised.

And what of the mental condition of the patient who has this sword hanging over his head through these long years? Shall we not look to see an alarming increase in the number of syphilophobes, hypochondriacs, neurasthenics, and even suicides?

HARRINGTON SAINSBURY.

On the Nature of Katatonic Symptoms [Die Natur des Katatonischen Symptomkomplexes]. (Cbl. f. Nervenheilkunde u. Psychiat., April 15th, 1905.) Lunberg.

Dr. Lunberg lays down from the outset that katatonic symptoms are most frequently met with in cases of dementia præcox. They also occur in idiots, epileptics, and paralytics. He considers that these symptoms may depend upon auto-intoxication following upon insufficient or perverted function of certain glandular organs. He thinks that he can discern a connection between tetanic, epileptic, clonic, and tonic spasms, and that they are the result of disease of the *glandule parathyroideæ*. Dr. Lunberg believes that the function of these little glands is to regulate the neuro-muscular activity. The thyroid glands, on the other hand, have to do with the psychic and certain other conditions, and they are in a measure regulators of mental activity. He rests these opinions upon the experiments of Blum upon dogs deprived of the thyroid. Blum thinks that the toxic matter which the thyroid removes from the circulation comes from the decomposition of the albumen in the intestinal canal. Dogs fed upon milk lived longer after extirpation of the thyroid than dogs fed upon flesh. These animals showed decided psychical symptoms. They were indifferent, stupid, and wandered aimlessly about, seemed to have hallucinations, snapped at the empty air, and pushed against one another. They all died of exhaustion, some in the *status epilepticus*. It appears from the experi-

mental studies of Berger that a small quantity of blood-serum taken from a patient with katatony and injected into the occipital lobe of a dog may be followed by clonic muscular spasms in different parts of the body, also by apathy and other katatonic symptoms. It appears to Lumberg that from the experiment, as well as from several others made by Berger, we have here a poison produced within the economy which may be the cause of katatonic symptoms and muscular spasms, and that this condition is dependent upon disease of the thyroid and parathyroid glands.

WILLIAM W. IRELAND.

3. Clinical Psychiatry and Neurology.

On the Diagnosis and Symptoms of Cretinism. [Beitrag zur Diagnose und Lehre vom Cretinismus unter besondere Berücksichtigung der Differential Diagnose mit anderen Formen von Zwergwuchs und Schwachsinn.] Bayon, G. P. (Wurzburg, 1903, pp. 120.)

In this little treatise, Dr. Bayon describes his own inquiries into cretinism, adding an admirable summary of our present knowledge upon this interesting subject. He informs us that the first clear mention of cretinism in its connection with goitre is given by Paracelsus in the beginning of the sixteenth century. Bayon complains that some writers still repeat Virchow's theory that cretinism depends upon an early synostosis of the sphenobasilar bone, which has been years ago shown to be erroneous. Though this malady has attracted many able observers, we have not yet reached a knowledge of its specific cause. Dr. Bayon thinks that it may be due to bacteria. He observes that goitre occasionally comes in epidemics which rise suddenly and disappear quickly. That goitre may be caused by drinking water from certain springs is a belief very widely diffused. Dr. Bayon quotes Thieme that in Manebach near Ilmenau cretinism was endemic. They traced the cause to a source which they called the goitre spring (Kropfbrunnen), which being put out of use there were no more cretins, though there were still some cases of goitre. One thing is now established: cretinism (Athyreosis or Hypothyreosis) is the result of disease or deficiency of the thyroid gland. Thus, in endemic cretinism, goitre is the first stage; in sporadic cretinism, the gland is wanting; in myxoedema, its function is impaired. He considers that the thyroid has a regulating action upon the metabolism of the body, which is impaired by the loss of the gland and promoted by giving doses of the thyroid taken from animals.

The endemic goitre generally has the character of a struma cystica hæmorrhagica or parenchymatosa. Bayon has learned through correspondence that the Kabyles decorate goitres by tattooing, and in the West Indies, they adorn them with medals and bright-coloured silk ribbons as if the tumour was something to be admired.

Bayon graphically describes the symptoms of cretinism—the broad grotesque appearance owing to the short nose, low forehead, thick eyelids, and the general infiltration of the skin, which is of a pale yellow hue. The perspiration is generally small; the development of the skeleton is slow and incomplete. This is well illustrated by two radio-

graphic plates. In one, a male cretin, æt. 17, the ossification of the bones of the hand is no further advanced than with a normal child of 3 years of age. In another plate, a female cretin of 10 years, the ossification appears to be three years behind.

The genital organs are generally tardy of development, the functions wanting or incomplete. There is a notable diminution of the red corpuscles in the blood. The proportion of hæmoglobin is also lessened. This has been observed after extirpation of the thyroid in young animals, and in the cachexia thyreopriva in man. It is thought to be owing to degeneration of the red marrow in the long bones. The breathing is generally slow, the temperature below normal, about 36° C., instead of 37.5° as in ordinary persons. The senses of smell, taste, and feeling are dull. The hearing is especially bad; many cretins are deaf. They are without exception intolerant of alcohol.

We think that Bayon lays too little stress upon the deficiency of mental power. He says that many cretins are not especially feeble-minded, and gives as an example an undoubted cretin who for four years has written the menu cards in the Café du Nord in Zurich with great skill and taste, and whose intelligence is no lower than that of an under workman. We should say that this case is more of an exception than an example.

The following passage gives Bayon's views on this question: "Cretins, both sporadic and endemic, are often fatuous; but this imbecility is not organic, as in idiots, being the sequel of defective mental development. While the brain of the idiot is wholly incapable of elaborating his impressions, the cretin can quite well make use of his thinking apparatus, though somewhat slowly. It should be borne in mind where the thyroid is deficient (*bei Athyreoiden*) there is almost always dulness of hearing or total deafness, which renders the learning of speech difficult or impossible. The cause of this dulness of hearing is for the most part, not central, but the result of swollen tonsils and blocking through œdema of the Eustachian tube. If the cretin's hearing is good, he may reach the mental state of a normal child. Farther he cannot progress owing to the deficient development of his perceptive faculties, which, however, may be helped by the administration of thyroid." The brain of cretins on an average weighs from 1000 to 1400 grammes. The cerebellum is relatively light. Weygandt has observed that in cretins as well as in dogs after extirpation of the thyroid there is a prolongation of the processes of the pyramidal nerve-cells with granular degeneration. The spinal cords of cretins when examined have been often found small, an infantile mark.

The author has had an opportunity of making a complete study of three cretins. He describes at length the symptoms, and the result of *post-mortem* examinations. It two of these cases, one æt. 56, the other æt. 25, the thymus was found remaining. In one of the cases he noticed sclerotic patches in the aorta. He regards atheromatous and calcareous degeneration of the large arteries as frequent in cases of athyreosis and thyroidectomy. In all three skulls, the union of the sphenoid with the basilar process was incomplete, thus adding evidence already more than sufficient against Virchow's theory.

In treating cretins, Bayon has derived good results from the adminis-

tration of the thyroid substance, whether in the form of the fresh glands or in tablets. The dose borne varies with different persons. He observes that the transplantation of the thyroid into the cavity of the abdomen originally proposed by Schiff and Horsley has been of little avail, as the gland soon becomes absorbed. But recently Cristiani, Kocher, and Kummer have used portions of the thyroid from the human organism, which they have implanted under the skin in different parts of the body of their patients. These have increased in growth, and Bayon has been assured by Dr. Cristiani in Geneva that the subjects keep well, and a definite recovery is expected. Bayon looks favourably upon the educational treatment of cretins.

He traces at length the differential diagnosis between cretinism and other forms of idiocy, microcephaly, rickets, and *adipositas congenita*, and though in most cases there is little difficulty in distinguishing, his remarks upon these diseased conditions are interesting.

Treating of dwarfs, he remarks that most of these creatures are deformed, affected by achondroplasia or osteomalakia. In other dwarfs the growth has been retarded in the infantile stage. In a few all the parts of the body are equally developed and go through the ordinary changes of growth, but all on a smaller scale. He proposes to call them microsomes. As an instance of these "harmonious" dwarfs he mentions the Count Borwilewski, an account of whom may be found in biographical dictionaries. He gives a more detailed description of the Hungarian dwarf, Dobos Nanos, who was exhibited in Germany in 1895. He was then said to be 14 years and 8 months old. He was 107 cm. (= 42 inches) in height, and weighed 13 kilogrammes. When 14 he had hair on the pubes and in the axilla.

In December, 1902, Hanseman had an opportunity of examining this creature. At that time he was 93 cm. (= 36½ inches) high. He found by radiograph that the epiphyses of the long bones were mostly ossified. His cranium had a circumference of 39.5 mm. (= 1.5½ inches). This by Rieger's method would give a presumable estimate of 600 grammes for the dwarf's brain, about half the normal weight. Hanseman stated that he was intelligent enough, and that besides his native Hungarian Nanos had learned some English and French. I know no previous instance of any person above imbecility with so small a brain; but it has not yet been weighed.

WILLIAM W. IRELAND.

Studies on Epidemic Cretinism. [*Studi del Cretinismo Endemico.*] (Ann. dell'Istituto Psichiat. della Università di Roma, vol. iii, fasc. II, 1904.) Cerletti and Perusini.

The authors have made a thorough investigation of this malady occurring principally about Sondrio on the Italian side of the Alps. Their contribution occupies 175 pages and is illustrated by 70 engravings of cretins, single and in groups. A second part is promised dealing with anthropological and anthropometrical studies on endemic cretinism. There is a detailed description of 70 cases.

The authors begin with a review of recent researches upon cretinism by French, Italian, and German pathologists. They observe that decided instances of cretinism are not so numerous as might appear

from published statistics, since many included in that term are really cases of idiocy, deaf-mutism, or dementia. Familiar with the Alps by years of residence, the authors have hunted out cretins in many infected valleys, gathered information about their origin, and studied their symptoms.

They distinguish between three forms of deficiency, hypertrophy, or disease of the thyroid gland. The first is endemic cretinism, which is only met with in places where goitre and cretinism are rife. Here deficiency or hypertrophy of the thyroid is met with in the ascendants or collaterals of the cretins; the malady is congenital and is observed at birth or in the first months of infancy. The main symptoms are arrest of the development of the skeleton, feebleness of the mental faculties, and trophic affections of the skin.

The roughness, discoloration, and infiltration of the skin are characteristic of cretins. As life is prolonged the infiltration diminishes, and it often disappears, with the males about the twenty-seventh year; with the female cretins the bagginess disappears later, about the fortieth or forty-fifth year. This the authors regard as connected with atrophic changes in the sexual organs. The sexual development of cretins is often imperfect and feeble or it is much retarded. About 20 the sexual organs are not grown beyond the childish stage, and may go on progressing till the age of 40 or 50 years.

In the acquired form (*hypothyroidia endemica acquisita*) affection of the thyroid in the parents may be absent.

It is met with in the haunts of endemic goitre and cretinism. The symptoms of cretinism appear after a period of normal growth, long or short, sometimes in childhood, sometimes at a later age. The form of the disease is incomplete and the symptoms irregular. The injury to the mental power is not so grave and the course of the disease is slower. The third form, sporadic cretinism and myxœdema (*idiotia mixœdematosa sporadica*) occurs in localities where goitre and cretinism are not endemic; it does not appear to be hereditary, and is dependent upon the absence, deficiency, or disease of the thyroid. This is a form well known to physicians in Great Britain. The authors cite the observations of Mordret, who has found that atrophy of the thyroid gland is common with idiots and stands in relation to the depth of the mental obtuseness. They also refer to the histological and statistical researches of Amaldi, who found that in cases of feeble-mindedness (*frenastenie*) lesions of the thyroid gland were as frequent as 85 *per cent.* and in senile dementia and pellagrous insanity 68 *per cent.*, while in other vesaniæ the lesions were less frequent.

WILLIAM W. IRELAND.

A Case of Hereditary Microcephalus [*Bull. de la Société d'Anthropologie de Bruxelles, tome xxi.*] (Reported in *Cbl. f. Nervenheilkunde*, No. 186.) *Houzé.*

The microcephalic child described was 3 years of age. The circumference of the head was 30 mm., longitudinal measure 99, index 95. He was the third child in the family. The two older children were healthy, taking after their mother. She had a severe and lengthened attack of typhoid following the second confinement. After the third child, she had continued inflammation of the upper jaw, which weakened

her. The fourth child was also a microcephale. The father of these children was submicrocephalic, circumference 492, longitudinal measure 169, transverse 158. The grandfather had also a small head, circumference 515, longitudinal 175, transverse 159, index 90-85.

WILLIAM W. IRELAND.

Double Consciousness in an Epileptic [Epileptische Bewusstseins Veranderungen]. (Monatss. f. Psychiat., Jan., 1905.) Morchen.

Dr. Morchen had an opportunity of observing a case of this nature in the Merzig-Anstalt at Taunus. The patient, a male, now $\text{\ae}t.$ 26, came from a family in which epilepsy had several times appeared. When a child he had a severe injury to the skull, which was later in life followed by headaches and an intolerance of alcohol. Otherwise the young man was of normal capacity, and he passed through his military service without any discredit. It was in his twenty-second year that he showed the first signs of nervous derangement. An attack was followed by changes in consciousness, with forgetfulness of his previous situation and conditions. On passing into this state, he forthwith quitted his parents' house and wandered about. His affection generally lasted from two days to a fortnight. The return to ordinary consciousness came like awakening from a sleep. In 1901, he had what seems to have been an ordinary epileptic attack. After a long interval, there came a second consciousness, which lasted for two months. This was accompanied with loss of memory of his past life, which was not so complete but that he could still give his own name and could tell where he was going. He wandered restlessly about, paying no regard to persons, and occupying himself with knavish tricks and thievery. He fell into the hands of the police and awoke from his somnambulistic condition to find himself in prison. On the hearing of his case, he was found to retain some memory of his previous incidents. He was nervous and tremulous, and on full recovery the oblivion was complete. While detained in prison, he had a maniacal attack, followed by amnesia. He remained well for a year after, till he again fell into the condition of second consciousness, which lasted for three months, and left him with complete forgetfulness of what he had been doing. During this time, he availed himself of his previous service in the post office to perpetrate a number of frauds. His manner of life was irregular; he drank heavily and gave away money in a senseless way. On passing out of this state, he resumed the course of his old life as an honest, steady, and diligent workman.

WILLIAM W. IRELAND.

On Pseudo-melancholia. (Monatss. f. Psychiat., Jan., 1905.) Juliusburger.

The patient, an unmarried woman, $\text{\ae}t.$ 30, was under the care of Dr. Juliusburger in the sanatorium of Fichtenhof. There was insanity on the mother's side. The following are some passages freely translated from the graphic description written by the patient of her desolate state of mind:

"At the age of fourteen I went to school. At the least fault I felt like a great criminal, but I learned easily and was always at the top of the class. In 1887 my mother died, which affected me deeply; since then my natural cheerfulness

deserted me: I used to fancy things which could not happen. In 1893 I was deeply moved owing to a love affair which had an unfortunate end. I reproached myself that I could not keep my promise. In 1894 I found that I could not realise in my mind's eye my relatives, my dwelling, and place of residence. I failed to recall the images of what I had seen. I ceased to notice how the time passed; I could not sleep, and I used to get up at night, light my candle, and look at myself in the glass, saying to myself that I was strange and altered. My own handwriting appeared strange to me, yet I knew that I had written it. This affection came upon me when I was at Saarbrücken. Two months after I had returned from my home, which now seemed strange to me. My voice sounded as if it were not mine; other parts of my body seemed unchanged. My eyes had a comical look. For nobody had I any more love or longing, nor had I pleasure or pain; even the feeling of hunger and of satisfaction after food was gone. For a long time I could eat nothing. I was heavy and without energy, a riddle to myself. Thinking was difficult: I could resolve upon nothing. When I heard music it sounded different to me. What I saw seemed lifeless, like a painted image." "That year I had the feeling that my strength was at an end. My usual duties were too heavy; I had no logical sequence of ideas. Since the end of June I remained sleepless for many nights; I stuttered in my speech and confused the letters when writing. I went about like a sleep-walker. I did automatically what I had formerly done voluntarily. I had lost the consciousness of myself."

This lady was only eighteen days in the sanatorium, apparently detained by authority, for she was urgent in demanding to be released. She was removed by her friends without admitting any improvement in her health.

Dr. Juliusburger observes that her conversation and behaviour when under his care did not bear out the dismal description which she gave of her inner mental state. She took part in some of the pastimes of the establishment, and occupied herself with hand-work, also reading, and learned by heart some of Goethe's poems. She answered questions correctly and her memory seemed unaffected. Her case was different from ordinary melancholia, in which the demeanour of the patient shows despondency. He explains the feeling of emptiness, and of her voice seeming strange, the loss of will power and muscular capacities, as due to a functional decline of the nervous system, so that the feeling of bodily presence and the realisation of the changes in the outward world, in which rest the sentiment of personality, is rendered weak and faint. In the melancholia, as met with in asylums the patient is but little sensible of outward things, and the feeling of utter misery is often very acute. In the case described, there was a general effacement of all impressions, both subjective and objective, but enough of the power of mental guidance still survived to allow the patient to conduct herself like a reasonable being, though with energy much diminished.

WILLIAM W. IRELAND.

On Micropsia and Poropsia. (*Deutsche Zeits. f. Nervenheilk., B. xxvii, H. 5 u. 6.*) Heillbronner, K.

He describes a case in which objects appeared to be smaller, giving the idea of increased distance. He mentions cases in which objects appeared more distant than in reality without any alteration of their size. This he calls poropsia. Such conditions are sometimes accompanied with false impressions of the situation of the body and with giddiness. Micropsia sometimes occurs after epileptic attacks, and is

supposed to be dependent upon the implication of the portions of the cortex connected with vision, and the nerves that regulate the movements of the eye.

WILLIAM W. IRELAND.

Pyromania and Puberty [Pyromanie et Puberté]. (Arch. de Neurol., Dec., 1904.) Leroy.

This is a medico-legal report on a case of pyromania of some interest. The culprit, a girl, æt. 15, made a series of attempts on successive days to set fire to her mistress' house. No motive of revenge could be suggested. On examination, it appeared from the girl's statements that she had acted under the influence of a typical obsession—an imperative impulse of sudden onset, with precordial anxiety and other anomalous sensations completely relieved by yielding to the desire. The obsession first occurred on the fifth day of her third menstrual period, which had been unusually abundant, and had brought on a state of marked anæmia and irritability. The family history showed some insane taint on the maternal side. In childhood the girl had been emotionally unstable, and had suffered from somnambulism, but had otherwise enjoyed good health, and was regarded as hard-working, willing, and affectionate. Though not of high intelligence, she presented no evidence of mental or moral abnormality. Stigmata of degeneracy were few and unimportant.

Dr. Leroy's conclusion was that the act was the outcome of an irresistible impulse associated with the onset of puberty in an hereditary degenerate, and that the girl was not responsible.

W. C. SULLIVAN.

A Case of Mind Blindness unique in that the entire Mesial Surface of both Occipital Lobes and both Optic Radiations were preserved. (Amer. Journ. Med. Sci., May, 1905.) Holden, W. A.

This was a case of dementia after hemiplegia, together with aphasia, apraxia, and an interference with vision which much of the time amounted evidently to total blindness.

The chief points in this patient's history were as follows: Eight years before his death, which occurred at the age of 53, he staggered one day in the street, and after reaching home was found to be numb on one side and unable to speak intelligibly. The following day he seemed quite well again and returned to his work, that of roasting coffee. Seventeen months before his death he came home one night feeling ill. On arising the next day he bumped into objects, apparently being blind. His mind was confused, and he was unable to speak intelligibly. He went to bed and remained there a week, after which he was able to get up, but his left arm and leg were very weak. He had become emotional and depressed, and refused to feed or help himself in any way, and accused his wife of infidelity. Three months later he improved, and at times talked rationally. Speech was difficult, and memory for recent events was much impaired. He seemed to see, but never tried to read. Visual hallucinations were frequent. A month later he began to fail both physically and mentally, and then ceased to answer questions. At times he appeared to be quite blind, talked

thickly, and failed to recall the words he wished to use. He also showed inability to handle objects, such as his pipe, which he recognised. He slowly wasted away and died finally of enteritis.

This case, says the author, was apparently not of the commonest form of mind-blindness in which the patient unquestionably sees, but does not recognise that which he sees. This case differs from those previously reported in that here calcarine cortex and optic radiations were preserved. Here the primary visual pathways from retinae to calcarine fissures were normal, but softening of the angular gyri and the parts adjacent, in which it is believed the higher visual centres lie, produced such marked disturbance of vision that it was a question much of the time whether the patient had any power of visual perception. This case, then, shows that extreme disturbance of vision may be brought about by lesions in the higher cortical visual centres alone.

A. W. WILCOX.

Typhoidal Insanity in Childhood, with some Notes as to its Character and Prognosis. (Amer. Jour. Med. Sci., Feb. 1905.) Edsall, D. L.

The author reviews, at considerable length, the literature on the subject of typhoidal insanity in children, and concludes that the important points brought out by this study are that, in an appreciable number of cases, the insanity persists, that mania is but little more common than dementia, while melancholia is much less common, and that a very marked proportion of the dementias do not get well. He found that a number of writers on this subject agree that dementia following typhoid fever is much more common in children than in adults. As to the time of onset, he is convinced that a larger proportion of cases of infectious insanities than is generally stated show distinct evidence of actual insanity before convalescence begins.

Typhoidal insanity, he says, is little, if at all, less common in children than in adults. The author describes in detail two cases occurring in his own hospital practice. He believes that the mental disturbance in these cases is directly related to the condition of the general nutrition, and therefore advocates that, in cases which show a distinct tendency to the development of a psychosis, the feeding should be as free as possible even during the latter part of the fever, and that the food should be very rapidly increased during convalescence.

In conclusion, he states that some cases of melancholia with profound home-sickness recover more quickly when allowed to leave hospital and return to their own homes.

A. W. WILCOX.

4. Pathology of Insanity.

Clinical and Pathological Studies on Juvenile General Paralysis [*Studi clinici ed anatomo-patologici sulla paralisi generale giovanile.*] (Ann. di Freniat., vol. xv, fasc. i, March, 1905.) Burzio.

In this paper the author summarises a clinical and pathological observation of general paralysis in a juvenile patient which he communicated to the Turin Academy of Medicine in 1899, and publishes notes of two other cases which he has since met with.

In the earlier observation the symptoms of the disease appeared in a patient, *æt.* 23 years, who had contracted syphilis in infancy. Of the two new cases, one was that of a girl whose father died of general paralysis, and who herself developed the disease at the age of 18. In the third case, where the patient was a boy, *æt.* 16, the special feature of interest was that the symptom-complex of general paralysis was found in connection with an interstitial encephalitis, probably due to hereditary syphilis, and confined to the bulbar region and to part of the occipital convolutions.

His observations led the author to the conclusion that juvenile general paralysis, as compared with the adult form, is characterised by the frequent presence of signs of infantilism, by the predominance of physical over mental symptoms, by the frequency of spinal and bulbar lesions, and by a very wide range of variety in the pathological appearances.

W. C. SULLIVAN.

Anatomical Findings in two Cases of Korsakoff's Symptom-Complex
[*Journ. Ment. and Nerv. Dis., March, 1905*]. Sims, F. R.

In 1887 Korsakoff published his first description of mental disturbance associated with multiple neuritis. Since then much has been written about this symptom-complex, but, as Sims points out, comparatively few cases with anatomical findings have been reported. He then describes two cases, with the clinical details and anatomical findings in each.

The first is one of acute alcoholic multiple neuritis in a woman, *æt.* 48, accompanied by delirium, hallucinosis, and romancing. Later there were convulsions, with twitchings of various muscle groups, which was followed by spasticity of one extremity and flaccidity of the extremities of the opposite side. Some paralysis of the facial muscles was present. Death, which was preceded by a rapid rise in pulse and temperature, occurred after five weeks. The anatomical findings were slight arteriosclerosis, hypostatic pneumonia, fatty infiltration of the liver, and acute degeneration of many of the peripheral nerves; axonal reaction in cells of the anterior horns, Clarke's columns, and many cranial nerve nuclei; degenerations in the posterior columns, direct cerebellar tracts, and the root bundles, and a moderate "acute alteration" of the cortical cells.

The second case is one of acute alcoholic mental confusion following chronic neuritis, and of the type of Korsakoff's symptom-complex, occurring in a travelling salesman, *æt.* 35. There was marked amnesia for recent events, irritability, increased emotional reaction, imperfect orientation, and mild delirium. Later he developed difficulty in speaking and in swallowing, and died from vagus paralysis and failure of respiration one month after his admission to hospital. The anatomical findings in this case were general arteriosclerosis, involving the aorta and coronaries; fatty degeneration of the heart, liver, and kidneys; acute bronchitis; acute degeneration in the peripheral nerves of the lower extremities, and also in the vagi; axonal reaction in the cells of the anterior cornua, in Clarke's columns, some cranial nuclei, and the Betz cells of the cortex. There were vascular changes in the cord and cortex, with numerous microscopical hæmorrhages throughout the cerebrum, and acute degeneration of the cortical radiations, and of

both motor and sensory systems of the cord, as well as degenerations of the cord not easily reconcilable with the systemic changes.

A. W. WILCOX.

5. Treatment of Insanity.

On the Lumbar Puncture in Mental Affections [La Ponction Lombarre en Médecine Mentale]. (Bull. de la Soc. de Méd. Ment. de Belgique, Féb., 1905.) Deroubaix, A.

At the Froidmont Asylum the method of procedure is to make the patients sit on the edge of a table and by leaning well forward arch the back strongly. An anæsthetic is used only for the very timid or the restless, in order to avoid sudden movements. The puncture is made indifferently in the third, fourth, or fifth lumbar space (the last is preferred) with Tuffier's needle of platinum, iridium tipped, 8 cm. in length (just over 3 in.), of short bevel and armed with a stylet; strict asepsis is observed. The injunction not to remove more than 10 c.c. (about 2½ drachms) at one sitting, upon which some authorities, including Quincki himself, have insisted—this was not found to be imperative. Double this quantity and even more was removed on occasion without any trouble, nothing worse than a little headache resulting. The only precautions adopted were to make the patients lie down for two to three hours after the puncture.

The pressure of the cerebro-spinal fluid varies greatly in health, *viz.*, from 40 to 60 mm. of water up to 150 mm. In disease it may rise to much higher levels, spurting out on puncture, or it may fall so low as to escape only very slowly, drop by drop. All causes which raise temporarily or continuously the pressure within the cranium or the spinal canal raise this pressure of the contained fluid. The highest pressures were found in states of mental excitement and particularly in epileptics and general paralytics, but exceptions to this were noted even in well-defined cases. These high pressures are therefore suggestive but not pathognomonic.

In respect of the chemical constitution of the fluid, the presence of albumen in quantity above the normal, *e.g.*, 1 per cent. and beyond, was only noted in cases of general paralysis, not in the other psychoses. But again the sign is not pathognomonic, for exceptions were observed, *viz.*, of general paralysis with normal or even subnormal albumen percentage. The high percentage is, however, decidedly suggestive. From the presence of formed elements in the cerebro-spinal fluid a clearer leading is obtained; thus lymphocytes were never found in epilepsy or in dementia præcox or in states of confusional insanity, whereas they were constant in cases of general paralysis. The albumen percentage was determined by Esbach's albuminimeter; the formed elements were obtained by centrifugalising for twelve to fifteen minutes, and then examining the sediment. HARRINGTON SAINSBURY.

On the Action of Hyoscine in Neurological and Psychological Medicine [Zur Wirkung des Hyoscins in der neurologisch-psychiatrischen Praxis]. (Neurol. Cbl., May 16th, 1905.) Higier, H.

Hyoscine has been shown to be identical with scopolamine. The

halogen salts of hyoscine have been most in use, and of these in particular the bromide of hyoscine. The author of the paper has been accustomed during the last ten years to employ hyoscine in the most varied nervous affections. He administers the drug chiefly in watery solution and in pills, less frequently hypodermically, exceptionally by instillation into the conjunctival sac. He finds it an excellent sedative, especially in those neuroses and psychoses which are characterised by an over-excitability of the motor areas and *in primis* in paralysis agitans.

In fifty cases of Parkinson's disease he obtained excellent results—exhibiting the medicine chiefly by the mouth in solution or in pill form (occasionally, in those cases in which it did not seem to agree with the stomach, instillation into the eye gave equally good results without any detriment to the eye.) The dose of 0.2–0.3 mg. (gr. $\frac{1}{32}$ – $\frac{1}{16}$) *pro die* was rarely exceeded, and it was possible to maintain this dosage for long periods. One patient had taken this dose, alternately with duboisine, for seven years. In only one case was idiosyncrasy observed; in this instance a pill of gr. $\frac{1}{32}$ caused a high-tensioned pulse, tachycardia, hurried and oppressed breathing, confusion of thought.

Dependence upon the drug was noted in certain of the cases to an extent warranting the name "hyosciniism." Intermission of the remedy caused here symptoms of cardiac weakness, depression, and attacks of faintness. A tolerance demanding a rise in the dose was not observed. In three cases of the severe type of chorea very fair results were obtained after bromides, arsenic, salicylates, chloral, and morphia had failed. In the dose of 1 mg. (gr. $\frac{1}{16}$) for a period of one week this was effected. In certain forms of severe itching (excepting the pruritus of diabetes) hyoscine in the *daily* dose of gr. $\frac{1}{32}$ –gr. $\frac{1}{16}$ gave fairly good results. It was given along with a small dose of antipyrine.

In spasmodic asthma, hyoscine injected subcutaneously in association with caffeine answered satisfactorily.

In the treatment of chronic alcoholism (not delirium tremens), hyoscine did not seem to advantage the patient appreciably, but in morphinism more encouraging results were attained.

In periodic mania, hyoscine failed to prevent the attacks, though administered before the onset of the maniacal stage.

As a symptomatic remedy for the maniacal excitement of various forms of delirium the drug was of great value; it was given in the subcutaneous dose of $\frac{1}{32}$ – $\frac{1}{16}$ gr.

Against the heroic administration of large doses of hyoscine the writer gives warning, also against its employment in the treatment of young children and in cases of disease of the heart and vascular system.

HARRINGTON SAINSBURY.

Upon the Specificacy of the Toxine in the Blood-Serum of Epileptics
[*Ueber das wesen unde die Speziffizität der im Blutserum der Epileptiker enthaltenen toxischen. Stoffe*]. (*Cbl. f. Nervenheilkunde u. Psychiat.*, March 15, 1905.) *Ceni, Carlo*.

Dr. Carlo Ceni, continuing the investigations of which he gave a preliminary sketch in the meeting of the Congress of the Societa Freniatria Italiana at Ancona two years ago,* has given us the

* *Vide* articles in *Rivista Sperimentale di Freniatria*, 1901 and 1903, *Neurol. Cbl.*, No. 8, 1903.—[Ed.]

result of fresh experiments. He had found that by making injections of serum taken from the blood of epileptics into the subcutaneous tissues of epileptic patients an improvement of the symptoms follows, and sometimes the reverse. This induced him to inquire whether there were differences in the serums used by Catola, Wendel, and Tiengo. For this purpose he chose seven epileptics, upon whom he practised injections of the serum and antiserum, which is obtained from any animal supposed to be rendered immune against serum derived from epileptics. Upon these patients he practised injections of 10 cubic centimetres of blood-serum taken from other epileptics. These did not cause any acute symptoms, local or general, when used either in the interval between the epileptic seizures or during the attacks. Ceni found that in this latter time or in the status epilepticus the blood-serum is often hypertoxic. This serum even in small doses is apt to occasion symptoms of local and general disturbances, especially headaches, mental confusion, a febrile condition, and renewed epileptic attacks. Applied to men who are not epileptic, the injection of this serum has a toxic effect, but it is slight and without any symptoms of epilepsy. As far as one can see Ceni does not furnish any proof that these serums have any specific effect whatever in causing or checking epilepsy, and that it is apt to bring on attacks on patients already known to be epileptic, in whom any disturbance of the circulation or nerve-excitement is liable to become the exciting cause of renewed seizure. The hypertoxic epileptic serum injected in large doses into various animals—dogs, cats, rabbits, cavies, white mice, and fowls—failed to bring on epileptic attacks.

WILLIAM W. IRELAND.

On Certain Characteristics of the Specific Antitoxines in the Blood-Serum of Epileptics [*Ueber einige Charaktere spezifischer Antitoxine im Blutserum der Epileptiker*]. (*Cbl. f. Nervenheilkunde u. Psychiat.*, May 15, 1905.) Ceni, Carlo.

Professor Ceni thus sums up his conclusions from recent experimental investigations: (1) The antitoxic powers of the blood-serum of epileptics, as shown by its reaction with specific anti-serum, do not appear to vary to any extent in the various phases of the disease during its regular course—*i.e.* whether the serum be taken before or during the attacks or in the intervals. (2) In the severer cases of epilepsy, or in those exacerbations which may arise in the course of the ordinary disease (status epilepticus), the antitoxines of the serum diminish even to seeming disappearance. (3) An epileptic treated by injections of the specific anti-serum, together with a serum such as that obtained from the severer cases mentioned in (2), is rendered very decidedly worse, and at the same time the antitoxic powers of the serum of this patient fall considerably.

HARRINGTON SAINSBURY.

Merck's Annual Reports, vol. xviii, 1905.

Nareryl.—Among the newer additions to pharmaceutical preparations we note ethyl narceine hydrochlorate first employed in France as "*Nareryl*." It is a definite crystalline compound not very soluble in water, more so in spirituous solutions. It is stated to be a good hypnotic and analgesic

and to be devoid of the undesirable by-effects of morphia ; it is suitable for administration to children. It has been given in doses varying from 1 gr. up to $2\frac{1}{2}$ grs. in the day.

Bromipin.—Further experience confirms the value of this drug, especially in epilepsy (Hirschcron, Levi, and de Moor). In chorea Hirschcron has also found it of value, likewise in cases of sexual neurasthenia, and Thumen praises it in the treatment of neurasthenia and hysteria. De Moor, speaking from a wide experience, lays stress upon the nutrient value of the preparation in addition to its sedative powers. The Toulouse-Richet method of administration of the bromides—*viz.*, with a dietary poor in chlorides—in order that the bromide may more intimately substitute itself for the chloride ; this method may with advantage be adopted when bromipin is used. Bromipin may be given either in 10 *per cent.* or $33\frac{1}{3}$ *per cent.* strength, or in the form of tablets (Bromipinum solidum saccharatum). In the oily state, it may be given either as such or in capsules.

Dionin.—Hydrochloride of ethyl morphine more than maintains its position ; indeed, its field of application has widened out considerably. Among other uses, its employment in insomnia, either alone, in doses varying from $\frac{1}{4}$ to $\frac{5}{8}$ gr., or in conjunction with veronal ($1\frac{1}{2}$ –8 gr. of veronal with $\frac{1}{4}$ – $\frac{1}{2}$ gr. of dionin) has been spoken of highly by Meitner and by Dr. D— (*Journ. Méd. de Bruxelles*, 1904, No. 12). It was administered by the mouth in tablet form. Its advantage over morphia consists in the absence of after-effects.

Neuronal, bromo-diethylacetic acetamide, is a white crystalline powder which dissolves freely in alcohol, somewhat sparingly in water ; it has a bitter cool taste somewhat resembling menthol. It is described as a useful hypnotic in doses of gr. 8–15 ; its effect, like that of trional, is somewhat weaker than veronal. It has, in some few cases, caused stomach disturbance, and in one case of epilepsy Stroux noticed an increasing headache. Inasmuch as the molecule in this compound contains bromine it has been chiefly used as a sedative in epilepsy. Rixen administered it in this disease in doses of 15–30 gr., and he found it a useful sedative. In severe motor unrest the dose was raised to 45–60 gr. It is described as very useful in the headache arising after epileptic fits.

Scopolamine hydrobromate (hyoscine hydrobromide) is much praised by M. Kochmann in mental disease. In the Jena Asylum it has been exclusively used to combat intense motor excitement. In doses of $\frac{1}{4}$ – $\frac{1}{2}$ gr. it invariably produced sleep, with strengthening and retardation of the pulse and a similiar effect upon the breathing. K. Liepelt finds it useful in various forms of mental excitement, and that it greatly excels chloral hydrate and morphia in delirium tremens and in the delirium of pneumonia and of typhoid. His dosage hypodermically is $\frac{1}{16}$ – $\frac{1}{8}$ gr. The calmative effects of these doses would persist some three to five hours. In these doses and even in the dose of $\frac{1}{8}$ gr. no disturbing symptoms arose. A. Rose (*British Medical Journal*, 1903) describes it as a specific in paralysis agitans ; his dosage was $\frac{1}{16}$ gr. twice daily.

Veronal.—The therapeutic value of veronal has been abundantly proved and further investigations, both experimental and clinical con-

tinue to be favourable. It has been given in animals up to a dosage of 11 gr. per kilo. of body-weight without toxic effects, and in man 135 gr. have been given in a single dose without serious symptoms. The blood does not suffer in its composition, neither is the blood-pressure lowered, the respirations are unaffected, the kidneys not irritated. Because of this relative harmlessness it has been administered without hesitation in serious heart failure and also in phthisis, and renal disease does not appear to contra-indicate it. It does not disturb the alimentary tract, and may be given even when this tract is deranged. According to some observers the albuminous waste of the tissues is lessened by veronal. In simple nervous agrypnia and in all forms of the insomnia of mental disease it is prescribed with benefit. In the sleeplessness of affections of the stomach, heart, lungs, kidneys it is serviceable, and the fact that, in combination with a *small* hypodermic injection of morphia the effect of both drugs is enhanced, encourages the hope that in the morphia habit veronal will be valuable during the withdrawal of the morphia.

In the insomnia of convalescence from acute infections, such as influenza and typhoid, it is a good remedy. It has been given largely to children, and it has even been administered to infants. For adults the dose is 8-12 gr.; in the case of women and girls smaller doses may be tried, *viz.*, 4-5 gr. For infants the dose is $\frac{2}{3}$ -1 $\frac{1}{4}$ gr. Hot peppermint-water is a good vehicle. In aqueous solution it may be given as an enema, and in this way is said to be equally effective. The infusion of camomile is a good vehicle when thus administered.

HARRINGTON SAINSBURY.

6. Sociology.

Insanity in Prisons [La Folie dans les Prisons]. (Rev. Psychiat., April, 1905.) Pactet.

In this article the author calls attention to the occurrence, in his opinion very frequent, of cases of unrecognised insanity in French prisons. He points out that the records of the insane criminal section at Gaillon show that the greater part of the prisoners sent there come from a very small group of prisons—those, namely, with a special medical staff trained in psychiatry; while the prisons which are in the medical charge of local doctors furnish only a quite insignificant proportion of cases. He further instances his own experiences at Villejuif, where he has repeatedly received insane patients who had just been discharged from prisons.

The remedy which the author advocates for this state of things is the adoption in France of the system of alienist inspection of prisons established in 1891 in Belgium. As a demonstration of the advantages of that system—which has not been generally regarded as a success—Dr. Pactet has, with the co-operation of Dr. Collin, started on an amateur tour of inspection in the French prisons in quest of insane, or at all events abnormal, criminals. The results so far obtained are not stated in the paper.

W. C. SULLIVAN.

The Increase of Lunacy (Glasgow Med. Journ., March, 1905).

Parker, W. A.

Digitized by Google

In this paper the author discusses the causes of the increase of lunacy

in Scotland. He points out the well-recognised fact that this increase is, in part, apparent and not real. Thus the disappearance of prejudice against asylums, the eagerness of parishes to obtain the State grant, the increasing reluctance of the poor to look after aged or insane relatives, or their inability to do so owing to migration towards the large towns, are all causes of increase in the number of registered lunatics. This does not mean, however, a true increase in lunacy, although costing as much as if it were. On the other hand, there is a true and regrettable increase represented by the increased numbers of general paralytics and other incurable wrecks found in Scotch urban asylums. Decreased infant mortality and improved public health administration outside asylums, with what is in reality a lessened death rate within these institutions, are also causes, he thinks, of a true increase by interfering with the law of the survival of the fittest. He then deals with the difficult subject of the prevention of insanity, and is of opinion that sterilisation of lunatics and habitual criminals, although impracticable at present, would be quite justifiable for the preservation of society. He also advocates a law automatically dissolving marriages in all cases of insanity, and making it illegal for anyone to marry who has suffered from epilepsy or has been insane. Over-pressure at school he strongly condemns. Alcohol he believes to be a prime factor in the causation of a large number of cases of insanity, and that many alcoholics who do not themselves become insane beget insane offspring.

The stamping out of tuberculosis, legislation to prevent the marriage of epileptics and other degenerates, and a more thorough control of the drink traffic would do much, he thinks, in the prevention of insanity, but he fears that it will be long before any such measure can begin to tell on our steadily increasing asylum population.

A. W. WILCOX.

Idiocy. (Monatss. f. Psychiat., Jan., 1905.) Weygandt.

At the meeting of the German Union for Psychiatry, at Dresden, in April, 1905, Dr. Weygandt delivered a long discourse upon idiocy. In Germany there are 108 institutions for the care of this class, of which half are under the control of the clergy. Only 21 of these are supported by the State; few of them have medical superintendents. Of the 150,000 idiots and imbeciles in Germany, 23,000 are in institutions, 5000 are receiving instruction, and 8000 are able to do some work. The advice of physicians for their proper care and treatment is in many cases neglected, and many of their wants are unsatisfied. One institution which has 2000 inmates is attended to by a medical officer who lives several miles away. In one establishment, the deaths from tubercular diseases numbered 39 out of 40. Swellings of the ear and bed-sores are common, and the smells from wet beds are disgusting. Strait-jackets and strapped chairs are in use, and harsh punishments, such as deprivation of food, blows, and confinement, are inflicted upon the imbeciles. Dr. Weygandt observed that the care of idiots in France was almost wholly in medical hands. The Bicêtre, under Bourneville, is a model institution, both for education, scientific observation, and pathological collections. The best institutions in England are also under medical superintendence, and are well managed.

WILLIAM W. IRELAND.

7. Asylum Reports.

Some English County and Borough Asylums.

Brighton Borough.—This is the first report of the Committee since Brighton assumed the sole charge of Haywards Heath. The removal of the East Sussex patients left many vacant beds, which, however, were speedily filled by contracts, with the result that a profit of over £1600 was made. Of the 150 admissions from the Borough no less than twenty-two were general paralytics, and of them eight were female cases. Only two out of forty-six deaths resulted from phthisis.

Cumberland and Westmoreland.—Many of us hold that too great importance cannot be given to the causative influence of alcohol in relation to insanity, but there is one aspect of the question that must not be lost sight of. Dr. Farquharson, in stating that it does not appear to increase as a cause in his counties, and has less effect than it may have in large towns, writes :

“There is an idea, somewhat widely prevalent, that a large proportion of the inmates of asylums have brought on their insanity by their own vicious habits; our statistics show that this is not so in these two counties. It is well that these facts should be borne in mind; if we realise that the vast majority of the patients in our asylum are here through no fault of their own, but through disease of the brain, induced by causes over which they had no control, we shall be more likely to extend towards them our practical sympathy, and to grudge nothing that will increase their chances of recovery, and promote their welfare while under care in the asylum.”

Derby Borough.—Dr. Macphail notes that, of eighty-eight admissions, seventeen had been in the asylum before. Of these fourteen were relapses, in seven cases after one, in three after two, and in four after three previous attacks. The average time between the attacks in all fourteen cases was one year and nine months. The large number of eight deaths out of thirty-two was due to cardiac disease. A comfortable detached block for thirty private female cases has been completed.

Hants.—This county is one of the few in which occurring insanity appears to be declining in frequency. In each of the last four years there has been a drop in the admissions of twenty, and now Dr. Worthington writes that it is necessary to go back to 1889 to find as low an admission rate as obtained in 1904. No reason is suggested for this. The average residence, however, remains the same. Tuberculosis accounts for nearly 30 *per cent.* of the deaths.

Kesteven.—The committee have ascertained the full cost of this asylum, finding it to be about £157,000. The 420 beds provided thus work out at about £370 each. At first sight this may appear to be an unduly large amount, but it has to be remembered that a period of abnormally high prices existed during its construction, probably causing an increase of at least 20 *per cent.* on structure. One hears a good deal said at times about the relative cost of institutions per bed, and among the laity this method of reckoning is much used for aggressive comparison. But to those who know it is a most fallacious method in the absence of controlling data. For instance, the price and

size of the estate, the number of cottages provided and so forth must be taken into consideration. Some committees can afford to let their staff hire house accommodation outside the estate, and thus keep down capital expenditure, while others are forced to build cottages, since there may be no such accommodation available. Nowadays committees generally provide extensive heating arrangements and electrical plants, thus swelling capital expenditure, while but a little time ago wards depended chiefly on open fires, and gas was often laid on from outside, capital expenditure being thus kept low. But, if future maintenance rates are taken into consideration, it will generally be found that the interest on extra capital is more than saved in current expenditure. Interest will moreover cease, while the other is permanent. So, too, with the walls of passages. Glazed bricks are more expensive than common bricks, but, beyond being more irreproachable in the eyes of the Commissioners, they are eventually less expensive than any other material. These and many other similar considerations should be borne in mind when strong things are being said about the huge cost of modern asylums, and especially when such cost is charged, somewhat unjustly, on the requirements of the Commissioners. It may safely be remembered that in such matters committees have the real control, and are likely to justify their selection by business methods in the face of the growing outcry against local burdens.

Lincoln.—The following is worthy of note :

We have at present in this institution a patient who was admitted from H.M. Prison, Lincoln, in August, 1898. In June, 1900, on the expiration of his sentence, he was transferred to the pauper class. Since his admission he has been a constant source of trouble, irritating, annoying, and inciting to insubordination his fellow patients. In addition to this he has committed nineteen assaults upon patients and attendants, besides threatening to murder the Medical Officers. I wrote to the Commissioners in Lunacy some time ago, asking them if it was possible that he could be removed to Broadmoor Criminal Asylum as being dangerous, and totally unfit to remain in this asylum. The answer I received was not consolatory, "There is no way that we know of, except for him to commit a crime."

The London County Council Asylums.

This report grows yearly in size, and certainly does not decrease in value. The Committee, in their own report, which opens a volume of over 200 folios, indulge in a justifiable growl against their colleagues on the Metropolitan Asylums Board. They very truly say that they themselves have not only to provide for the acute lunacy, but also for the chronic cases, for whose accommodation the other Board has power to build asylums, but does not. We are quite of the same opinion as the Committee about the absurdity of two public bodies providing for lunacy in one area, especially as one can provide or not as it chooses, and in any case leaves the other to be blamed for shortage. This dual system in London has always been a puzzle to us. If there were any definite border-line between the responsibilities of the two authorities such a system might be made practicably efficient, if not advantageous. But as it is there must be an immense waste of energy and money and want of proper co-ordination. For instance we read in the Colney Hatch

report that thirty-two boys under sixteen years of age were admitted, for some of whom vacancies were found in the schools of the Metropolitan Asylums' Board, and Dr. Seward states that these might just as well have been sent there direct from the parishes. The cost of maintaining the insane under the two authorities has gradually approximated, in fact, including the imbecile schools, etc., the Board's weekly charge is almost identical with the average charge of the Council, being for 1904 11s. 2'2d. against 11s. 3'58d. So there is no ground for advancing economy as an excuse for duality.

The yearly total increase of resident lunacy for 1904 is 704, of which an increase of 640 is found in the asylums under the County. This is an excess of 128 cases above the fifteen-year average of residence. We need not wonder that, though the new Long Grove Asylum is due to be finished in the spring of 1907, the Committee have got out plans for yet an eleventh asylum to accommodate 2000 more patients. In speaking of the numerous cases of senile decay sent in the Committee point out that as much stress is nowadays laid on heredity as a cause of insanity, it does not seem just that a family of a man whose mind has become enfeebled though old age should be stigmatised with insanity because the only place provided for his treatment is the county asylum. Some of these cases were actually discharged a few days after admission as having shown no signs of insanity. In this direction evidently a considerable amount of good would be effected by unified and enlightened administration. The Committee report that they have made attempts to put in action Section 57 of the Lunacy Act, which provides for suitable cases being boarded out with relatives or friends, but that the machinery was found to be so cumbersome that no success attended the trial. A large amount of work was found at Long Grove for the unemployed last winter, and though the progress of the work was slow by reason of the freshness of the work to many, and on account of the poor physical health of those taken on, the Committee were quite satisfied with the result.

We are most pleased to see that the known liberality in the matter of pensions which the Committee have shown to those who were in the service before the days of the London County Council is continued to those who have entered since. We note that Mr. Partridge, who for so many years has been the Clerk of the Council Committee and of its predecessor, has retired. Not only is graceful acknowledgment made of his great services, but he has also been accorded a pension. Probably few men know so much about the insane, their ways, their cost, and their law as he does. The Committee make mention of the unfortunate scandal which arose in connection with the Horton Asylum. This has been so thoroughly discussed from every aspect that we are glad of this excuse to pass it by in silence.

Banstead.—Dr. Johnston Jones has been experimenting with diet at the request of his Committee. He finds that the substitution of a second pudding course for half the allowance of meat is very satisfactory. It is pleasant to the patients, there is no waste and the weight books show a decided increase. And in the matter of turbulence and excitement there is gain.

Bexley.—Speaking of the difficulty in getting accurate family histories Dr. Stansfield relates that he has sometimes been the first to tell of a previous attack in a patient to the husband or wife, so ignorant are married people often of the antecedents of each other. He found insane heredity in 53·9 *per cent.* of eighty-nine cases, in which he was supplied with a full history. He considers that on account of the frequent ignorance mentioned above even this high ratio is an understatement. He found evidences of syphilis in 20 *per cent.* of the total admissions, and in the general paralytics it afforded a percentage of 78 for the males, and 70 for the females. General arterio-sclerosis was found in 143 cases, or 32·6 of the total admissions.

It is stated that some brilliant work on the part of Dr. Knobel, formerly an Assistant Medical Officer at Bexley, in the study of asylum dysentery “tends to refute the ideas as to the great infectivity and mode of propagation of the disease which have been put forward by Dr. Mott.”

A spray bath has been introduced into one of the female wards for bathing the infirm and obese patients, the lifting of whom was before a severe task for the nurses and a risk of injury to the patients. The experiment has been attended with complete success.

Cane Hill.—In their report of this asylum the Commissioners pointedly mention the fact that though general paralysis caused 21 *per cent.* of the 219 deaths, yet in all these 219 deaths a bed sore was found *post-mortem* in one case only, and that existed on admission.

We wonder whether those who wish to leave asylum nurses outside a State Register can produce any better evidence of the success of nursing in its highest phase—the persistent and patient carrying out of medical instructions under the most difficult and depressing conditions from year's end to year's end. A want of recognition of such service can only argue utter ignorance of the requirements of one of the most extensive and important branches of the calling.

Claybury.—Dr. Robert Jones is not one of those who think that the problem of overcrowding can be solved by keeping senile cases in work-house infirmaries, for which he rightly says they are quite unsuitable. But one would think that they could well be treated at Leavesden or Caterham instead of taking up space provided at great cost for more moving cases. This is another direction in which the want of co-ordination in London lunacy causes waste and inconvenience. Four *per cent.* of the patients resident are found to be phthisical, but some of them get well of their tubercle. In such cases the ordinary supply of fat food is doubled by an extra quantity of dripping fat with good results. Dr. Jones protests against the reception of five male and two female criminal lunatics on account of the harmful association of such persons with the innocent-minded and youthful of both sexes. The Committee allowed the Steward and Matron of the Cairo Asylum to be taken on the staff temporarily for training.

Colney Hatch.—The buildings now being put up in place of the iron wards, which were so disastrously swept away by fire, are to comprise five detached wards with covered passages connecting them with the main building, a villa for imbecile boys, and a special block for female

patients suffering from tuberculosis with facilities for open-air treatment. One hundred and twenty-four Jewish patients were admitted, of whom the great majority were aliens of a low type.

Hanwell.—Dr. Alexander has to deplore recrudescence of dysentery. The previous experience as to its infectivity and its selection of particular wards, not necessarily overcrowded or imperfectly ventilated, is confirmed. He has been trying the Wakefield treatment, to which we adverted some little time back, of daily saline aperients for cases of habitual constipation. Success has attended the treatment, but Dr. Alexander has not had time yet to say definitely that the success is *propter hoc*. “Tram treats” are a new and much appreciated form of recreation. The Committee occasionally secure an electric tramcar, which takes the patients to a field at Uxbridge for a “happy day.”

Horton.—Eighty-seven *per cent.* of the discharges are sent “on trial” to their homes with, as Dr. Bryan thinks, the best results. He has to regret very numerous changes in the female staff. He finds that a high percentage of applicants with previous asylum experience are useless, while the great range of service required, extending as it does from the highest form of nursing to ordinary housework, limits the area from which suitable candidates can be looked for. So much is this the case that he anticipates the coming of a time when some re-arrangements of lunatic attendance must be made.

Manor.—The want of ground labour has caused this asylum, which previously contained only females, to be increased by a new villa containing sixty male patients transferred from other asylums. The benefits arising from this introduction of labour have been at once apparent. Not only have the grounds and orchards been made more presentable, but the raising of flowers, fruit, and vegetables has at once reduced the maintenance. A fact of this sort must have its bearing on the cry that is frequently made for cheaper asylums for chronic cases. Who will do the necessary work for the acute population if such workers are removed elsewhere?

The Colony.—Dr. Bond invents the useful term of *pseudo-convalescent* for those who are quite sane between attacks of acute insanity which will recur from time to time with certainty, this certainty providing the necessity for detention. It is over such cases, not necessarily epileptic, that the legal and the medical mind enter into fruitless dispute. Dr. Bond reports the general tendency of things and people to justify the aims and objects of the institution. He says that there is an increasing readiness to send patients direct from the parishes instead of their being filtered through asylums. He strongly advocates the granting of powers to public asylums for the reception of voluntary boarders. He receives many applications from friends for admission of epileptics sane at the time, and therefore inadmissible under the present lunacy law, such friends valuing the preventive rather than the curative treatment. There is a large contribution of statistical information which, under the experienced hands of Dr. Bond, cannot fail to be of the highest accuracy and value. It cannot be appropriately dealt with here, and we must repeat our suggestion of last year that he should some day contribute to the JOURNAL a full report of the conclusions to which he

comes and the grounds on which they are formed. His experience is, in a sense, unique, and he occupies a ground on which the elements of sanity and insanity can be compared and contrasted with greater completeness than at any other institution. We much regret that he should have been the subject of a ferocious attack at the hands of a patient. At the same time we are most happy to be able to congratulate him on recovery.

The Pathological Report of Dr. Mott.—As usual this is full of interest, and we regret that it is impossible to make here more than a few passing remarks. Dr. Mott conducted a systematic *post-mortem* examination in all cases of death occurring in Colney Hatch and Claybury Asylums with a view to arriving at a conclusion as to the frequency of tubercular disease, active or quiescent, diagnosed or undiscovered. He found a slightly lower proportion in the older asylum, for which fact he offers the suggestion that in it more old people of long residence had died with lungs free from tubercle. His very strong opinion is "that the great majority of the patients who die with active or obsolescent tubercle, undetected on admission, were, nevertheless, then the subjects of the disease." It is not so stated specifically in the report, but we gather that Dr. Mott does not regard the asylum-manufacture of phthisis as an important theory. He points out that tuberculosis is the common cause of death in dementia præcox, for, out of twenty-three cases in which the notes indicated this mental affection, seventeen died of tuberculosis. The equivalent of dementia præcox used by Dr. Mott is "dementia of adolescence," which seems to us to come nearer to a true description of the disease than do any of the other groupings of symptoms known by the name.

Dealing with heredity, at the request of the Commission on the Feeble-minded, he, like others, finds how hard it is to get a real history. He thinks that "potential insanity in its protean aspect, as epilepsy, especially petit mal, eccentricity, weak moral control, and other forms of feeble-mindedness, is almost as important, from an hereditary point of view, as the fact that some relative has been in an asylum." Some statistics which he has been able to produce tend to show that in the great majority of recurrent cases heredity is found. This is in accordance with older statistics, which go to show that heredity is, if anything, rather in favour of a case recovering from a given attack, slighter causes upsetting an unstable mind being more easily thrown off.

The Statistics.—As before pointed out by us, the statistical tables dealing as they do with such a large mass of patients as to afford much material for elucidating points of interest and value, are in many important directions of comparatively little use, because from the diversity in methods of enumeration it is impossible to totalise the returns of individual asylums. Without that totalisation truth cannot be arrived at, for, in face of the fact that external factors decide the admission of particular cases into that or this asylum, none of the asylums can be profitably compared with its fellows or with any other asylum in the kingdom. We are glad therefore to hear that a sub-committee has it in hand to bring up a new set of tables that will lead

to better results. There is no indication as to whether the Association tables as lately revised will be adopted or not, but we may hope that they will find due favour. But, whatever the final shape given to the revision may be, it will be a great good if the same methods are used in the asylums of the Metropolitan Board. Then there would be a full array of figures dealing with practically all the insanity of the area covered by the two authorities.

City of London.—The report is the last from the hand of Dr. Ernest White, whose retirement is duly dealt with under complimentary circumstances. We can congratulate him on a long and successful tenure of a highly responsible position. His services have not been acknowledged solely by word of mouth, a handsome pension being the practical appreciation of his work. We may wish his successor, Dr. Steen, as long a career, as great a measure of credit, and as happy an apotheosis.

Suffolk.—Dr. Whitwell gives expression to a difficulty that must be felt by all, and one which deprives of their accuracy the records of successful treatment of mental disease, though, over a large area of differing opinion, a fairly trustworthy average result can be arrived at.

“The recovery rate for the year has been exceedingly low, the lowest for many years, and this has been in part due to the very hopeless character of the admissions, and also to a most critical use of the word recovery. This word is one which gives a great deal of trouble when really analysing cases and results; that which is called recovery in bodily disease will not hold good to the same extent in mental disease, the standard is necessarily different on account of the complexity of nervous structure and mental disease, and the essential interdependence of the various parts of the brain; thus many patients recover from this or that disease with the loss of, say, an appendix, or a finger, the result of this on the individual as a world-inhabitant is frequently of little moment, but a damaged brain, in so many cases affects the entire harmonious working of the whole as an organ, and though the physical deficiency is as small or smaller than in bodily disease the efficiency of the organ as an instrument is impaired, and the function of the individual in the social-complex as a world-inhabitant correspondingly diminished.”

East Sussex.—The committee record that a female industrial trainer has been engaged for the idiot children with highly satisfactory results. Dr. Taylor, in speaking of the great demand for private accommodation, suggests the erection of two more villas for this class. For the purpose of tracing infection in colitis cases a nightly record is kept of the beds in which all patients sleep. A very curious cause of death of a patient is recorded. A female died from exhaustion from duodenal fistula, resulting from the extrusion of a dessert fork, which she stated was swallowed by accident at another asylum some three years before, and which gave rise to no symptoms until the prongs protruded through the anterior abdominal wall. We note that in the causation table Dr. Taylor takes as his basis only “direct” admissions, ignoring those transferred to his care. He thus follows the lead of the Statistical Committee. This is, undoubtedly, the only safe method.

West Sussex.—We are glad to see that the pension question is being considered at Graylingwell. Dr. Kidd writes:

“The subject of a scale of superannuation allowances is now receiving the attention of the committee. During the year five attendants, two of them married

men and holding charge appointments, left within three weeks at short notice to take up private nursing. It is within my knowledge that these men frequently give up their appointments and years of service only to find out afterwards that their best policy is to re-enter asylum service at some other institution. The mischief is, that this institution loses in this way men of good experience whom it would be an economy and an advantage to retain by every possible means."

Some Scottish District Asylums.

Ayr.—Dr. Easterbrook is one who takes infinite pains to arrive at satisfactory histories in his admissions. He states that in no case has it been found to be impossible to get a sufficient *personal* history of the patient's present attack and past illnesses, his habits, traits, mode of life, etc. The results of inquiry into heredity have not been so successful, but he appears to have obtained more or less reliable information in all but 11 out of 138 cases. In 43 cases addicted to alcohol he found that in 19 only could the mental disease be attributed to the poison, in the others indulgence was symptomatic. We are entirely with him in his belief that in the majority of people what is called moderate drinking is more than enough, and we would go further in stating our belief that, while alcohol as a demonstrable cause of insanity may be over-rated, by no means is the influence of quiet destruction of function and organ sufficiently considered. But we think that he is in error when he takes a certain fixed amount of alcohol as denoting the universal margin of safety; that implies a similarity in man and his economy which is clearly wanting. Each one must have his own limit, in many the limit is zero. The statistical tables are elaborate, and, in many respects, unique.

Argyll and Bute.—Nearly one third of the cases admitted were re-admissions. This high proportion is probably due to the broad and liberal views (to quote the remarks of the Commissioners) that Dr. Cameron displays in giving cases a chance of residing outside the asylum. No less than 138 out of 451 resident had had such a chance given them. An average duration of absence from the asylum of three and a half years would appear to justify the trials thus given. The Commissioners likewise commend the large amount of liberty given, 90 out of 204 men and 16 out of 217 women being allowed unrestricted liberty within the asylum grounds. It is satisfactory to read that only one man escaped during the year.

Glasgow, Gartloch.—Dr. Parker regards 37 *per cent.* of recoveries as sufficiently satisfactory in view of the fact that much acute lunacy in Glasgow is taken to the mental wards over which Dr. Carswell presides, and is thus prevented from coming on to the asylum and swelling recoveries. On the other hand he complains with justice that of his 297 admissions only 85 were first attacks and received within twelve months of the onset. Thirty *per cent.* of the deaths resulted from general paralysis. Dr. Parker attributes the reduction of death-rate from phthisis to 11 *per cent.* from the former 20 *per cent.* entirely to the institution of the sanatorium. The condition of the patients in the hospital led the Commissioner (Dr. Macpherson) to state that they presented a good example of the benefits of efficient care and nursing. The recently-admitted cases were all confined to bed, and showed, in

his opinion, no disposition to be restless or refractory. These cases included all kinds of acute mental affection, but the more prominent symptoms were evidently greatly modified by the form of treatment and by the surroundings. Several patients (about six of each sex) suffering from acute mental symptoms were being treated by rest in bed in the open air, their beds being placed in the verandah opening off the sick wards. The results are said to be encouraging. The state of unrest among the nurses, which has lately become so acute, is foreshadowed by the numerous changes among them as reported. The nursing day has been reduced from fourteen to nine and a half hours, and there is a comfortable home for the nurses. The reason for the state of dissatisfaction is not made apparent by any of the reports.

Inverness.—In this asylum the removal of suitable but unrecovered cases to the care of friends or others continues to be a feature of the administration, 37 having thus been disposed of in this way during last year. They all go out on a twelve months' probation. Of 140 sent out in the last four years only twenty-two have had to return. The system, besides offering a more natural style of life to the individual, has undoubtedly had the effect of stalling off building. Dr. Campbell, the new Medical Superintendent, states that he has no difficulty in finding suitable homes for industrious patients, while the reverse holds good for the idle. The allowance is so small that some little help in work from the patient is requisite. Dr. Campbell speaks, as both the Commissioners do, warmly of the share taken by his predecessor, Dr. Keay, in bringing the asylum up into the first rank. We note that out of a list of thirty-five attendants and nurses who had taken the certificate of the Association prior to 1904 only three remained in the service. Men and women have left in equal proportions.

Lanark.—Dr. Kerr adverts to a decreased admission-rate in spite of increase in population, but he does not put any great weight on this fact, as it may be due to a passing period of bad trade. When we turn, as one naturally does, to the statistical tables to see how the actual figures compare we find that there is no Table III; in fact there are no tables that give the particulars for any years other than the one under review. This is much to be deprecated, for many of us take interest in such matters, and have no other way of estimating the work of an asylum. We cannot but believe also that sooner or later some occasion will arise when the authorities of Hartwood itself will want to know a little of its own doings in the past without being put to the great inconvenience of collating yearly reports. We read of a high recovery-rate (49·2 *per cent.*) which, indeed, is stated to be a record. Here, too, we are deprived of information, the seeking of which is suggested by the figures above. Two recoveries after six years' residence in each case are mentioned, mental symptoms in each, curiously enough, disappearing after a severe attack of pneumonia.

Roxburgh.—Dr. Carlyle Johnstone is also a firm believer in sending patients out on probation and clearing the asylum of as many patients as are reasonably entitled by their conduct to have a trial. He records that out of 351 resident at the time of report, no less than 40 *per cent.* had had, at one time or another, such a trial in their own homes.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY MEETING was held at 11, Chandos Street, London, W., on Thursday, November 16th, 1905, Dr. Outterson Wood, President, in the Chair.

Present : Drs. W. Lloyd Andriezen, Henry T. S. Aveline, Robert Baker, Fletcher Beach, George F. Blandford, C. Hubert Bond, David Bower, John F. Briscoe, James Chambers, Harry Corner, Maurice Craig, Francis G. Crookshank, Frank A. Elkins, G. Stanley Elliot, W. Gilmore Ellis, William Everett, Edwin Goodall, William Graham, George W. Greene, Horace E. Haynes, John W. Higginson, H. Gardiner Hill, Charles K. Hitchcock, Theo. B. Hyslop, Robert Jones, Percival L. Langdon-Down, Evariste Laval, Richard J. Legge, Peter W. Macdonald, Henry J. Macevoy, H. J. Mackenzie, S. Rutherford Macphail, William F. Menzies, William J. Mickle, James Middlemass, Cuthbert S. Morrison, James Neil, H. Hayes Newington, Bedford Pierce, Henry Rayner, George E. Shuttleworth, R. Percy Smith, Henry Stilwell, Reginald J. Stilwell, Adam R. Turnbull, John Turner, Frederick Watson, Ernest W. White, T. Outterson Wood, David Yellowlees.

Apologies : Drs. Thomas Drapes, Hamilton C. Marr, Frederick R. P. Taylor, T. Seymour Tuke.

Visitor : Dr. Frederick J. Lawson.

The minutes of the last meeting, having been printed in the JOURNAL, were taken as read.

The PRESIDENT announced that the Society had received an intimation of the death of Professor Bernhard Heinrich Laehr, who had been an Honorary Member of the Association since 1866. He expressed the regret which would be felt by the members of the Association at the distinguished gentleman's decease, and proposed that Dr. Jones, the Honorary General Secretary, be requested to send a letter of condolence to the relatives of their late lamented colleague and friend.

The following candidates were elected ordinary members of the Association :—
Dorsetshire, Harold Stewart Cassan, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Nottingham City Asylum, Mapperley, Nottingham (proposed by Evan Powell, W. J. A. Erskine, and Robert Jones); Dove, Augustus Charles, M.D., M.B., B.S., "Brightside," Crouch End Hill, N. (proposed by T. Claye Shaw, H. Hayes Newington, and Robert Jones); Hallett, Harry George Drummond, M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, Darent Asylum, Dartford, Kent (proposed by A. Rotherham, Arthur E. Patterson, and R. H. Steen); Johnston, Thomas Leonard, L.R.C.P.&S.Edin., L.F.P.S.Glasg., Senior Assistant Medical Officer, Bracebridge Asylum, Lincoln (proposed by H. Hayes Newington, A. S. Newington, and George P. Torney); Murrell, Christine Mary, M.D., B.S., Medical Registrar and Electrician, Royal Free Hospital, 86, Porchester Terrace, W. (proposed by A. Helen A. Boyle, F. R. P. Taylor, and R. Percy Smith); Paul, Maurice Eden, M.D., M.R.C.P., L.R.C.P., District Medical Officer, Parkstone, Dorset. Address : Moorcroft, Parkstone, Dorset (proposed by W. Gilmore Ellis, G. H. Savage, and R. Percy Smith); Phillips, Norman Routh, M.D., M.R.C.S., L.R.C.P., Assistant Medical Officer, "Stonehouse," St. Martin's, Canterbury (proposed by Norman Lavers, J. F. Woods, and H. Rowe Jeremy); Ridley, Edward Hope, M.D.Edin., Ticehurst House, Ticehurst, Sussex (proposed by H. Hayes Newington, A. S. Newington, and Robert Jones); Robertson, Constance C., M.B., B.S., Assistant Medical Officer, Tue Brook Villa, Liverpool (proposed by T. W. McDowall, G. R. East, and Robert Jones); Toogood, Frederick Sherman, M.D.Lond., Medical Superintendent, The Infirmary, High Street, Lewisham (proposed by H. Hayes Newington, T. Outterson Wood, and Robert Jones).

Dr. W. GILMORE ELLIS read a paper (illustrated by photographs) entitled "A Few Remarks on Opium Smoking and the Morphia Habit in the Straits Settlements." This paper will appear in the next number of the JOURNAL.

Dr. F. GRAHAM CROOKSHANK contributed "Some Notes on the Study of Insanity." See page 49.

Dr. G. WATTERS GREENE read a paper entitled "Prognosis in Dementia Paralytica."

At the Council Meeting, which was held at 2 p.m., the following members were present:—Drs. Aveline, Beach, Bond, Bower, Chambers, Craig, Graham, Hitchcock, Robert Jones, Legge, MacBryan, Macdonald, Newington, Pierce, Rayner, Percy Smith, Steen, Turnbull, Turner, White, Wood, Yellowlees.

In the evening the members dined together at the Café Monaco.

CLASSIFICATION COMMITTEE.

The following are the members of the Classification Committee:—Drs. Percy Smith (Chairman), Goodall, Robert Jones, Macpherson, Mercier, Conolly Norman, Savage, and Outterson Wood.

SOUTH-EASTERN DIVISION.

The Autumn Meeting of the South-Eastern Division was held by the courtesy of Dr. R. Langdon-Down, at Normansfield, Hampton Wick, on Wednesday, October 18th, 1905.

Among those present were Drs. T. Outterson Wood (President), R. Percy Smith, Ernest W. White, G. E. Shuttleworth, H. Stilwell, H. E. Haynes, William Rawes, A. Rotherham, S. C. Elgee, G. N. O. Slater, David Hunter, W. G. Fee, F. C. Gayton, F. H. Edwards, C. H. Fennell, J. Wigmore Higginson, F. S. Crookshank, H. Gardiner Hill, A. N. Boycott, J. R. Hill, Fred Watson, M. T. Archdall, N. Navarra, H. W. B. Stoddart, R. J. Stilwell, W. H. Bailey, A. S. Newington, and R. H. Steen (Hon. Sec.).

The house and grounds were inspected, and subsequently Dr. Langdon-Down entertained the members to luncheon.

The meeting of the Divisional Committee was held at 2.15 p.m., Drs. Rawes, Boycott, Hunter, Slater, Stilwell, and Steen being present.

The General Meeting of the Division was then held, Dr. T. Outterson Wood (President) in the Chair.

The minutes of the last meeting having appeared in the JOURNAL were taken as read and confirmed.

The following gentleman was elected as an ordinary member of the Association:—J. Francis Dixon, M.D., B.Ch., B.A.O., B.A.(Dub.), L.M.(Rot.), Senior Assistant Medical Officer, Three Counties Asylum. Proposed by Drs. De Lisle, Hyslop, and Stoddart.

The invitation from Dr. A. N. Boycott to hold the Spring Meeting of the Division at the Herts County Asylum, Hill End, St. Albans, on April 25th, 1906, was unanimously accepted with much pleasure.

The PRESIDENT stated that he wished to draw the attention of each member of the Division to the importance of carefully considering the proposed amalgamation of the Association with other medical societies in London. It was a matter of the greatest importance, and it behoved each member to weigh the subject in all its bearings.

Dr. ERNEST W. WHITE who followed stated that he fully endorsed the remarks which had fallen from the President, and moved that the Secretary of the Division should note the matter and place on the Agenda of the Spring Meeting of the Division the following subject for debate:—"To consider what steps should be taken by this Division in view of the suggested amalgamation of the London Medical Societies into one Association to be termed the 'Royal Academy of Medicine.'" This was carried unanimously.

Dr. LANGDON-DOWN read a paper on "Some Observations on the Mongolian Type of Imbecility."

He presented a series of fourteen examples for inspection, including nine adults, and it was more particularly to the adult conditions of this type that he drew attention. Dr. Shuttleworth and Dr. Ireland were cited to show that the majority of these cases die before reaching adult life, and that they generally succumb to tubercular disease.

The examples shown ranged from 24 to 56 years of age, the average age being 35 for the nine cases; the lady aged 56 was probably a nearly unique instance in this respect.

It was pointed out that they were not to be confused with sporadic cretins, from which they were easily distinguished, and that they do not respond to thyroid feeding.

The mental capacity varies very greatly in different cases from mere feebleness of mind to idiocy of a low grade.

The eight adult male patients ranged from 24 to 46, and averaged 32 years. The extremes of height were 4 ft. 11 in. and 5 ft. 4½ in., the average being 5 ft. 0½ in., this being about seven inches below the normal average height.

The average weight of a normal male of this height is below 9 stone, whereas the average weight of these cases is above 9 stone, showing that they are rather heavy for their height, and this is accounted for by the tendency to lay on fat.

The circumference of head varied from 20 in. to 21½, the average being 20½, as compared with 22½ in. for the normal adult male, thus showing a deficiency of nearly two inches.

The shape of the head was shown by diagrams to be rounded, the antero-posterior diameter being shorter in comparison with the transverse than in the normal, and in very few cases were there bosses or eminences on the skull.

It is thus found that in adult life the skull does not exceed in size that of an average boy of 12 years, and the growth in circumference after 12 years of age is much less than normal.

With regard to causation other neurotic cases in the family were recorded in eight out of the fourteen cases; in five the family history was claimed to be free from any such taint.

Four are the youngest children of the family, two were prematurely born. Ill-health and anxiety in the mother and difficult labour are also noted.

The proportion of these cases to the other imbeciles in the establishment is 9·7 per cent.

This figure very closely corresponds with the statistics of the late Dr. Langdon-Down, based mainly upon his experience at Earlswood, which showed that this type accounted for 10 per cent. of all his cases. This proportion is greater than has been noted by other observers, thus Dr. Shuttleworth says this condition obtains in 5 per cent. of mentally defective children. Dr. Ireland gives the proportion as about 3 or 4 per cent. to the other idiots, while Dr. Martin Barr, of Elwyn Pa, finds it in only '09 per cent. of all cases of idiocy.

It is possible that this discrepancy may be in parts accounted for by differences in the composition and character of the constituency on which the percentages are reckoned; the American institutions, for instance, receiving a larger proportion of those cases we now call feeble-minded than has been usual in this country.

Continental observers recognise the existence of cases of this type, but consider them to be of much less frequent occurrence than they would appear to be here.

The mortality among these patients appears, at all events in the earlier years of life, to be somewhat greater than among imbeciles of other types; in the majority of cases death is due to pulmonary affections.

The principal peculiarities characteristic of this group were referred to and demonstrated in the cases shown, particularly in reference to the general build, the condition of the skin and its appendages, the tongue, the shape of the palate, defects in connection with the eyes, ears, and the nervous system, and the striking mental and moral characters were described.

Taken altogether, this series of correlated characters involving every part of the body, and with it the disposition and habits, formed a significant clinical picture.

The question arises as to the cause and explanation of this condition. In the paper in the *London Hospital Reports*, 1866, which first described this type, and gave it the name by which it is generally known, the suggestion apparently was that this was an example of "retrogression, or, at all events, of departure from one type, and the assumption of the characteristics of another," "the ethnic features of the group being the result of degeneration," in short of what biologists call "reversion to type."

It would appear, however, that the characters which at first sight strikingly suggest Mongolian features and build are accidental and superficial, being con-

stantly associated, as they are, with other features which are in no way characteristic of that race, and if this is a case of reversion it must be reversion to a type even further back than the Mongol stock, from which some ethnologists believe all the various races of men have sprung.

On the other hand, it may be an instance of "variation," though there seems to be a difficulty in applying such a term to a condition comprising so many widely different correlated peculiarities and recurring with such frequency. It appears necessary then to fall back upon the view that arrest of development takes place very early in its progress, and affects practically all parts of the organism, the process in this respect differing from the incomplete development which produces *spina bifida*, cleft palate, etc., which latter are defects not specially frequent in these or other imbeciles.

This arrest must be due either to some inborn latent tendency, such as might be attributable to a neurotic heredity, or to some defects of environment occurring in early intra-uterine life with considerable frequency, or to both these factors combined. This explanation seems, so far as it goes, to be supported by the histories of the cases.

However this may be, these cases form an important homogeneous group, of which it may be claimed, with some confidence, that in any inquiry we are at least comparing like with like; a group therefore more likely than any other to throw light on the causes of idiocy, and more likely to suggest measures of precaution, and even to become amenable to treatment, should any constant defect in the external conditions come to light.

The PRESIDENT stated that the meeting was deeply indebted to Dr. Langdon-Down, not only for his excellent paper, but for the opportunity of seeing a class of case which was comparatively rare. He had only seen cases in the earlier years of life, as in the later stages they were generally admitted into some institution.

Dr. SHUTTLEWORTH alluded to the fact that it was most interesting that the son of Dr. Langdon-Down, who first gave the name to this class of case, should be there that day giving so valuable a demonstration on the subject, and he felt proud that he had been called upon by the President to discuss the very excellent paper they had heard.

There were many points of interest in the consideration of the ætiology of these cases. Personally he had ventured to term them "unfinished children," bearing permanently the imprint of a phase of foetal life. This was a rough and ready sort of explanation, and he did not know if it would stand scientific examination.

Dr. Langdon-Down had remarked on the processes of gestation having some connection with the causation of these cases. He himself had frequently seen such children as the last of a large family (e. g. the youngest of fifteen). He had noticed also the frequency with which these patients had a tubercular heredity. His own figures gave a tubercular family history of 60 *per cent.*, and he attached considerable importance to this fact.

Debility (however caused) of the mother during the pregnancy seemed a frequent factor. He described a recent case he had seen in which the parents were Dutch. The mother had a contracted pelvis, and with the idea that the child born should be as small as possible, she was placed during the last five months of pregnancy on a very restricted and meagre diet, with the result that the child (born at full time) was a Mongolian imbecile. The question as to whether parental syphilis played any part in causation was one worth considering, and Dr. S. A. Sutherland had noticed this factor in many cases, though personally he had recognised it but in very few.

Dr. Shuttleworth handed round some photographs of Mongolian idiots showing many interesting points, notably the deformity of the feet, the toes being of the same length, and in one case the great toe was separated from the other toes by a deep fissure.

Dr. E. W. WHITE stated that he had had the good fortune of taking his King's College class for many years to the Darenton Asylum, where the patients had been excellently classified by Drs. Fletcher Beach, Beresford, and Fennell. On following up these cases of Mongolian idiocy, and on information supplied by these gentlemen he had been struck by the fact that many of them died from tuberculous and other diseases of the lungs. He had thought the matter out, and having noted the extreme dryness of the skin, which is a marked characteristic of these

cases, he had wondered if that fact had any connection with the prevalence of lung disease in this class of patient. The lungs had to compensate for the diminished activity of the integument, and the increased stress thus thrown upon them might be a factor of importance in this matter. Dr. Fennell was present, and he hoped that he would give the benefit of his views.

Dr. FENNELL said he had frequently noticed that many of these cases suffered from congenital heart disease. As regards the comparative frequency of these cases it seemed to be a fact that more cases were met with in the upper classes of society than in the lower. In Darenth Asylum the proportion was 1 in 20, or 5 *per cent.* among 2000 patients.

Dr. LANGDON-DOWN replied.

The PRESIDENT regretted that time did not permit Dr. W. H. B. Stoddart to read his paper on "Instincts—a Psycho-physical Study in Evolution and Dissolution."

A vote of thanks was unanimously passed to Dr. Langdon-Down for so hospitably receiving the Division.

The members, to the number of fourteen, dined together afterwards at the Café Monico.

NORTHERN AND MIDLAND DIVISION.

The Autumn Meeting of the Northern and Midland Division was held, by the kindness of Dr. Ewan, at the Kesteven County Asylum on Thursday, October 12th, 1905. Present:—Drs. Ewan (in the chair), Macdowall, Archdale, Hitchcock, T. W. Gilmour, Macleod, Pierce, Torney, Stewart, Wilson.

Mr. Edward Swan Simpson, M.B., C.M.Edin., Assistant Medical Officer at the East Riding Asylum, Beverley, was unanimously elected a member of the Association.

CONTRIBUTIONS.

Dr. Wilson read a paper on "Masturbation as a Factor in Mental Disease," which was followed by a good discussion, in which Drs. Macleod, Stewart, Macdowall, Gilmour, Hitchcock, Torney, and Ewan took part, and Dr. Wilson replied.

Dr. Gilmour read a paper on "The Mental Symptoms of Pneumonia in Alcoholic Patients," and in the discussion which followed Drs. Ewan, Macleod, and Pierce took part.

The meeting terminated with a hearty vote of thanks to Dr. Ewan for his hospitality.

SOUTH-WESTERN DIVISION.

The Autumn Meeting of the South-western Division was held at University College, Bristol, on Friday afternoon, October 27th, 1905, the members previously being kindly entertained to lunch by Dr. Bullen.

There were present: Drs. Aldridge, Bullen, Wilson Eager, Gibb, Laval, MacBryan, W. F. Macdonald, Marnan, Morrison, Morton, Rorie, Soutar, Stewart, Wigan, and the Hon. Sec.

Dr. Bullen was voted to the chair.

The minutes of the Spring Meeting were read and confirmed.

NEW MEMBERS.

William F. Macdonald, M.B., Ch.B., and George A. Davidson, M.A., M.B., Ch.B., Assistant Medical Officers, Somerset and Bath Asylum, Cotford (proposed by Drs. Aveline, Macdonald, and Rorie), were elected ordinary members of the Association.

THE NEXT MEETING.

An invitation from Dr. Weatherly to hold the meeting on April 27th, 1906, at the Winsley Sanatorium, near Bath, was cordially accepted.

The Hon. Sec. then read a few notes on "The Classification of Mental Disorders, with Special Reference to Table B 5." The subject was discussed by Drs. Soutar and Stewart and the chairman, and the proceedings terminated with a vote of thanks to Dr. Bullen.

IRISH DIVISION.

The Autumn Meeting of the Division was held on Thursday, November 23rd, 1905, at the Royal College of Physicians, Dublin, by the kind permission of the President and Fellows of the College.

Dr. T. Drapes occupied the chair, and there were also present Drs. Oakshott, Eustace, Leeper, Rainsford, Cullinan, Redington, and Conolly Norman, who acted as Secretary in the unavoidable absence of Dr. Dawson, owing to domestic bereavement. The members having kindly expressed their sympathy with the Secretary, a letter was received from the President of the Association regretting his inability to attend.

The minutes of the preceding meeting were read, confirmed, and signed.

The following candidate was balloted for, and declared to be unanimously elected an ordinary member of the Association:—Capt. Charles John Robertson-Milne, M.D., M.Ch.Aberd., Medical Superintendent, Punjab Asylum, Lahore. Proposed by Drs. C. Norman, J. M. Redington, and W. R. Dawson.

It was decided that the Spring Meeting of the Division, to be held on April 24th, 1906, should take place at some asylum near Dublin, to be fixed by the Secretary in communication with the Superintendent.

The following resolution was proposed by Dr. Norman, seconded by Dr. Leeper, and unanimously adopted:

"That it is desirable that the following changes be made in Bye-law 68:—

After the words 'In the event of a vacancy,' the words 'in the' be deleted and the following words be inserted—'among the nominated non-official members of'; also at the end of the Bye-law, as it stands, after the word 're-elected,' the following words be inserted—'In the event of a vacancy similarly occurring among the officers (official members of Council), the Council may co-opt an officer to fill the vacancy thus occurring, but such officer shall only hold office until the next general meeting, at which the name of the officer whom the Council may nominate shall have been submitted to the meeting in accordance with the provisions of Bye-law 67, which shall be followed in respect of such election, though it be not held at an annual meeting.'"

It was directed that the Secretary should forward the resolution so that it might be considered at the earliest general meeting at which it could legally be received.

It was resolved that an early meeting should be held of the Committee appointed at the summer meeting of the Division to deal with the question of State Provision for Imbeciles.

Dr. Drapes then read a paper, entitled "Note on Psychiatric Terminology and Classification," which was discussed at some length by the acting Secretary, and by Drs. Leeper, Rainsford, and Eustace. Dr. Drapes replied.

The acting Secretary then read for Dr. W. R. Dawson a paper by the latter on "Three Cases of Dementia Præcox." The paper was freely criticised by the members present, one of whom intimated that, though he did not believe in Krapelin's dementia præcox, he was incubating a dementia præcox of his own.

The proceedings terminated with a vote of thanks to the College of Physicians for allowing the Division the use of their hall for the meeting.

BRITISH MEDICAL ASSOCIATION.

SECTION OF PSYCHOLOGICAL MEDICINE.—ANNUAL MEETING, LEICESTER, 1905.

President.—Alexander Reid Urquhart, M.D., F.R.C.P.E.

Vice-Presidents.—Rothsay Charles Stewart, M.R.C.S.; Theophilus Bulkeley Hyslop, M.D.

Hon. Secretaries.—Arthur Molyneux Jackson, M.B.; John Wigmore Higginson, M.R.C.S.

The section was well attended, and the subjects dealt with evoked interesting discussions.

PRESIDENTIAL ADDRESS BY DR. URQUHART.

HEREDITY OF INSANITY.

The address was illustrated by numerous charts, statistical tables, and genealogical trees of neuropathic families. Dr. Urquhart referred to work already done in reference to the heredity of insanity, and gave a *resumé* of the scope of his observations. During twenty-five years there were 1104 cases under care at the Perth Royal Asylum. These represented 886 persons, 623 having been hereditarily predisposed to insanity, eccentricity, neuroses, paralysis, and alcoholism. Three hundred and ninety-four had a distinctly insane heredity. During the last ten years 375 persons under care showed neurotic and insane heredity to the number of 304, and heredity of insanity occurred in 180 cases. These figures included voluntary patients as well as certified. Of late years an increasing predisposition to avoid certification had been observed, and hereditary tendency to insanity in voluntary patients was therefore as much as 33 *per cent.* over the whole period.

The general results of the last ten years were as follows:

Certified patients with a hereditary history of insanity	... 48 <i>per cent.</i>
Voluntary " " "	... 42 "
Both classes " "	... 48 "

If the whole neuropathic heredity were included the results would be increased to 81 *per cent.* for both certified and voluntary patients.

Referring to 623 certified and voluntary patients showing a heredity of insanity and neuroses, the total number of insane relatives recorded were 702 of all degrees of affinity, the number of neurotic relatives 240, paralytic 191, alcoholic 169, tubercular 259, and cancerous 70.

The usual incidence as regards parentage was noted in reference to insanity, 54 fathers of insane patients, in the proportion of 30 for fathers of males, and 24 for fathers of females. The mothers numbered 66, in the proportion of 28 for mothers of males, and 38 for mothers of females. Although heredity might be regarded as the prime factor in the production of insanity, the regenerating effect of a healthy environment was noted, and illustrated by reference to the experience of the Fechney Industrial School.

With reference to general paralysis, it was stated that the malady was certainly increasing in frequency—from 291 *per cent.* to 666 *per cent.* throughout the three periods under review, being a total of 440 *per cent.* over the whole term of years. It was found that ordinary forms of paralysis were very common among these neuropathic families, and the heredity of general paralytics was found to be largely insane. Out of 39 cases 14 were so predisposed. Eccentricity was noted 4 times, neuroses 12 times, paralysis 10 times, and alcoholism 7 times.

Referring to alcoholism, the statistics throughout the three periods under review increased from 68 to 248 *per cent.*, the mean being 168,—that is to say, taking certified and voluntary patients together, alcoholism had been noted in a yearly increasing proportion, although for the years 1903—1904 there had been some diminution. One hundred and forty-five patients had been received, in regard to whom alcoholism had been assigned as a causal factor. Of these 38 *per cent.* were hereditarily predisposed to insanity,—5 *per cent.* were hereditarily predisposed to eccentricity or neuroses. Alcoholism was noted among the near relatives of 24 *per cent.*, while the remaining 31 *per cent.* were apparently not of a hereditary nature. No doubt occupation and environment played a considerable part in the evolution of these last-named cases, and a fuller knowledge would assuredly reveal a faulty heredity in a certain proportion of them.

Dr. Urquhart specially referred to the communication of Professor Karl Pearson in the *British Medical Journal* of May 27th last, in which Professor Pearson gave an account of the investigations of Dr. Otto Diem.

Dr. Urquhart pointed out that we did not touch these and similar cases in the segregate practice of medicine in hospitals for the insane, and urged that a fuller

investigation should now be entered upon. Such an inquiry had already been instituted by Dr. John Macpherson in the course of last year, and it might well form a basis for further work in this direction. He concluded by suggesting that the Section of Psychological Medicine should pass a resolution asking the Central Council to appoint a committee for the investigation of hereditary forms of disease, and to place at the disposal of the committee such funds as will enable them to report on the whole subject.

THE EXTENSION OF PSYCHOLOGY IN MEDICINE.

Dr. A. T. SCHOFIELD (London) read a paper on the extension of psychology in medicine; he urged the importance of the study of normal psychology and morbid psychology for the mental physician. But it should be, he argued, a psychology founded on the scientific data and investigation of the sister sciences, physiology, human and comparative neurology, and cerebral pathology. The conscious normal mind had to be studied as well as the subconscious mind and the alienated mind.

A SHORT ACCOUNT OF LUNACY IN LEICESTERSHIRE.

Dr. R. C. STEWART read a paper on this subject, and showed plans of the new county asylum which is in course of erection. The notes on lunacy referred to the history and geography of the occurrence of lunacy in the county of Leicester during the last few decades. He showed, and described briefly, the plans of the new asylum, one conspicuous feature being detached houses (quite separate from the central main building) for the reception of paying patients, male and female, as distinguished from pauper patients who resided in the central building.

OCCUPATION AND ENVIRONMENT AS CAUSATIVE FACTORS OF INSANITY.

Dr. T. B. HYSLOP opened a discussion on occupation and environment as causative factors of insanity. The transformation from rural to urban life, he said, was accompanied by influences which proved deleterious to mental health and stability. (Illustrative cases were cited.) Migration from country to town not only led to the crowding of congested "slum" areas, but the weaker (less energetic and less ambitious) rural population left behind degenerated, partly from its inherent apathy and insufficiency of mental energy, and partly owing to much inter-marriage among themselves. The general tendency, with the advance of hygiene and civilisation, to improve the fitness of the female population to become good wives and healthy mothers had not always been fraught with success; women nowadays showed a tendency on their part to depart from their time-honoured rôle in nature, and the child-bearing and child-rearing obligations of womanhood among the middle and upper classes were becoming more and more neglected, the burden or duty of maintaining the slow increase of the population being borne chiefly by the lower classes. This was partly responsible for much of the physical deterioration of the race, the well-bred and well-fed of society neglecting the obligations of maternity; while the prolific poor, the lower, less refined, more ignorant, strata of the masses were thus of necessity made the main source and tributary to the future stream of the Anglo-Saxon race. Diminished virility was one of the results, with concomitant increase of degeneracy of body and brain in the progeny created under such conditions. Dr. Hyslop also referred to the power of religion—the sense of the inscrutable infinite Power that ruled Nature and man—as a vital factor for good if reverently and conscientiously accepted by all men and women alike.

CAUSATION OF MENTAL DEFECT IN CHILDREN.

Dr. W. A. POTTS contributed a paper on this subject and expressed the opinion that nearly half the feeble-minded are the offspring of insane or feeble-minded parents, and that the others are the outcome of physical degeneration, such degeneration, if we extend our horizon, being really the origin of the whole trouble.

THE PROGNOSIS IN MENTAL DISORDERS.

Dr. ROBERT JONES opened a discussion on prognosis in mental disorders. Prognosis, when applied according to the principles of medicine, was the judgment

formed by the physician regarding the future progress and termination of any disease. In the case of disease the prognosis should be clearly and straightforwardly given to the patient's friends and relatives. The questions asked might be "Is there danger to life?"—"Will the illness terminate in recovery or death?"—"Is the illness likely to be a long-continued one?" and, in the case of mental disorder, "Will there be any permanent mental weakness left behind after recovery from the attack?" It would be important for the family to know approximately how long the expense of the care and treatment of an insane relative would have to be borne, for, of all ailments, insanity was one which was costly to nurse and required time for its treatment and recovery. The peculiar constitution of the patient, the general powers of recuperation, the soundness or tainted neurotic quality of his parentage, the actual form or kind of insanity he had developed, and the circumstances under which that development had been reached—all these were points to be carefully judged and weighed by the physician. Hereditary conditions, the epoch of life—puberty, adolescence, pregnancy and the puerperium, middle age and the menopause, old age—all had to be considered. Insanity, in whatever form it affected the individual, shortened life; the average mortality-rate of the insane population of Great Britain was six to seven times that of the sane general population. In European and American asylums 8 to 12 per cent. of the average number resident per annum died. It was estimated that of 100 persons attacked for the first time with insanity thirty recover and remain well, and the rest die or pass into chronicity, or partially recover to recur again and again. Three out of ten, therefore, may recover and remain sane for the rest of their lives, seven die insane sooner or later. Complete recovery with immunity against recurrence is somewhat rare and exceptional in cases of insanity. The special proclivity to phthisis renders prognosis grave in many classes of insanity. A higher percentage of girls recover from the insanities and psychoses of adolescence (the period of eighteen to twenty-five years of age) than boys. In young children the occurrence of insanity is of very bad prognosis, and the presence of epilepsy or syphilis renders the prognosis worse. General paralysis and acute delirious mania are of fatal prognosis, the mortality being nearly 100 per cent. By co-operation of bad heredity and a malign environment insanity is variously evolved. A good environment is potent for healthy development in case the hereditary taint is not overpoweringly bad.

SOME OBSERVATIONS ON CONFUSIONAL INSANITY.

Dr. L. D. H. BAUGH read a paper on Confusional Insanity, based on the study of a considerable number of cases. He held that the 47 cases considered pointed to the contention that the origin is toxic, that in the majority the toxins act on hereditarily predisposed nervous systems, and appear to do so in one of three ways: (a) directly through the blood or lymph channels; (b) more indirectly, probably through auto-intoxication; (c) still more indirectly, where nerve changes appear secondary to arterial changes. That in all there is a definite causal relationship between the physical and the mental, and, if dementia præcox and general paralysis of the insane are excluded, the constant symptoms—namely, a persistent vasomotor condition, evidence of toxæmia, such as leucocytosis and indoxyl, together with confusion, absence of emotion, a fixed facial expression, and purposeless resistiveness—complete the entity of a definite clinical type of insanity.

At the close of the first day's proceedings a resolution was passed that the Psychological Section should approach the Central Executive Committee with a view to obtaining aid in making an inquiry into the subject of hereditary mental diseases, and the hereditary affections of comparatively sane families.—*British Medical Journal*.

RECENT MEDICO-LEGAL CASES.

REPORTED BY DR. MERCIER.

[The Editors request that members will oblige by sending full newspaper reports of all cases of interest as published by the local press at the time of the assizes.]

JUDICIAL COMMITTEE OF THE PRIVY COUNCIL.

Present: The Lord Chancellor, Lord Macnaghten, Lord Davey, Lord James of Hereford, and Sir Arthur Wilson.

Wehner v. the King.

This was a petition for special leave to appeal from a judgment of the Court of Appeal for Eastern Africa of March 7th, 1905, upholding the conviction of the petitioner for murder by a Court purporting to sit as a Court of Session on February 1st, 1905.

Sir Robert Reid, K.C., and Mr. Leslie de Gruyther appeared for the petitioner; Mr. Henry Sutton watched the case on the part of the Treasury.

The petition stated that after trial before Mr. R. W. Hamilton, purporting to act as Judge of the Sessions Court of the East Africa Protectorate, and a jury of five persons at Nairobi, the petitioner, Max Herman Wehner, was convicted of murder and sentenced to death by hanging. Against that conviction and sentence he appealed to the Court of Appeal for East Africa, and his appeal was dismissed, but his sentence was commuted to penal servitude for life. The petitioner is a settler in East Africa, and with two others in September and October last he was encamped near Nakuru. On the night of October 16th he and Mr. Gibson, a friend, were returning to camp, accompanied by three native boys. The night was very dark, and the road lay through high grass. Wild beasts were prowling about, and the question arose whether they had not missed their way. It was alleged by two of the native boys that the petitioner struck their companion Mchuria, and subsequently shot him with a short sporting rifle. The boys afterwards informed the police, and later on the dead body of Mchuria was found partly devoured by wild beasts, with a spent cartridge lying close by. The petitioner was charged with the murder. The jury found that the accused caused the death of Mchuria, but that he was not responsible for his actions owing to the influence of liquor. The Judge ruled that that was equivalent to a verdict of murder, and sentenced the petitioner to be hung. The petitioner appealed to the Court of Appeal for Eastern Africa, but that appeal was dismissed. After the trial the jury memorialised the Commissioner of the Protectorate for a reprieve, stating that they did not intend to find the petitioner guilty of murder, but only of manslaughter or of causing the death by a rash act. The Commissioner commuted the sentence of death to penal servitude for life.

Sir Robert Reid stated the grounds upon which it was desired to appeal against the judgment of the Court of Appeal for Eastern Africa and against Judge Hamilton's order convicting the petitioner of murder. He said the petitioner was tried before five jurors instead of nine, and that the Judge purported to sit as a Sessions Judge under two Orders in Council, which it was contended had both been repealed. The native witnesses called for the prosecution were not sworn, but were only warned to speak the truth. A number of witnesses were called for the defence. The petitioner denied that he killed the boy, and said that he had no rifle. Mr. Gibson, who was one of the witnesses for the defence, stated that the petitioner had no rifle. The petitioner was not under the influence of drink, but was "riled" about missing his way, and threatened the boys with the stick because he thought they had led him out of the way. The party proceeded on their journey in Indian file. The petitioner went first, and fired two or three shots with his revolver in the air for the purpose of attracting the attention of those in camp, and the boys thereupon disappeared. When the boy's body was subsequently found there was no bullet mark upon it. The body was half eaten by wild beasts. The statement of the two boys was that the petitioner knocked their companion down, and when he got up shot him without motive or provocation.

The Lord Chancellor.—Was there any quarrel between them?

Sir Robert Reid.—None. Under the law applicable to East Africa killing was divided into three classes, namely, culpable homicide amounting to murder, culpable homicide not amounting to murder, and a mere rash act. The Judge, it was contended, did not give any explanation of the law to the jury in his summing up. The law as to the swearing of the witnesses was contained in the Indian Oaths Act, 1873. The jury were sworn after two witnesses had been examined.

The Lord Chancellor said the more serious point was that there was no verdict of guilty; that what the jury said did not amount to a verdict of guilty. His Lordship asked Mr. Sutton what he had to say on the subject.

Mr. Sutton said he did not appear for the prosecution, but was only asked to attend on the part of the Treasury. He could produce a good deal of authority in support of what their lordships had said as to there having been no verdict of guilty. He thought that what the jury said must be considered in the nature of a special verdict. On the subject of special verdicts he referred their lordships to passages in Chitty's Archbold and Hawkins's Pleas of the Crown.

The Lord Chancellor, having again pointed out the importance of the point that there was no verdict of guilty, said their lordships would humbly advise his Majesty to grant special leave to appeal. Of course, it would be open to the petitioner to raise the other points on the appeal as well as the point that there was no verdict of guilty. It was not a question of a new trial being ordered, because in their lordships' view there had been no trial.

In view of the frequency of the assertion that drunkenness is no excuse for crime, it seems worth while to place on record the foregoing remarkable case. The jury found that the accused caused the death of the deceased, but that he was not responsible for his actions owing to the influence of liquor. It seems that several different meanings might be attached to this finding. The Judge at first instance did, in fact, construe it to mean "guilty" of murder. The jury intended it to mean "guilty" of manslaughter. It is conceivable that it might have been interpreted "guilty, but (temporarily) insane." The Judicial Committee found that it meant nothing at all. The report, unfortunately, does not state the grounds of the decision of the Judicial Committee, and we are left to conjecture whether the absence of any verdict is due to the verbal form of the finding of the jury, or whether it is due to the general sense expressed therein. Was it due to the omission of the word "guilty"? or of the word "wilfully"?—the accused might, for anything that appears to the contrary in the finding, have caused the death by accident;—or was it due to the nullification of the first part of the finding by the second part, that the accused was not responsible? Supposing the finding had been "guilty, but he was not responsible for his actions owing to the influence of liquor," would the Judicial Committee have taken this to be a verdict of "guilty, but (temporarily) insane," or would it have held the view that drunkenness is no excuse for crime, and, disregarding the qualifying words, have held it to be a verdict of "guilty" *simpliciter*? It is unfortunate that, on these very important points, we are left without guidance.

Rex v. Devereux.

Arthur Devereux, 36, chemist, was indicted for the wilful murder of his wife. The case was peculiar in respect that, though the plea of insanity was not explicitly raised, much evidence was given of insanity in the families of both the prisoner and the deceased, and efforts were made by the defence to prove that both were, if not insane, at any rate of abnormal mind, and likely to act in ways unaccountable and different from other people. The bodies of the wife and her two twin children by the prisoner were found doubled up in a trunk, and it was admitted that the

prisoner, who was examined and cross-examined in court upon the subject, had placed them in the trunk and sealed over the surface rather elaborately. He admitted that he had repeatedly taken the bodies out and rearranged them in the box. His account was, however, that his wife had committed suicide after killing the children, and that he, going home and finding them dead, became so alarmed at the possible consequences to himself, that, instead of raising the alarm, he disposed of the bodies in the way stated. For the defence it was contended, first that the deceased was a person likely to commit suicide; and, second, that the prisoner came of such an insane stock as to render it likely that, in face of a terrible and unexpected calamity, he would be likely to act in a way different from that of a normal person. The judge permitted to the defence the utmost license in calling evidence which was inadmissible, and thus counsel for the prisoner was allowed to prove that a brother of the deceased had at one time been attended for meningitis, and had subsequently disappeared, having, as it was supposed, drowned himself; that the prisoner's father twice attempted suicide; that an aunt of the prisoner threw herself out of a window; that an uncle of his had been in an asylum; and that the prisoner himself had been regarded by some of his associates as somewhat weak-minded. On the other hand, his employer said that prisoner was a clever chemist and a good business man; and three medical men called for the defence all admitted that the prisoner was not insane.

The jury, after a consideration of ten minutes, found the prisoner guilty, and he was sentenced and subsequently executed.

Central Criminal Court, July 26th, 27th, 28th, and 29th, Mr. Justice Ridley.—*Times*, following dates.

The defence was ingenious, but it was manifestly a forlorn hope, and had no prospect of success. The case is of value, however, as illustrating the extraordinary latitude allowed by the Court to a defence founded upon insanity. Repeatedly counsel for the defence admitted that the evidence he was tendering was inadmissible, and asked the judge to admit it as a matter of indulgence, a request which, after a little demur, was granted.

THE PREVENTION OF THE INHALATION OF FOOD DURING FORCED FEEDING.

By H. DE M. ALEXANDER, M.D. Edin., Senior Assistant Physician, Royal Asylum, Aberdeen.

In forced feeding regurgitation of the food, with consequent flooding of the pharynx, is a necessary prelude to food-inhalation. The regurgitation may arise from the liquid food running back along the sides of the tube, or on account of the patient forcibly vomiting the food by the contraction of his abdominal muscles, or, lastly, it may arise from purely reflex causes. Simple regurgitation is liable to occur in feeding patients suffering from the various insanities associated with delirium, in cases of stupor, and in all cases where marked physical debility is present. Regurgitation owing to forced vomiting on the part of the patient occurs generally in melancholia, mania, and in hysteria. Vomiting and regurgitation, due to reflex irritation of the vomiting centre in the medulla, are often seen in the toxæmic insanities.

Attention to the following details appears to me to diminish the risk of the occurrence of food-inhalation during the process of feeding debilitated or resistive patients with either the œsophageal or nasal tube:

Feed the patient in bed, with his head elevated on one moderately hard pillow, the edge of which should be fitted into the nape of his neck. It is advantageous in some cases to raise the head of the bed on blocks.

The patient's mouth should not be too widely opened, and the tube should not be passed so far as to enter the stomach (Maurice Craig).

It is easier to pass the tube with the head slightly flexed, as with the mouth

open and the head flexed the œsophagus is straightened (Starling); but, after the tube has passed into the œsophagus, the assistant holding the head should be instructed to keep the chin up, as with the head in the extended position there is less chance of any regurgitating food entering the mouth.

In a strong patient, should food regurgitate into the mouth, mere pinching of the tube by the operator until the contents of the mouth have been swallowed is sufficient; but, should the same circumstance arise in a feeble subject, it is safer to withdraw the tube, at the same time elevating the patient to a sitting posture before again passing the instrument.

In order to prevent the patient voluntarily ejecting the food by the contraction of his abdominal muscles, the operator, or an assistant, should apply the palm of his hand to the patient's epigastric region while the muscles are still flaccid, and exert just sufficient pressure to prevent their contraction. This manœuvre is, as a rule, successful in women and in the majority of men, unless the latter be possessed of an exceptional muscular development.

In vomiting and regurgitation due to reflex causes, gastric lavage with a weak solution of Condy's fluid, or with a solution of bicarbonate of soda (one drachm to the pint), about half an hour before feeding, gives the most satisfactory results.

BIFIDITY OF THE SPINOUS PROCESSES OF VERTEBRÆ.

By P. CAMPBELL SMITH, L.R.C.P.

Dr. Ch. Féré has done me the honour of asking me to publish an observation to which I drew his attention some months ago, and which he has confirmed—the occurrence in degenerates of bifidity of one or more spinous processes, especially of the lumbar vertebræ. Since receiving my letter Dr. Féré has seen a dozen cases, of which eight were in the lumbar region; they were associated with a certain degree of hypertrichosis, which he has described⁽¹⁾ as “the faun's tail.” One of his patients was a neurasthenic, the remainder were insane. In a period of several years I have met with hardly as many cases as Dr. Féré has seen in a few months; but he has many more degenerates under observation than fall to my lot. None of my cases have been accompanied by hypertrichosis. One of them was in the dorsal spine, the remainder in the lumbar, and especially the lower lumbar. In most instances one vertebra only showed the condition; sometimes two or even three were affected, and these were always adjacent, except in one case where two contiguous spinous processes and one at some distance were bifid, all these being in the dorsal region. About half the patients were insane, the remainder, if I remember rightly, being all more or less neurasthenic. I do not think that any conclusion can be drawn from Dr. Féré's figures and my own as to the proportion of cases occurring in the sane and the insane respectively, but I have no doubt that, like other signs of degeneracy, the condition occurs most frequently in the insane. As to its association with neurasthenia, I have already stated⁽²⁾ my belief that neurasthenia is a congenital state, and there are grounds for holding that it is itself a stigma of degeneracy.

In his letter to me M. Féré refers to the best position for investigating this condition. I have usually examined my patients while they were sitting up in bed—an attitude that involves some flexion of the trunk—and have trusted rather to palpation than to inspection in the first instance. Dr. Féré has adopted the plan of placing the patient on his side with his trunk flexed.

(1) *La Famille Névropathique*, 2me ed., p. 274 et fig. 13.—(2) *Brit. Med. Journ.*, 1903, vol. i, p. 781.

A NEW SAFETY BATH TAP.

Considerable attention has been paid to the construction and fittings of baths, lavatories, etc., for public institutions, the general principles adopted being simplicity of action and safety from accidents. It is certainly an advantage to be able

to deliver warm water at the temperature desired by the turning of one tap. The ordinary fittings which can only command hot or cold water are out of date. The latest patent is submitted, under the name of Murray's Anti-scalding Tap, by Messrs. A. Liggatt and Co., Ltd., Caledonian Brass Works, Barrhead. It deserves the special attention of those who are responsible for the safety of persons who are unable to exercise ordinary precautions in their daily life, as well as those who use spray or needle baths as ordinary householders. The upper part of the tap contains an ingenious arrangement of toothed wheels, one of which comes into action before the other by an ingenious and simple device. These are actuated by a detachable key which is fitted in a slot, turning one quarter of a revolution for cold water; on withdrawal and reinsertion another quarter of a revolution for tepid water; and after another withdrawal and reinsertion still another quarter of a revolution for hot water. If the cold water be shut off the first manœuvre shows that it has been disconnected, and thereby calls the attention of the person using the tap to the fact. The temperature of the water can be adjusted to a nicety, according to the supply, and a bath can be filled in thirty-five seconds at any ordinary pressure. In a mixing box below the mechanical parts are two screw down valves, moving on right and left hand screws respectively. By these arrangements the cold water is first delivered and finally stopped, as the valve is double-seated—above and below, and by the gradual revolution of the toothed wheels the hot water valve is gradually opened while the cold water valve is gradually closed. Of course by this arrangement the cold water is turned on first and the hot water is turned off first. Inasmuch as the desired temperature of water flowing into the bath or basin can be accurately adjusted, there is no temptation to use the hot water unmixed. An arrow head on the spindle shows exactly how the tap is working—for the delivery of cold, tepid, or hot water. It should be added that the construction of the mixing box is simple, and admits of easy access to the valves when it is necessary to replace the washers.

INTERNATIONAL CONGRESS ON THE CARE OF THE INSANE.

An International Congress on the care of the insane (Congresso internazionale dell' assisteuza degli alienati) will be held at Milan from September 26th to the 30th, 1906. The work of the Congress will deal especially with the family treatment (boarding out, etc.) of the insane; but will cover such questions as the construction, organisation, direction, and administration of asylums for the insane; of special wards for observation and supervision; and of agricultural colonies; the treatment of the feeble-minded, of epileptics, of alcoholics, of the pellagious, of chronic patients, of criminals, and of the morally insane, etc.; psychiatric dispensaries; the *personnel* of treatment (nurses, attendants, various assistants, etc.); legislation; etc., etc.

The President will be Prof. Tamburini, and the General Secretary Prof. Ferrari (Bertalia—Bologna).

A Committee has been formed for each country with the object of obtaining members and also communications on the subjects coming under the various headings detailed below.

The Committee for England consists of Dr. Outterson Wood, Dr. Percy Smith, Dr. Robert Jones, Dr. Mercier, Dr. Hubert Bond, and Dr. H. J. Macevoy.

The Committee for Scotland consists of Dr. Urquhart, Dr. Ford Robertson, and Dr. Ireland.

The arrangements for Ireland are in the hands of Dr. Conolly Norman.

Two general questions are to be treated by appointed delegates from each country represented at the Congress:

- (1) The progress in the care of the insane, especially of family care, in various countries since 1902 (the date of the last Antwerp Congress) up to the present time.
- (2) The organisation of wards for observation, supervision, and isolation in asylums and colonies. Means which have given the best results.

The other subjects and questions for discussion are—

- (3) The treatment of the convalescent insane and institutions for their support.
- (4) The treatment of certain classes of the insane (the feeble-minded, epileptics, alcoholics, the morally insane), especially as regards boarding out in families.
- (5) Ambulances and psychiatric and neuropathological dispensaries.
- (6) Popular sanatoria for neuropaths.
- (7) The economic and social results of the progress in the treatment of the insane, and especially of family treatment.
- (8) The duty of the State in relation to the treatment of the insane.

Papers dealing with these general subjects must be sent in to the General Secretary (Dr. G. C. Ferrari) before the end of April, 1906. They will be subsequently printed in French, and a copy will be sent to each subscriber to the Congress. The meetings at Milan will be devoted to the discussion of these papers, the authors of them being restricted at the Congress to a simple communication of their conclusions.

Only communications, of which an abstract or *résumé* shall have been sent sixty days before the inauguration of the Congress, shall be admitted for discussion; and these communications must relate to the above-mentioned subjects.

The Organising Committee in Italy will do its utmost to obtain great facilities for travel to Milan, and for touring through Italy, and to enable visitors to see a large number of the institutions for the insane. As these facilities will, of course, depend upon the number who intend to join the Congress, the Committee will be glad to receive names as soon as possible.

The subscription to the Congress is 20 francs. Ladies accompanying members of the Congress pay 10 francs only. This sum may be sent at once to the Treasurer of the Congress, Dr. E. Morpurgo, 5, Via Bigli, Milan.

NOTICES OF MEETINGS.

Quarterly Meeting.—The next meeting will be held, by the courtesy of Dr. Bevan Lewis, at the West Riding Asylum, Wakefield, on Friday, February 23rd, 1906.

South-Eastern Division.—The Spring Meeting will be held, by the courtesy of Dr. Boycott, at Hill End, St. Albans, on Wednesday, April 25th, 1906.

Northern and Midland Division.—The Spring Meeting will be held on Thursday, April 19th, 1906.

South-Western Division.—The Spring Meeting will be held on Friday, April 27th, 1906, at the Winsley Sanatorium, near Bath.

Irish Division.—The Spring Meeting will be held at an asylum near Dublin on Tuesday, April 24th, 1906.

Scottish Division.—The Spring Meeting will be held on Friday, March 23rd, 1906.

APPOINTMENTS.

THE ROYAL ALBERT ASYLUM, LANCASTER.—At the last meeting of the Central Committee, Dr. G. E. Shuttleworth, who was for twenty-three years Medical Superintendent of the Royal Albert Asylum, Lancaster, for the training of the feeble-minded of the Northern Counties, was appointed Honorary Consulting Physician to the Institution, on the motion of the Chairman, the Right Hon. Sir John T. Hibbert, K.C.B., seconded by Colonel Foster, D.L., Vice-Chairman.

Clarke, Sidney H., M.A., M.B., B.C.Cantab., Assistant Medical Officer to the Newport Borough Asylum, Carleon, Mon.

Dove-Cormac, H., M.B., M.S.Madras, Second Assistant Medical Officer to the Cheshire County Asylum, Parkside, near Macclesfield.

Pritchard, J. Llewellyn, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer Joint Counties' Asylum, Carmarthen.

Smith, H. Watson, M.B., Ch.B.Aber., Second Assistant Medical Officer to the Durham County Asylum, Winterton Ferryhill.

Tighe, John Brosnan, M.B., B.Ch.Ireland, Senior Assistant Medical Officer to the North Riding Asylum of Yorkshire.

NOTICES BY THE REGISTRAR.

List of the successful candidates at the examination for the Nursing Certificate held in November, 1905.

Bucks County.—Male: James Thomas Latman.

Chester County.—Male: Thomas Partin. Females: Alice Ouzman, Emily Gertrude Lilley, Rose Denton, Nellie Nixon, Maud Simpson, Nellie Stretch.

Kent County, Chartham.—Female: Mary Josephine Cullen.

Lancaster, Rainhill.—Males: Robert Waring, Charles Marshall, Frank Fredk. Laws, William R. Pattman, Ernest Briggs, Herbert Wm. Gleeson, Ernest Woods, Frank Harris, Henry Skepelhorn, Edward Douglas Brown. Females: Elsie Brook Savage, Sara Lily England, Maude May Betteridge, Mary Elizabeth Benton, Bertha Roe, Beatrice Maude Bretherton, Helena Lowe.

London County, Bexley.—Females: Edith Ann Warder, Florence Maria Smith, Annie Rampton, Maud Broadley, Elizabeth Joan Davis, Ethel May Dicker.

Norfolk County.—Females: Annie Swift, Alice M. M. Stead.

Salop County.—Males: Percy Cyril Coomber, Richard Simmonds, Jesse Bright. Females: Ellen Jane Roberts, Florence V. Robbins, Ethel M. Walters, Margaret Barkley.

Somerset and Bath.—Males: Joseph Alfred Charman, Thomas Chard. Female: Bessie Pavey.

Staffs (Cheddleton).—Females: Mary Jenour, Mary Woodings Adair.

Staffs (Burntwood).—Females: Mary H. Blakemore, Frances H. Standley.

Sussex East, Hellingly.—Males: William Thomas Cordell, John Bainbridge, William Woodland, William Blackmore, George Thomas Copus, Edmund Richardson, Alfred Miles, Samuel Fairall, Robert Booth. Females: Catherine Annie Jupp, Rose A. Browne, Milly Elizabeth Lewis, Florence Benton, Helen Rushe, Susan Emily Bath, Nellie Hennessy, Lucy Benton, Gertrude Finch, Elsie Florence White, Gertrude Stone, Margaret Jane Doherty, Mercy Melinda Price, Kathleen O'Neill, Kate Bell Beale, Ellen Freeman, Madge Elizabeth Foster.

Warwick County.—Males: James Isaac Wheeler, William Hy. Rollins, William Bishop. Females: Annie Elizabeth Green, Phoebe Florence Kimberley, Florence M. Reader, Evelyn M. Percy.

Wilts County.—Female: Laura Margaret Fletcher.

Yorks, W. Riding.—Male: Alfred Rhodes. Females: Maria Bowen, Mary Molloy, Annie Molloy, Judith Annie Brooks, Mary E. Triffitt.

Winson Green, Birmingham.—Males: James Edwards, Alfred Higgott, William Hy. Griffiths, Chas. Webley, Thomas Edward Turley. Females: Susan Wall, Ada Higgott, Ada Harriett Yeates.

Rubery Hill, Birmingham.—Female: Edith Mary Lynch.

Caterham.—Males: George William Stone, Duncan Watt, Frederick Bowden, William Ray. Females: Cissie Pringle, Edith Maria Owen, Louisa Annie Catt, Mary Cunningham, Edith Arnold, Mary McGorian, Elizabeth Helen Irish, Lucy Ridgwell, Maude Alice Stepto.

Derby Borough.—Males: Reginald John Buxton, Amos Maycock, Samuel S. Hack.

Exeter City.—Females: Daisy Maude Crook, Lucy Paddon.

Leavesden.—Males: Henry Fyrth, Patrick John Quinlan, Harry Alexander Foster, Frederick Thomas Ginger. Females: Mabel Frances Collins, Martha H. Winnard.

City of London, Dartford.—Males: Thomas William Lane, James P. White. Females: Jane Ann Jones, Mary Dorothy Atwood, Isabella Jones, Amelia Hipkins.

Notts City.—Male: Joseph Henry Newton.

Camberwell House.—Males: John Henry McArdell, Edwin Walker Smith, Frederick Kaye. Female: Rebecca Henry.

Holloway Sanatorium.—Males: Frank James, Joseph Ward, James Hopkins, Thomas Williams, Patrick J. McLaughlin, William Thomas Haggart, Frederick James White. Females: Helen W. L. Albrecht, Jessie Agnes Sancto, Marjory Agnes Blackman.

Retreat, York.—Females: Eileen May Coombs, Isabella Martin, Frances Ellen Fletcher.

Scalebor Park.—Males: Alfred Exley, John William Capstick.

Londonderry District.—Males: John Cunningham, John Linton, John McMorris, Samuel McMorris, Thomas Cairns, William J. Toland. Females: Cecilia O'Brien, Sarah Ann Orr, Elizabeth Logue.

Monaghan.—Males: John F. Little, George Thomas Graham, Philip McCague, Bernard McElmeel, John Seddon.

Stewart Institution.—Male: James Ross. Female: Matilda Best.

Edinburgh District, Bangour.—Male: Peter McIntyre.

Fife and Kinross.—Male: Allan McMahan.

Gartloch.—Males: William Richardson, Edward Beattie, Thomas Byrne. Females: Isabella Manson Wares, Nellie B. Murdoch.

Gartnavel.—Females: Minnie Murray Polson, Martha M. Greive, Isabella D. Watt, Winifred Mary Morrison, Annie Gell Smith.

Govan District.—Females: Georgina Reid, Cassie Kerr.

Inverness District.—Females: Mary M. M. Grieve, Lavina Johnstone, Frances Macgregor, Catherine Isabella Reid, Grace Macgregor, Annie Jane Richardson.

Lanark District.—Females: Elizabeth G. Chapman, Agnes Leiper Macdonald, Agnes Undine W. Burdee.

Stirling District.—Females: Catherine Sinclair Thomson, Mary J. McKay Wallace.

Woodilee.—Female: Margaret Jewel Small Cochrane.

Crichton Royal.—Male: Alexander Baird. Female: Isabel Fallows.

Mavisbank.—Female: Gertrude J. Smeaton.

James Murray's Royal.—Female: Elizabeth Lily Clement.

Private Nurse.—Male: George Williams.

Grahamstown, S. Africa.—Female: Constance Marion Baker.

Pretoria.—Males: Joseph Arthur, John T. Jones, Arthur Hodgkinson. Females: Kathleen Frances Mandy, Bertha E. O'Carroll, Amy Phillpott, Winnie Stephen.

The following is a list of the questions that appeared on the paper:

1. What are the kidneys? What is their function?
2. Describe shortly the way in which you judge of a person's mental state.
3. What are the symptoms of the second stage of general paralysis? To what special dangers are general paralytics liable in the second stage of their malady?
4. What are the most likely occasions of burning and scalding of patients of unsound mind? What precaution should be taken against these accidents?
5. Describe a case of delusion of persecution that you have yourself observed.
6. How would you sterilise a catheter?
7. Describe fully how you would stop bleeding from the temporal artery.
8. What is the difference between a dislocation and a fracture?
9. State briefly the different stages of an epileptic fit.
10. How would you prevent a patient, under treatment at home, from injuring himself or others?

THE
JOURNAL OF MENTAL SCIENCE

[*Published by Authority of the Medico-Psychological Association
of Great Britain and Ireland.*]

No. 217 [NEW SERIES
No. 181.]

APRIL, 1906.

VOL. LII.

Part I.—Original Articles.

Alcoholism, Crime, and Insanity. By W. BEVAN LEWIS,
M.Sc., L.R.C.P.Lond. Medical Director of the West Riding
Asylum, Wakefield.

POSSIBLY the title superscribed to this short article may prove misleading; if so, I must crave your indulgence, as the subject to which perhaps such a title is more applicable could scarcely be done justice to within the short limits of time allotted us. I merely wish to skim over the surface of this question of alcoholism and indicate some special features which have appealed to my interest in this connection, prefacing my remarks on the geographical distribution of alcoholism and insanity with a cursory review of the physiological action of alcohol upon heat-formation and its effects on those centres presumably operant in muscular sense discrimination.

Alcoholism and thermogenesis.—For many years past the heat-formation and heat-discharge of the organism under the influence of alcohol has been a subject replete with interest to my mind, and the parallel results of clinical observation and of physiological experiment upon animals, in my opinion, afford a field of research which well repays further investigation. So far back as 1876 and 1880 I began my observations upon thermogenesis in animals subjected to various alkaloids and other drugs, embracing, amongst others, strychnine, ergotine, picrotoxine, hyoscyamine, atropine, solanine, chloral, caffein and alcohol.

Calorimetric observations on animals, such as the rabbit, to

which graduated doses of alcohol have been given indicate very clearly a primary and secondary stage, the initial stage being one of stimulation of the vasomotor centres in the medulla, *contraction* of arterioles with increase of blood-pressure, the subsequent stage being one of *paralysis* of the same centres or its inhibition through the agency of the pneumogastric nerve. Now, this initial stage of stimulation in which the normal vascular tone is heightened appears to be in inverse proportion in intensity and duration to the dose administered ; and it will be noted as a significant fact that in this we are not concerned with a *diminished* heat-discharge or a period of *heat-retention*, since in such a case the body temperature would necessarily be *raised*, whereas *definite lowering* of the body temperature occurs in all cases.

Here, then, we have a clear instance of decreased thermogenesis ; the initial stage of alcoholic stimulation, be it short or be it prolonged, is one of lessened heat-formation (Table I). To obtain a typical and prolonged initial stage the quantity of alcohol given must be small ; large quantities hurry on the second stage and obscure its effects.

In the second stage of vascular paresis and fall in blood-pressure the heat-discharge is proportional in its duration and degree to the dose administered, the *thermal crisis*—*i. e.*, the period of *maximum* heat-formation—occurring later on with stronger doses, whilst the prolongation of the total heat-discharge is in such cases a very notable feature. In one instance (Table II) a rabbit, to which three drachms of alcohol had been given, betrayed the onset of the paretic stage in the second quarter-hour, the thermal crisis in the fifth quarter-hour interval, and the heat-discharge had not fallen to its normal under two and a quarter hours from the administration of the drug. In this second stage we have therefore a reversal of the thermal conditions, and the large evolution of heat with vasomotor paresis is coincident with increased thermogenesis. The proof of this, of course, lies in the fact that if the large heat-discharge were not accompanied by increased heat-formation the body temperature would rapidly fall, whereas the reverse occurs, the temperature being well maintained.

In lieu of the formula of Binz and Wood, that alcohol in very large doses lowers temperature by directly checking tissue metamorphosis, we are far more in accord with Professor

Parkes, who distinctly expressed his disbelief in the view that alcohol checks tissue change—thermogenesis is certainly checked in the *initial* stage, but the later action, the more pronounced and prolonged with the greater dose given, is certainly that of an *increased heat-formation and heat discharge*. Whatever, therefore, be the explanation of the so-called febrifuge action of alcohol, it can *not* be attributable to a *decreased tissue change* involving lowered temperature.

Now let us compare the action of another potent drug, chloral. Here you will observe the same phenomena, only more marked in degree. The highest registry of heat-formation with alcohol (Table II) was 8720 h.u. or 4·28 h.u.⁽¹⁾ per gramme of body weight; but with chloral we register 10,875 and 16,907 units, or the enormous evolution of 7·7 and 11·3 h.u. respectively.

I will not attempt to dwell upon the mechanism whereby this result is brought about: I merely wish to indicate the similarity of the action of these two toxic agencies and the powerful means they afford us, separately or conjointly, for modifying thermogenesis.

In Table I you will observe the effect of a lethal dose of chloral; the *stimulant stage* is absent, and the large heat-discharge due to vasomotor paresis falls immediately under observation. In the other two cases smaller non-lethal doses given betray an early stage of stimulation of the vasomotor centres, a small or inappreciable heat-formation, with loss of body temperature, to be followed by the large evolution of over fifteen or sixteen thousand heat units, or 11·3 h.u. per gramme of body weight by surface dissipation. In the initial stage of stimulation there is heightened vascular tension, as indicated by sphygmographic tracings, a fact testified to by Anstie, Andrews, and Bouchat. One cannot, then, but be struck by the similarity in action of these two narcotic drugs.

Caffeine.—Now, if I direct your attention to Table III, you will observe that when 2½ grains of caffeine are administered to an animal weighing 1343 grammes, an augmented heat-formation and discharge begin early, and are long protracted. The second column shows the result with 4 grammes in a highly nervous and sensitive animal which struggled much when the temperature was being taken. The first interval here merely indicates loss from the body temperature from this cause whilst resting out of the calorimeter until more docile. Observations

made at the end of the second quarter-hour interval showed immediate increased thermogenesis, the maximum attained of 4.62 h.u. at the end of the third interval, whilst 2.12 h.u. still registered at the end of the fifth observation. Now, the distinction to be noted between these two therapeutic agents is an important one. Alcohol in large doses stimulates thermogenesis and tends towards great loss of body temperature by surface dissipation; caffeine also stimulates heat-formation largely, but, on the contrary, favours retention of heat, there being a steady addition to body temperature and a re-instatement of the norma. The antagonism between alcohol and caffeine is well brought out when both are administered together, and Table III is highly instructive on this point.

Impairment of muscular sense and reaction-time.—The cortical denudations issuing in mental disease afford valuable hints as to the functional significance of the so-called motor area, and the view upheld by Charlton Bastian, that the centres herein have a kinæsthetic rather than truly motor significance, has always had a peculiar hold upon my mind, but I must confess only in a modified sense. It seemed to me that the areas represented for muscular sense discrimination had a wider range than what could be accorded to the truly motor cortex. Searching for clinical data in support of this thesis, general paralysis and alcoholism in particular appeared to me to favour this position. In 1878 in the first volume of *Brain* I wrote as follows: "No *abrupt* passage from one form of cortical lamination to that of another is ever seen in the convolutions of the vault. Changes in type are gradually assumed, and no distinct boundary exists to indicate an exact line of demarcation. The structure peculiar to one region gradually fades and blends with arrangements which foreshadow the architecture of adjacent realms, and thus we obtain *transition regions*. The ascending parietal is such a transition region, where features characteristic of the frontal lobe are blended with those exhibiting a tendency to assume the laminar arrangements of convolutions posterior to it." I have seen no reason since that date for altering this opinion, and I would indicate here that the transition region which I then proceed to describe in detail, bounds the frontal and parietal aspect of the true motor cortex. This is the fringe of cortex which in my opinion represents an extension from the truly motor

region of a type receptive of those impressions we characterise as muscular sense. This is an area which, judging from clinical and pathological data, is *facile princeps* involved in three well-marked affections of the nervous system—alcoholism, general paralysis, and adolescent insanity, or, as some would prefer to call it, dementia præcox. In both the former the *early* implication of this cortical territory is well seen; in both the cell-mechanisms centring around the pre-central and post-central gyri suffer the more profoundly; and in many instances these tracts are almost exclusively implicated.

In all three affections there is a notable impairment of muscular sense; but the point I desire to emphasise is this: with profound loss of muscular sense the subject still retains in all cases at an early stage an exquisite sense of temperature and a keen tactile sensibility. Two deductions would naturally arise from this fact:

(1) The centres which register muscular sense discrimination are wholly distinct from, and do not overlap, those of tactile and thermal impressions.

(2) The centres receiving such muscular impressions are probably largely constituted by the pre-central, post-central, and transition realms of cortex alluded to, and thus the absolutely strict severance of a motor cortex from its guiding sensory arrangements is provided against, and is in line with the doctrines of Hughlings Jackson as regards nervous evolution in general and his views with respect to representative and re-representative centres.

The failure in muscular sense discrimination occurs quite early in general paralysis, where, as we know, the main impact of the lesion falls upon this area of the cortex, and a similar statement may be made for early stages of alcoholic insanity, revealing this decline of the muscular sense. Nay, even in the effects of alcohol upon healthy individuals transient reductions in this sense may be recognised by all who experiment on themselves or others with delicately graduated weights. First comes the stage of uncertainty as regards the finer tests, a doubt which soon extends to the grosser series, and eventually doubt gives way to absolute incapacity to determine the finer and grosser differences in weight. This early implication of muscular sense, leaving the special senses and tactile sensibility intact, is sometimes recognised in somnambulistic states. I

will quote a personal experience : At the age of twelve I was an ardent student of osteology, and knew the human skull almost as well as I know it now. A grimy, stained specimen was always placed near my bedroom window, and whilst asleep one night I thought I awoke and saw a brand-new skull, white as ivory, on a bookcase at the foot of my bed. I clambered up by a chair, secured my prize, and holding the newly-acquired treasure in my right hand and the old friend in the other, I compared their relative merits long and critically. Then, replacing the ideal skull on the bookcase I fell asleep. On waking next morning I found, of course, that I had acted the part in a somnambulistic state—the chair was at the foot of the bookcase, the real skull was displaced from its customary site at the window. Now, the feature to which I specially draw your attention was that the sensorial centres generally were all remarkably active—full consciousness of configuration, orientation, details of structure, solidity and colour were keenly appreciated—yet I wholly failed to note the absence of weight in the ideal skull balanced against the real one. Surely this was an illustration of reductions in a special kinæsthetic area whilst the greater extent of sensorial cortex was wide awake to peripheral excitations; possibly also the vivid realisation of the ideal skull was an illustration of the dual action of the two hemispheres.

The total reaction-time to sight and sound stimuli is, as is well known, notably delayed under the influence of moderate alcoholic stimulation. The subject usually thinks he is reacting with his customary rapidity, or even in excess of his customary speed; in like manner the judgment pronounces *favourably at the time* as regards the glibness of speech, the contents of conversation, or the intrinsic value of writing and composition under the action of alcohol; and many an amusing story could be gleaned from individual experience of the eagerness with which the brilliant speaker next morning would wish to disclaim the remarks made by him on festive occasions. Not so, however, with the muscular sense: the judgment, it seems to me, is not so blinded to the steady advance in failure of this sense discrimination, and records only too painfully its growing impotence. Now, it appears to my mind that this failure of delicate discrimination of the action of the smaller musculatures is one of the very earliest to occur in cerebral reductions,

physiological or pathological ; and notably is this the case in alcoholic forms of brain disease.

In the magnificent monograph on *Cortical Localisation* recently given to the world by Dr. Alfred Campbell, for which all of us as psychologists should be deeply indebted, I observe that the conclusions arrived at by me as to the "transition" regions of the cortex cerebri are fully identified and confirmed, corresponding in the main to his post-central and intermediate pre- and post-central cortex ; but I glean from his remarks that he assigns the site of muscular sense discrimination to the post-central area only, strictly limiting this localisation to post-central realms. In all other particulars we are in most absolute agreement.

Geographical incidence and heredity.—We have all to familiarise ourselves with the geographical limitations of disease in general: the cosmic and telluric agencies of climate, soil, temperature, moisture, vegetation, which so largely condition the prevalence of certain forms of disease, and which constitute so fascinating a study for the public health officer. But although as affecting large communities from a racial or ethnic standpoint certain valuable generalisations have been arrived at, the relationships of alcoholism, pauperism, crime, and insanity amongst smaller communities, bound together by similar political interests, the same legal enactments, and subject to intimate individual intercourse, action, and reaction, is one of perennial interest to the psychologist. In the following remarks I wish to disarm all criticism by at once admitting how fully I recognise the deceptive flexibility of statistical inquiry, more particularly when it concerns the labyrinthine intricacies of the social fabric. I venture, however, to believe that there is a kernel of truth in the results I am about to place before you, and which further experience and inquiry may enucleate and sever from all adventitious matter—facts to which I first drew attention in an article published in the *Fortnightly Journal* for 1893. Limiting our inquiry to England and Wales, it is seen by reference to the table that the convictions for drunkenness per 1000 of the county population show remarkably diverse ratios, beginning with a ratio of '7 for Cambridge, and ending at Durham with the high ratio of 17'5 as the maximum. Now, the average ratio for all England and Wales was 5'8, and whilst thirty-four counties were below this average, thirteen counties exceeded it. Specially

notable for this inebriate proclivity were Northumberland, Glamorgan, and Durham, with ratios respectively of 11·0, 11·3, and 17·5 per 1000. On more closely analysing our figures we find that by far the greater part of the west coast, and the whole of the east and south coast from the East Riding of Yorkshire down to Devon, give us a very moderate ratio of convictions for drunkenness; and that exactly similar conditions prevail in at least thirteen out of the fifteen inland, rural, and *agricultural* counties, in which the highest ratio attained is 3·3. In other words, the maritime as well as the inland counties populated by an *agricultural* community are by a long way the most temperate in our island home, so far as England is concerned. Now, if we compare the mining and manufacturing communities along the remaining sea-board, we find that six give us ratios above the average—*e.g.*, Chester and Cumberland at 6·8, Lancaster at 8·4, Northumberland at 11·0, Glamorgan at 11·3, and Durham at 17·5.

Again, of the nine *inland* counties distinguished by their mining and manufacturing industries, all but one give ratios above the average, whilst four greatly exceed the latter. To quote from a former statement of mine, "We may therefore accept it as a fact that of the telluric and geographical influences by which a community is conditioned the agricultural pursuits of inland counties, as also of the sea-board, with its associated maritime industries, are far more favourable to national sobriety than the employments originating in the mineral resources of the counties, with their associated manufactures, and that probably the relative local position of sea-board (apart from the seasonal exodus from the dense centres of life) or inland communities does not materially affect the question, although undoubtedly the mining and manufacturing industries with an extended sea-board afford us the highest of all ratios."

In the second place, a very definite relationship exists between the *occupations* of the community and the prevalence of *pauperism*, and a glance at the tabulated statistics will reveal a very high ratio of pauperism wherever we are dealing with an *agricultural* population. The average ratio of paupers to 1000 of the total population of the Union counties was for the date in question 26·9, and we find that twenty-three out of twenty-five of these counties give ratios from 30 upwards; Herts, Radnor, Hereford, Montgomery, Norfolk, Dorset, Merioneth, all range above 40,

whilst Anglesea stands at 55·4, or more than double the average for all England and Wales.

On the other hand, should these counties be characterised by manufacturing industries, and especially should the mineral wealth of the locality foster mining operations, pauperism declines and a ratio far below the average is attained by nearly all the mining and manufacturing districts—*e.g.*, Westmoreland (22·5), Warwick (21·3), Derby (22), Nottingham (22·1), York, West Riding (18·6), Northumberland (20·3), Durham (20·6), Lancaster (18·2), Cumberland (28·8), Cheshire (20·9), Glamorgan (24·9).

In the third place, the effects of centralisation are revealed in the following columns in the densely populated manufacturing and mining centres of our boroughs and county boroughs, as modified by the free influx of a seafaring community; thus, whilst the large inland county boroughs of Leeds, Bradford, Sheffield, Halifax, Huddersfield, and Birmingham give us the low ratio for convictions of 1·7 to 6·8, the *maritime* boroughs and county boroughs fringing our sea-board rise from a ratio of 11·3 to 30·0; whilst, again, as modified by *agrarian* occupations, we may compare with these high ratios the south-coast towns of Brighton, Portsmouth, Hastings, and Southampton, which range from 1·7 to 2·7 only.

These large dense centres of activity reveal therefore still more forcibly the facts already recognised for the several counties at large as regards inebriety, that the admixture of a maritime with a mining and manufacturing class is fatal to the sobriety of the community, just as this environment fosters the criminal degenerate, who, parasite-like, preys upon his fellow-man. An all-important relationship revealed is the parallel rise and fall of insanity and pauperism, indicating the connection betwixt mental derangement and poverty, want, anxiety, and the associated moral factors; these facts are very striking if we take extreme cases:

	Convictions for Drunkenness. ¹	Ratio of Lunatics. ¹	Ratio of Paupers. ¹
Hereford	3·3	4·63	41·8
Cambridge	·7	3·01	36·9
Glamorgan	11·3	1·89	24·8
Durham	17·5	1·60	20·6

¹ Ratios per 1000 of county population.

We may fairly conclude from such considerations that :

Inland and maritime agricultural communities are the least inebriate, have the highest ratio of pauperism, have the highest ratio of insanity.

Inland and maritime, mining, and manufacturing communities are, on the contrary, the most inebriate, have the lowest ratio of pauperism, have the lowest ratio of insanity.

Maritime, mining, and manufacturing communities are of all others by far the most intemperate, whilst revealing the lowest ratios of pauperism and insanity.

We see here, then, the *dissociation* of alcoholism from insanity. The maximum incidence of inebriety does not coincide with that of insanity, whereas it does coincide, as we all know, with crime, and as I shall endeavour to show, with epilepsies and convulsive psychoses generally. The judicial statistics reveal that of 738,061 cases of all forms of crime proceeded against summarily, 189,746, or 25·7 *per cent.*, were for drunkenness; that of 755,739 cases of all forms of crime proceeded against summarily as well as by indictment, 39,573, or 5·2 *per cent.*, were habitual drunkards; and we miss here, of course, the vast army of secret drinkers and those inured to drink who do not obtrude themselves before our law courts. In the *Fifty-ninth Report of the Lunacy Commissioners for England and Wales* we find attention called to the fact of this dissociation of drink and insanity in two maps which admirably bring out these features. On both the insane and the criminal alcohol acts upon a psychopathic basis, but when it issues in insanity it is of the degenerate and explosive type, just as it is the prime factor in evolving the criminal degenerate.

The neurotic heritage is well revealed by the following figures: At the Wakefield Asylum, of 3470 cases of all forms of insanity in whom personal intemperance was ascertained in 27·7 *per cent.*, only 6·6 *per cent.* afforded a history of parental intemperance; but of the alcoholic insane the percentage of parental alcoholism rose to 11·2 *per cent.*, whilst in the forms of adolescent insanity it was as high as 16 *per cent.*, both the latter being, of course, notably explosive forms of insanity.

In like manner the feeble-minded degenerate, the imbecile, and idiot, give us, *if we exclude epileptic forms*, the low proportion of 8·5 *per cent.*, and those in Dr. Barr's statistics come up to 4 *per cent.* at most. If, however, we take all the imbecile and

idiot class, *including epileptics*, the proportion of those with alcoholic parentage rises to 20 *per cent.*; this, of course, is a very significant feature.

Reverting now to the criminal class, according to Dr. Henry Clarke, of H.M. Prison at Wakefield, taking all criminals together, 43·5 *per cent.* have drunken fathers, but if the epileptic criminal only be considered, 67 *per cent.* have a definite and certain history of paternal intemperance, whilst 18·2 *per cent.* further were somewhat doubtful, but almost certainly intemperate, making if included a gross total of 85·2 *per cent.* The epileptic criminal, you observe, as the epileptic idiot and imbecile, reveals the potency of paternal alcoholism.

The same facts are testified to by other observers, thus: Bourneville (quoted by Dr. Jules Morel), in the examination of 2554 idiot, imbecile, epileptic, and hysteric children, found that 41·1 *per cent.* had an alcoholic parentage, and of these conception was certainly coincident with drunkenness in 9·2 *per cent.*, and probably also in a smaller group of 3·3 *per cent.* So the idiots of St. Anne's Asylum (Paris) were found by Robinovitch to afford a proportion of 54 *per cent.* with alcoholic parentage, but when the computation was restricted to the epileptic community the proportion rose to 65 *per cent.* I would draw your attention here to the chart enlarged from that given in the charming work by Sir Lauder Brunton—*Disorders of Assimilation and Digestion*—as well illustrating some of the features I have just mentioned.

Alcoholism and heredity.—And now, as regards alcoholic inheritance, the more general conception of this disease, to which I subscribe my belief, is that of a very universal reaction of the organism to the *direct* action of the toxic agent alcohol. I say *direct* because a distinguished pathologist has lately expressed the view that the disease is the result of a secondary bacterial toxæmia induced by alcohol breaking down the first line of defence. Health, we are told by Dr. Payne, is a state of moving equilibrium, a condition of uniform motion, or, as expressed by Dr. Allbutt, “a positive conception of a perfect balance of the moving equilibrium we call systemic life; disease is a negative conception, and signifies something less than this perfect balance.” Yet, as there is no absolute standard of health, the term becomes a relative one, and so the line betwixt physiological and pathological reaction can be but ill defined.

Thus it is that inquiries into individual idiosyncrasies can alone establish when the operation of alcohol oversteps the limits of healthy systemic reaction. When, again, diseases dependent for their *cause* upon external agencies are concerned, whether traumatism, thermal, electric, or vital bacterial infections, everything depends on the impact or dose of the morbid factor, together with the individual susceptibility. The dose of alcohol which transgresses the physiological limits is probably very small, and for the specially susceptible is very minute indeed.

Parkes and Wollowicz estimated it at one and a half ounce for man, and this is probably greatly over-estimated, an opinion expressed by Dr. Sidney Martin. It has always appeared to me that the period of decreased thermogenesis, as defined in my calorimetric observations, gave the nearest approach to an accurate estimate of the dose consistent with physiological reaction, that the moment this period of stimulation of the vasomotor centres tends to be less defined and shortened in favour of the second stage of thermolysis we transgress the physiological limits strictly so to speak. Thermotaxis affords us, then, clinical indications which should ever be borne in mind.

Is alcohol inheritable? I think this question must be met by a direct negative. Alcoholism as alcoholism is not inherited. What is inherited is usually something wholly different. That alcohol, like other toxic agencies in the parent, results in certain abnormal nutritional conditions of the germ-plasm is unquestionable; it would indeed be strange if such were not the case. That the ovum nourished by the maternal blood should not be affected by its immediate environment, the soma, in metazoa, just as the protozoa are directly influenced by the cosmic environment, would be highly improbable. So far back as 1895 Féré produced monstrosities by exposing eggs to the vapour of alcohol during incubation. Ovize also in 1900, and as confirmed subsequently by Reiz, showed the toxic action of alcohol vapour on artificially hatched eggs of fowl, 36·7 *per cent.* of the progeny being structurally defective, monstrous, and of the whole number incubated 17·5 *per cent.* alone were viable. Cossar Ewart's Indian Blue-Rock pigeons, infected by the parasite halteridium, did not transmit malaria to their progeny. True, they were *weakly* offspring and *more or less sterile*, according to the potency of the parental toxæmia, but in no case did the young exhibit the parasite halteridium in their blood; in

other words, *malaria was not transmitted*. Professor Ewart would predicate the same for gout; it is the *tendency* under certain conditions for gouty changes to arise in the offspring which is transmitted; the offspring are *never born* with gouty tissue-changes.

Similarly as regards tuberculosis: the diminished resistance to the growth of tubercle, whatever that may mean, is what is transmitted to the offspring of the tuberculous—the *diathesis is not the disease*. Let us for a moment take as an illustration of the loose application of the term “heredity” other cases of toxæmia. A syphilitised mother with secondary symptoms begets a syphilitised infant, and this instance of congenital syphilis will by some be regarded as proof of the inheritance by the offspring of a definite character acquired by the parent. It is really not a question of heredity at all; it is but an instance of simultaneous infection—either germinal, placental, or both combined—a synchronicity of morbid agency, an antenatal contamination. Similarly as regards tuberculosis, should it arise congenitally in the offspring of the tuberculous parent it is but an instance of direct infection *in utero*, yet no proof at all of the heredity of phthisis; what is handed down as a germinal variation is the hereditary predisposition to the growth of the tubercle bacillus. In fact, all the specific infective diseases, such as scarlet fever, measles, smallpox, tuberculosis, must be excluded from the category of inherited diseases, and when arising congenitally are but instances of infection through the placental circulation, or, as with syphilis, transmitted by the infected germ. There is, of course, positive evidence that pathogenic organisms do pass from the placental into the foetal circulation. In a strict biological sense, therefore, none of these diseases are instances of hereditary transmission.

And so, passing from vital agencies such as the pathogenic bacteria to the toxic agency alcohol, we can in no sense speak of alcoholism as inheritable; the varied and elaborate tissue-changes constituting the disease chronic alcoholism are never inherited by the offspring as a definite specific character. If that disturbance of the healthy equilibrium in the parent which is indicated by the symptoms or signs of the disease we know as chronic alcoholism can be reflected upon the progeny through the parental germ-plasm, we should indeed be in the presence of a mystery explicable only by some such elaborate

and inconceivable hypothesis as that of Darwin's theory of pangenesis. The dictum of biological science of to-day would affirm the negative—*acquired characters in this sense are not transmitted*. And yet undoubtedly this is the trend of popular belief, and would be, moreover, I presume, upheld by the Neo-Lamarckian school of to-day.

An inherent susceptibility of the tissues in certain individuals to the toxic agency of alcohol is universally admitted, and just as specific differences are recognised in susceptible animals, as when, *e.g.*, we find that the white rat is immune to the *Bacillus anthracis*, while the common rat and mouse are peculiarly susceptible, so individual resistance to alcohol is a notably varying factor of germinal transmission.

Again, it has been well shown that we can confer on animals an acquired predisposition to disease; in other words, the natural resistance can be broken down and an unnatural susceptibility established, as when hens or pigeons naturally refractory to anthrax can be readily infected if deprived of food, and thus Kanthack indicates how starvation, bad food, exposure, or fatigue may reduce the natural resistance to the pathological level. In like manner we might argue that *various agencies* might break down one's natural resistance to alcohol so that an acquired predisposition to alcoholism when indulged in would be apparent. But the point of interest to us is whether or no this acquired predisposition can be inherited by the offspring—in other words, is what is transmitted to the progeny specific or non-specific? In the first place, we have to eliminate all instances of congenital contamination through the mother's blood during gestation—as before explained, these instances are not instances of hereditary transmission at all; in the next place, specific *maternal* transmission can only be assumed where alcoholism was well established prior to conception, and is always open to some doubt as we must still eliminate a connate origin. The transmission of *paternal* qualities is not open to such fallacy; and where an acquired predisposition is clearly transmitted from the paternal side, there we have more solid ground for our contention. These cases of transmission of an acquired predisposition from the paternal side are, therefore, the simpler ones for investigation; yet even here we have to note the varied factors introduced by amphimixis. I take it that general assent will be accorded to the proposition that the

vehicle of heredity is constituted by the chromatin threads of the germ-cell nucleus, and that the theatre for its operation is the cytoplasm of the cell itself. At first isotropous, the cell-protoplasm, step by step, through the agency of these developing forces, acquires polarity, cytoplasmic differentiation, and a stereotyped scaffolding, more or less modifiable with the age of the ovum. In early developmental stages there is betrayed a uniformity in value of the several blastomeres into which the egg has segmented, as shown in the more labile differentiation of amphioxus by Wilson; whilst in other organisms, as the sea-urchin *Toxophneustes*, the isolated blastomeres indicate a more fixed and stereotyped differentiation. One of the most beautiful experiments in biological investigations is that recorded by Zoja, who obtained perfect embryos from the two-, four-, eight-, and even sixteen-cell stage of *Medusa* by separating their blastomeres—each blastomere in the latter case developed into a perfect animal one sixteenth the normal size. I introduce these biological considerations to indicate that the fertilised ovum is constantly varying in its reaction to the environment; and what is predicated for one stage as the result of such environmental agencies cannot be safely asserted for a later stage of development. Cossar Ewart's remarks upon the staleness or age of the developing ovum as a potent source of variation will occur to us in this connection.

Certain conditions, therefore, morphological and developmental, are imposed upon the germ by virtue of its specific organisation; but we must equally bear in mind, in speaking of hereditary transmission, that we are dealing with agencies infinitely diversified, subject to elaborate combination and modification quite unpredictable, and that unforeseen forces, not easily suspected and far less readily explained, step in to disturb the mathematical precision we at times hopelessly attempt to impose upon our formulæ of vital processes.

What is it, then, that is transmitted by alcoholic ancestry? I presume it is a defective organisation of the neuron, or a molecular *degradation of nerve-tissue* revealing itself in a loss or weakening of that primary attribute so characteristic of nerve-cell mechanisms—inhibition. Functional instability is, of course, pre-eminently the stamp of the neurotic heritage, but the instability resulting from an alcoholic stock appears above all other forms of instability to be indicated by (a) its convulsive

nature, (b) its tendency to limitation (as in so-called systematised forms of insanity), (c) its rhythmic periodicity and paroxysmal nature. The latter time-relationships are features especially worthy of note. Epilepsy, chorea, hysteria, the convulsive psychoses (moral and impulsive forms of insanity), and certain systematised delusional states are the first-fruits of an alcoholic heritage: the *motor element of mind*, if I may so express myself, is peculiarly liable to this derangement in *paternal* forms of transmission. On the other hand, arrests of development, as indicated by congenital mental weakness, imbecility, idiocy, appear to me especially the results of *maternal* toxæmia, and largely, if not wholly, due to direct poisoning of the germ or ovum.

Instability is a relative term, for with advancing structural differentiations functional instability *must inevitably* be evolved; whilst with the parallel structural integrations that normal control becomes established over such unstable elements, which is characteristic of healthy life. Ontogeny as well as phylogeny tell us the same tale. But the instability we are concerned with is not the labile equilibrium of healthy functioning nerve-centres, but such morbid divergences which indicate unwonted explosiveness conjoined with integrative failure; the steed is frisky, but the whip-hand is also powerless to control. Functional instability may be preternaturally enfeebled or excessive as the result of molecular constitution, and issue in the one case, as so well indicated by Dr. Mercier, in mental feebleness, imbecility, or idiocy, from "failure of the developmental forces, originating in a primeval weakness of sperm- or germ-cell," and in the other case in an undue explosiveness (Hughlings Jackson's nutrition increased and degraded in quality) which, however, is so frequently associated with defective integration, emphasising, therefore, the morbidly labile state of nervous centres. It is this *latter factor* which, it appears to me, betokens the unstable nature of the sperm-cell, and explains the frequency of convulsive neuroses, epilepsy, chorea, hysteria, and the like affections in paternal inheritance.

To the minute sperm nucleus, therefore, as the bearer of paternal heredity, must we attribute this vicious development, unless we assume the still more minute sperm centrosome, which displaces the egg centrosome and becomes the dynamic

centre of the germ in its resulting mitosis and cleavage, as having any share in effecting this germinal transmission. This opinion, however, would not be in concert with the usual belief, which could not be better expressed than in the eloquent words of Prof. Wilson: "From the mother comes in the main the cytoplasm of the embryonic body, which is the principal substratum of growth and differentiation. From both parents comes the hereditary basis or chromatin by which these processes are controlled and from which they receive the specific stamp of the race. From the father comes the centrosome to organise the machinery of mitotic division by which the egg splits up into the elements of the tissues, and by which each of these elements receives its quota of the common heritage of chromatin. Huxley hit the mark two score years ago when, in the words that head this chapter, he compared the organism to a web of which the warp is derived from the female and woof from the male. What has since been gained is the knowledge that this web is to be sought in the chromatin substance of the nuclei, and that the centrosome is the weaver at the loom."

2 "Neurotic heritage" is a big term and embraces complex factors; the instability more likely to result in insanity, or in epilepsy, or in crime, inebriety, chorea, hysteria, etc., may be all more or less existent in the same individual and in varying degrees, as congenital or inborn varieties; but it is reasonable to assume that environmental agencies such as alcohol, by directly acting upon either germ- or sperm-cell, may intensify or in other cases eliminate one or other of these inherited factors. For the germ-cell lives a life like the somatic elements, nourished from the same source, and acts and reacts in response to the same environmental agencies; but this, of course, is not expressing the view that *acquired characters are transmitted*.

(¹) H.U. = Heat units.

DISCUSSION,

At the quarterly meeting held on February 23rd, 1906, at the West Riding Asylum, Wakefield.

Dr. MERCIER, who was first called upon, confessed that he had had no time to digest the paper in the way it was entitled to be treated, a paper to which so much thought had been given, and which ranged over such a wide variety of subjects. One of the points in it was the question of the sense of muscular discrimination brought about by alcoholic liquor and analogous conditions, especially in general paralysis. Of course, they were very much impressed with the extraordinary

similarity of the symptoms of general paralysis and the symptoms of alcoholism. "And it seems to me, if it is a fact, as I take it to be from Dr. Bevan Lewis's paper, that the sense of muscular discrimination is much impaired in these conditions, that that will account for a good deal. It will account for the exaggerated estimate that an individual places upon his own capacity. It is clear that if a man has his sense of muscular discrimination so impaired that he cannot discriminate between one weight and a much greater weight, neither will he be able to discriminate between the effort necessary to do one thing and the effort necessary to do a much greater thing—the effort, for instance, necessary to jump over a stool and the effort necessary to jump over a table." They only needed, said Dr. Mercier, to exaggerate that incapacity to find a person who would be unable to discriminate the effort necessary to jump over a house; and, as they knew, a general paralytic would announce his ability to do any one of these things. And not only in crude matters, but in things more elaborate. He thought that the sense of muscular discrimination probably lay at the root of their ability to estimate their powers in every direction. Hence a person whose muscular discrimination was wanting might eventually so exaggerate his capacity as to become possessed of the opinion that he was emperor, or lord, or king, or monarch of the universe. Into the lessons to be learned from the variations caused by alcohol and thermogenesis he was not competent to enter. Dr. Bevan Lewis had waved before them the flag of the non-inheritance of acquired qualities. To him that was like waving a red flag before a bull. It was impossible for him (Dr. Mercier) to decline the challenge, and he wished to declare his unalterable belief that acquired qualities were inherited. It was a most extraordinary thing that they could look upon the whole universe and see organisms varying to a most incredible extent, and in the most varied directions—one adapted, say, for an aquatic medium, one for aerial medium, and another for terrestrial locomotion—and to say that these varied surroundings had nothing to do with the form or shape or function of those organisms. To say that the influence of the environment in organisms could not be transmitted to the offspring seemed to him to be one of the most preposterous doctrines ever advanced, and rested, not on evidence, but on assumption. He could only say that if acquired qualities were not inherited the doctrine was one of pessimism and blank despair. By no means could we hope to leave the world better for our own exertions if our successors were to start from the point, not where we left off but from where we began. He did not believe it.

Dr. ROBERT JONES could not see why environment was so much left out of consideration in questions of heredity. They had only to look at Alpine plants, grown at high altitudes, which had characteristics of their own. When grown in the plains these special features changed. In just the same way plants of the desert had characteristics decided for them by their environment, and these acquired characteristics came true by the seed, which demonstrated that acquired characteristics can be transmitted. Of course, it is understood that it takes a long time before characters thus acquired through the environment can become fixed, but the ultimate tendency is for them to become fixed, and then they are transmitted. Relating an experience of his own for the purpose of illustration, Dr. Jones showed that some time ago he went to a school in Essex and took the weight, height, and other details of children of various ages attending there, and classified them. Then he examined some children from Dr. Barnardo's Homes, children who came from the worst slums, who suffered from various ailments due to faulty environment, *i. e.*, chilblains, adenoids, rickets, discharges from the ears, and many other complaints. Yet these same children, when medically supervised and treated with a well-considered dietary, life out of doors, physical drill, and school work, after a residence of several years compared most favourably with the best country children. Again, he thought the craving for alcohol was a very definite physical condition, and that such physical conditions, which were inflicted upon people by their environment, were of necessity transmitted, for we found the ancestry of over 40 *per cent.* of dipsomaniacs to give a history of alcoholic excess, showing as definitely as could be ascertained in any circumstances that acquired characters may be transmitted. As to the question of the muscular sense, it was difficult to analyse quite the full effects of alcohol in regard to this particular system, knowing the different effects of alcohol upon

different structures of the body in different persons. The whole question was one of alcohol attacking the *locus resistentiæ minoris*. In asylums they hardly ever saw a case of cirrhosis of the liver, showing that drunkards, when insane, usually gave way on their nerves and brain side rather than on the side of other organs, and that the nervous system in the insane was the *locus resistentiæ minoris*.

Dr. BEVAN LEWIS, in replying, thanked those who had spoken and those who had listened so attentively to the discussion of a subject which he felt must be a trifle obscure.

Amentia and Dementia: a Clinico-Pathological Study.

By JOSEPH SHAW BOLTON, M.D., M.R.C.P., Fellow of University College, London; Senior Assistant Medical Officer, Lancaster County Asylum, Rainhill.

PART III.—DEMENTIA.

	PAGE
<i>Introduction</i>	221
<i>The general pathology of mental disease and the functional regions of the cerebrum</i>	224
I. <i>The projection spheres</i>	227
II. <i>The centres of lower association</i>	229
III. <i>The cortical region for higher association</i>	230
(A) <i>The morbid anatomy of mental disease</i>	232
(B) <i>The general histology of mental disease</i>	240
(1) <i>The histological structure of the pre-frontal region</i>	240
(2) <i>The mode of development of the primary laminae of the pre-frontal cortex cerebri</i>	251
(3) <i>The pre-frontal cortex in amentia</i>	253
(a) <i>Low grade</i>	253
(β) <i>High grade</i>	255
(4) <i>The pre-frontal cortex in dementia</i>	256
(a) <i>Chronic insanity with dementia</i>	256
(β) <i>Gross dementia and gross dementia paralytica</i>	257
(5) <i>The neopallium of the mammalia, and the functional significance of the primary cell laminae of the cortex cerebri</i>	258
IV. <i>Summarised evidence bearing on the functional regions of the cerebrum and on the general pathology of mental disease</i>	266
<i>Reply to a criticism</i>	272
[<i>Mental confusion and dementia</i>	}
[<i>Group I—Primarily neuronic dementia</i>	}
[<i>Group II—Progressive and secondary dementia</i>	}
[<i>Group III—Special varieties of dementia</i>	}

INTRODUCTION.

THE present and final division of this paper contains a description of those types of mental disease which are classed by the writer under the heading "Dementia." Under this term

he includes all cases which agree, from the psychic aspect, in the possession of a decreased or decreasing mental capacity, and from the physical, in the existence of a distinct and permanent loss of cortical substance in those regions of the cerebrum which especially serve as a physical basis for the carrying on of (voluntary) psychic processes.

Whilst a large number of such cases are examples of natural involution of the cortical neurones, occurring at such individually diverse periods of life as are determined by their inherent capacity of resistance to the process of decay, in many, perhaps even in the majority of the cases falling into the group, both the actual point of time at which the process of dissolution commences, and also the extent and degree to which it proceeds, are largely influenced by extraneous factors.

These consist, on the one hand, of the various influences which combine to produce the normal and relatively harmless environment of sane individuals, and on the other, of more variable and accidental factors of, usually, a toxic or a nutritional nature. If the process of neuronic dissolution be one of normal involution, or if it be excited by permanently existing and progressive factors—*e.g.*, degeneration of cerebral vessels, etc.—it continues more or less slowly until death occurs. If, however, it be excited by non-progressive, temporary, or removable causes, whether these belong to such extreme types as cerebral lesion, alcoholic excess, or puerperal toxæmia on the one hand, and what constitutes the normal “stress” to which all healthy cortical neurones are subjected in a civilised community on the other, cessation of the causative influence may result in an arrest of the process of neuronic dissolution, and the patient may live for years in a practically stationary condition of mental enfeeblement.

The writer thus employs the term “dementia” to connote in the widest sense *the mental condition of patients who suffer from a permanent psychic disability due to neuronic degeneration following insufficient durability.*

In dealing with the subject of *amentia*, in the second part of this paper, the 283 cases, classified as suffering from deficient or subnormally aberrant neuronic development, are grouped on a symptomatological basis, as these types of mental disease are of developmental origin, and, apart from the incidence of cerebral dissolution, possess no morbid anatomy. Cases of *amentia*,

however, viewed from the standpoint of developmental anatomy, exhibit various types and grades of cerebral deficiency, which future research will in all probability associate with the differences in symptomatology which are clinically observable in the various groups under which they have been provisionally classified. Further, in the case of high-grade amentia, for reasons which have already been sufficiently elaborated, neither the age of the patient nor the emotional tone of the general symptomatology possesses an essential significance.

In dealing with the subject of *dementia*, however, an entirely different method of treatment is necessary, for reasons which will now be briefly detailed. In the first place, cases of dementia exhibit naked-eye *post-mortem* morbid appearances which vary in severity according to the degree of dementia present. From the naked-eye point of view, this statement holds good in a general sense, even when the progress of the mental enfeeblement has been very rapid, and when, therefore, the removal of the products of neuronc degeneration is incomplete. In the case of apparent exceptions to this general statement it can be demonstrated by histological methods that degenerative changes of an acute nature exist, and that these correspond in degree with the grade of dementia present. Further, dementia differs from amentia in the facts that its symptomatology varies in degree rather than in kind, and that the type of its precursory symptomatology (mental confusion) depends to some extent on its immediate causation. On the other hand, in the case of amentia the symptomatology depends rather upon the cerebral organisation of the individual than upon the exciting cause of the attack of insanity. Again, the times of onset in cases of dementia, where the neuronc degeneration is of the nature of a primary involution, or is precipitated by a temporary or removable cause, are largely focussed at, and associated with, certain "critical" periods of life, namely, pre-maturity (puberty), maturity, pre-senility (climacteric), and senility. In the case of amentia, on the other hand, the attacks are excited by accident of environment, and are in many cases merely exaggerations of the permanent mental conditions of the patients. Moreover, the occurrence of dementia, where the neuronc degeneration is of a secondary and progressive nature, largely depends upon the time-onset of the exciting cause—*e.g.*, previous syphilis, senile or pre-senile vascular degeneration, etc. Further, certain

dementias of special origin—*e.g.*, those following sense-deprivation and cerebral lesions—require different treatment from that meted to the analogous types of amentia, as in the latter these influences either occur at such an early period of life that the mental symptomatology is not peculiar, or they result in the incidence of dementia.

It is thus evident that as dementia differs from amentia in possessing a morbid anatomy, in its uniform symptomatology, and, lastly, in its more intimate relationship to definite causative or precipitating agents, one of which is the age of the patient, the former subject requires different treatment from that which was adopted in the case of the latter in the second part of this paper.

It is also obvious that a part at least of the evidence on which the writer is endeavouring to erect a rational pathology of mental disease (namely, that dealing with morbid anatomy) has a more direct bearing on the subject of dementia, in which morbid appearances are present, than in that of amentia, in which the place of these is taken by degrees and types of developmental deficiency.

The writer, therefore, purposes, as a preliminary to the consideration of the subject of dementia, briefly to review the naked-eye and histological evidence which he has published in previous papers, and on which he has based a subdivision of mental disease into amentia and dementia, as defined and classified in the present communication. The description of the general pathology of mental disease which is inserted in the following section thus contains little that the writer has not previously published. He hopes, however, to be successful in presenting his conclusions in a more readily intelligible form than that which he was compelled to adopt in the more lengthy individual papers. If, in his endeavour to attain lucidity, he should appear to dogmatise and to ignore the labours of others, he trusts to be pardoned by the reader, who will find, should he desire it, sufficient reference to these in the earlier contributions.

THE GENERAL PATHOLOGY OF MENTAL DISEASE AND THE FUNCTIONAL REGIONS OF THE CEREBRUM.

Though much has been written of late years on the minute anatomy and functions of the grey mantle of the cerebrum, and

remarkable progress has been made in the correlation of cortical structure with psychic processes, to the reader who is not a professional neurologist and psychologist it is still difficult to retain even an elementary appreciation of the present state of knowledge. The writer, therefore, hopes to be excused for his apparent lack of courtesy in referring at times to elementary details.

The cerebral cortex consists in essence of a sheet of grey matter which, as has been shown by the writer from a study of its mode of development from a layer of indifferent neuroblasts, is composed of five primary laminæ, the lower four of which separate off in turn from the deep surface upwards. Of these five laminæ, three, the second or the pyramidal (outer cell layer), the third or the granule (middle cell layer), and the fifth or the polymorphic (inner cell layer), the numbers being from the superficial surface downwards, are originally in essential structure nerve-cell layers. The remaining two, namely, the first or the superficial (outer fibre layer), and the fourth (inner fibre layer), which corresponds with the "inner line of Bailarger," are, on the other hand, originally in essential structure nerve-fibre layers, and contain relatively few cellular elements. In a fœtus of four months the cortex consists solely of a superficial indifferent layer and of a deeper layer of neuroblasts. As development proceeds the fifth, fourth, third, and second laminæ become respectively and in this order separated off from one another. From this original five-layered basis the more complex adult cortex cerebri is developed and specialised.

As has been shown by the embryological researches of Flechsig, whose studies on the order of myelination of the fibre-complexes which constitute the white matter of the cerebrum are classical, certain regions of the grey mantle at a relatively early period become connected by myelinated fibre-tracts with the base of the brain. These regions, called by him *projection centres* or *sensory spheres*, subservise the conveyance of afferent impulses from the several organs of special sense, namely, those concerned with (1) bodily sensibility, (2) vision, (3) hearing, and (4) olfactory and gustatory sensations. These regions of the cerebrum myelinate earlier than the remainder and possess well-marked projection systems of fibres. The remainder of the cerebrum, which myelinates at a

later period, is especially rich in long systems of fibres of association, and is divided by Flechsig into a number of *centres of association*. Of these centres of association the chief are the frontal, the parietal, the temporal, and those in the insula and the precuneus. In the temporal and parietal centres of association there exist, according to Flechsig, peripheral zones, which develop earlier, and central zones, which develop later; the former adjoin the sensory centres and are united to them by numerous arcuate fibres. In the frontal centre of association similar zones exist, but their disposition is much more complex. The insular centre of association, and also that in the precuneus, consist of peripheral zones only. Flechsig is of opinion that the peripheral zones may be intermediate types between the central territories and the sensory projection spheres. Hence of the centres of association the frontal exhibits the greatest complexity, the temporal and parietal are intermediate in structure, and the insular and that in the precuneus are the least complex of the types. "The central territories of the zones of association (especially the middle of the angular gyrus, the third temporal convolution, and the anterior half of the second frontal convolution) are apparently the nodal points of the long systems of association, whilst the peripheral zones only feebly show these characteristics. The central territories are terminal territories; they are essentially characteristic of the human brain."

Though later research has shown that the projection centres probably occupy neither the identical position nor the same extent of cortex in the adult brain that they do in the fœtus and infant, Flechsig's conclusions concerning them must be accepted in their essential features; and, further, it may be considered proved that a great parietal and temporal association centre exists posteriorly, a more complex prefrontal association centre anteriorly, and two less complex and less important centres in the insular and precuneal regions respectively.

The writer of this paper, by his researches on the general histology of the cortex cerebri in health and disease, has endeavoured to further demonstrate that the grey mantle of the brain may be subdivided into three groups of regions which occupy increasingly important positions in the hierarchy of cerebral function, namely:

- (1) *The projection spheres*, or the regions to which afferent

sensorial impressions primarily pass, namely, those for bodily sensibility, sight, hearing, smell, and taste.

(2) *The regions of lower association*, which lie in the immediate neighbourhood of each of the areas included in the first group, and which subserve the elaboration of the different varieties of sensorial impressions into simple perceptions, and the association of these psychic units into higher complexes.

(3) *The region of higher association and co-ordination*, which subserves the grouping of these higher complexes into harmonious series of concepts by means of voluntary attention and selection. This region of the cortex is therefore concerned with the carrying on of the highest processes of mind. It is also the part of the cerebrum which is especially affected in the subjects of mental disease. It is the last part of the cerebrum to be evolved, and it is under-developed in amentia of all grades. It is the first part of the cerebrum to undergo dissolution in dementia.

These three groups of functional regions will now be briefly considered, with especial reference to the writer's own researches, owing to the direct bearing of these on the general pathology of mental disease.

(I) THE PROJECTION SPHERES—THE VISUO-SENSORY AREA.

For the purposes of this paper it will be sufficient to refer here to that cortical sensory sphere with which the writer is especially familiar, namely, the region of the cortex concerned with the reception and immediate transformation of visual impressions.

During the latter half of the last century clinical and experimental evidence more and more clearly pointed to the region of the calcarine fissure, the cortex of which possesses a characteristic structure owing to the existence in the centre of the grey matter of a white line, as the visual projection centre. This line, which is readily visible to the naked eye, was first described by Gennari in 1776. The exact anatomical and histological limits of the region containing it were mapped out by the writer in a previous research, in which this area was proved to be connected with vision, and was named the "visuo-sensory area" as the result of a detailed examination of normal

brains and of cases of long-standing and of congenital blindness.

The lamination of the cortex cerebri in this region is specialised from the five-layered type already referred to, and consists of the following layers :

- (I) The superficial layer of nerve-fibres (*outer fibre lamina*).
- (II) The layer of pyramidal cells (*outer cell lamina*).
- (III A) The outer layer of granules.
- (III B) The middle layer of nerve-fibres or
"line of Gennari," containing solitary cells of
Meynert. } *middle*
cell
lamina.
- (III C) The inner layer of granules.
- (IV) The inner layer of nerve-fibres or "inner line of
Baillarger," containing solitary cells of Meynert (*inner fibre*
lamina).
- (V) The layer of polymorphic cells (*inner cell lamina*).

The specialisation of the visuo-sensory cortex consists, therefore, in essentials, in a duplication of the third primary lamina of the cortex, and in the interposition between the double layer of a layer composed of nerve-fibres. Of this triple layer, Layer III A is an additional feature ; Layer III B is an exaggeration of a thin fibre band, the "outer line of Baillarger," which in the adult cortex lies between the second and third primary laminæ ; and Layer III C is the original third primary lamina increased in depth (see Fig. 9, p. 261).

In congenital or long-standing blindness the depth of Layer III B is decreased by nearly 50 *per cent.*, and that of Layer III A is decreased by more than 10 *per cent.*, owing to atrophy of the optic radiations. The other layers of the cortex are unchanged in depth by the existence of blindness.

These facts prove that the cortical region under consideration is the projection centre for visual impressions or the "visuo-sensory area."

Further, and equally important, data which bear on the development and functional importance of the second or pyramidal layer (outer cell lamina) were obtained during this research. These will be referred to later during the discussion of the position of the cortical projection spheres, from the point of view of psychic function, in relation to the areas of lower association and the region concerned with higher association.

(II) THE REGIONS CONCERNED WITH LOWER ASSOCIATION—
THE VISUO-PSYCHIC AREA.

As in the case of the projection areas of the cerebrum, it will suffice to consider one only of the regions of lower association, that concerned with the elaboration of visual impressions.

At the periphery of the visuo-sensory area, where it passes in each direction into the neighbouring cortex, termed by the writer "visuo-psychic," an abrupt change in lamination takes place, Layer IIIB, the line of Gennari, suddenly ceasing, and Layers IIIA and IIIC, the two layers of granules, running into one and becoming Layer III of the visuo-psychic region. This region thus consists of a five-layered type, namely :

(I) The superficial layer of nerve-fibres (*outer fibre lamina*).

(II) The layer of small and large pyramidal cells (*outer cell lamina*).

(III) The layer of granules (*middle cell lamina*).

(IV) The inner layer of nerve-fibres or "inner line of Bailarger," containing large and frequently solitary cells (*inner fibre lamina*).

(V) The layer of polymorphic cells (*inner cell lamina*).

Congenital or long-standing blindness causes no modification of the lamination of the visuo-psychic region.

In this region, however, many important facts bearing on the functions of the second or pyramidal layer (outer cell layer) were derived from the data obtained by the writer during his investigation. These data are summarised graphically in Fig. 9, p. 261, which shows the relative depths of the outer cell laminae in the visuo-sensory and the visuo-psychic regions respectively of the six cases investigated.

On examination of this table it will be seen that in the visuo-sensory region of Cases 6 and 5, from infants æt. one and three months respectively, the pyramidal layer is somewhat below the normal adult thickness, and that this layer is decreased also in the visuo-sensory region of Cases 2, 3, and 4, from patients suffering from chronic insanity with dementia. In the visuo-psychic region, however, whilst in the cases of chronic insanity with dementia the pyramidal layer is decreased in depth to some extent, in the child of three months it is very much under-developed, and in the child of one month its depth is less than two thirds of that of the normal adult.

In other words, in the visuo-sensory region of infants æt. one and three months the pyramidal layer of nerve-cells is equally but not fully developed (in spite of the congenital blindness of the former), whereas in the visuo-psychic region it is much under-developed in the infant of three months, and it is still more under-developed in the infant of one month.

This fact constitutes an important proof of the associational function of the latter cortical region, and also indicates the relatively low "psychic" importance of the pyramidal layer of the visuo-sensory region. Attention may here be drawn to the confirmatory detail that in the normal adult brain the depth of the pyramidal layer in the visuo-sensory area is only five ninths of the depth of this layer in the visuo-psychic region.

This subject will be further referred to during the consideration of the cortical region concerned with higher association. In the meantime it is only necessary to state that the facts above cited prove that the visuo-sensory area is concerned with a lower grade of psychic function than that performed in the visuo-psychic region of the cortex, and that they afford independent proof of the correctness of Flechsig's thesis, that the cortex cerebri is divisible into the two great classes of "sensory spheres (centres of projection)" and "centres of association." The writer, however, goes a step further, as the result of his study of the morbid anatomy and general histology of mental disease, and, as has already been stated, divides the "centres of association" into areas of lower association in relation with the several "sensory spheres" and a great anterior centre of higher association situated in the prefrontal region of the cerebrum. The proofs on which he bases this thesis will now be referred to as briefly as is consistent with clearness of exposition.

(III) THE CORTICAL REGION CONCERNED WITH HIGHER ASSOCIATION.

As a preliminary to the consideration of this subject it may be stated that much difference of opinion exists amongst authorities with reference to the respective functions of the anterior and posterior centres of association of Flechsig. A large body of neurologists and psychologists, notably Bastian, Hughlings Jackson, Schäfer, and Flechsig himself, consider

that gross mental disabilities are more likely to occur in lesions of the posterior than of the anterior of these centres, whilst Wundt, Hitzig, Ferrier, etc., hold the opposite view.

From the neurological aspect, especially when considering the different varieties of sensory and motor aphasia, the former view is doubtless true ; but, premising that the posterior centre were concerned with lower associational processes only, general mental disability would still be apparent in cases of gross lesion of the hinder part of the hemispheres, as the patient would under these circumstances be unable in many cases to produce satisfactory evidence of general mental soundness. For instance, to take a gross case, a severe example of sensory aphasia is frequently, through the maiming of his capacity for visual and auditory perception, in as impossible a condition for the determination of his mental state (from an alienistic point of view) as would be a man without sense organs for the investigation for his ability to form perceptions. On the other hand, in certain of the purer cases of sensory aphasia, where the capacity for visual or auditory perception is intact, it is easy to determine that the general mental functions are relatively or absolutely sound. Again, in other cases of lesion of the posterior centre of association, it is likely that such an entire disturbance of perceptive and ideational processes as exists would cause too great a strain on the higher associational functions and directly result in the development of symptoms of true mental alienation. This is rendered the more probable by the facts that no less than 1 in every 285 of the general population is at present in seclusion owing to alienation of the mental functions, and that the proportion of potential psychopaths who are living at large is very much greater.

Hitherto in this connection very little attention has been paid to the cerebral lesions associated with mental disease, though it is very generally recognised by alienists that in chronic general paralysis and in chronic senile dementia severe prefrontal wasting exists. In the case of the former variety of mental alienation, however, the question is obscured by the thesis that previous syphilitic infection is the chief, if not the essential, cause of this disease ; and in the case of other varieties of mental disease, whilst their morbid histology has for many years attracted much attention, little or no care has been

bestowed on the *correlation* of the morbid anatomy with the clinical symptomatology of the different types of mental alienation.

During a number of years the writer has made a careful study of this question, and he has arrived at the conclusion that the great anterior centre of association is the region of the cerebrum which is primarily affected in mental disease, all the neighbouring or bordering regions being concerned to a less extent, probably from chronic atrophy of the related systems of fibres of association.

The summarised evidence on this point which will now be adduced will be considered from the points of view of (a) *morbid anatomy*, and (b) *general histology*. Fuller details on many points not directly bearing on the subject under discussion will be found in previous papers.

(A) *Morbid Anatomy of Mental Disease.*

The writer has demonstrated, as the result of a careful comparison of the clinical symptomatology with the *post-mortem* intra-cranial appearances of several hundred cases of mental disease, that the amount of cerebral wasting and the associated morbid changes found inside the cranium in these cases vary directly in degree with the amount of dementia existing in the patients. The relationship is much more absolute than might be expected, and it is hence probable that in the majority of cases of insanity a more or less complete removal of the products of neuronc degeneration has occurred by the time of death. Reference will be made later to certain cases which at first sight appear to be exceptions to the general rule.

The majority of the morbid appearances which occur in many cases of mental disease are well known and may be dismissed here with a passing reference, as, except from the point of view of the assistance they afford in the determination of the grade of morbid change which exists in the interior of any particular cranium, they have no especial bearing on the purpose of the present description. These changes are, in brief, morbid conditions of the dura mater, subdural deposits (pachymeningitis hæmorrhagica), excess of subdural fluid, morbid conditions and modes of stripping of the pia-arachnoid, excess of sub-arachnoid fluid, and dilatation and granularity of the lateral and

fourth ventricles; and their significance has been fully and individually considered in previous communications.

Certain other morbid appearances, but especially the weights and degrees of wasting of the cerebral hemispheres, will now be referred to in such detail as is necessary to demonstrate the object in view.

For purposes of comparison during his study of the morbid anatomy of mental disease, the writer divided the cases clinically into five groups, namely, (1) cases without dementia, (2) cases with appreciable dementia, (3) cases of insanity with moderate dementia, (4) cases of dementia which still show symptoms of insanity, and (5) cases of gross dementia.

These groups agree remarkably closely with the following five classes, which are based on the relative severity of the morbid appearances which are present: (1) cases without morbid changes and where the pia-arachnoid strips naturally; (2) cases with slight morbid changes and where the pia-arachnoid strips rather more readily than natural; (3) cases with moderate morbid changes, with subdural excess to the level of the tentorium, and where the pia-arachnoid strips readily; (4) cases with marked morbid changes and where the pia-arachnoid strips very readily; and (5) cases with very marked morbid changes and where the pia-arachnoid strips like a glove from the hemisphere.

It may be noted here that the difference between Groups I and II is not very marked, that both these differ considerably from Group III, and that this differs even more from the again similar Groups IV and V.

Groups I and II contain the majority of the cases of amentia, though several scattered cases with senile or pre-senile involution of the cerebrum occur in the later groups. Group III is composed largely of cases of the dementias of maturity and prematurity (*dementia præcox*), but contains many senile and pre-senile cases, which, had they lived, would have passed into Groups IV and V. Finally, Groups IV and V contain cases of advanced involution of the cerebrum of either a primary nature or due to the primary factors referred to in Part I (vol. II, 1905, p. 278), under the second group of causes of mental confusion.

The weights of, and the abnormal anatomical characters presented by, the cerebral hemispheres of the cases classified

into these several groups will now be considered from the point of view of their bearing on the pathology of dementia and amentia respectively.

Weights of Stripped Hemispheres in Relation to Amentia and Dementia.

In the following table the weights of the stripped hemispheres belonging to 417 consecutive cases of mental disease (excluding

FIG. 1.

	Males.	Females.
	Normal average . 589 grs.	Normal average . 534 grs.
GROUP I, 61 cases (no morbid appearances)	Ordinary . (16) . 553 grs. Epileptic imbeciles . (5) . 548 grs. Total . (21) . 552 grs.	Ordinary . (36) . 499 grs. Epileptic imbeciles . (4) . 472 grs. Total . (40) . 497 grs.
GROUP II, 95 cases (slight morbid appearances)	Ordinary . (14) . 565 grs. Epileptics . (7) . 561 grs. Total . (21) . 564 grs.	Ordinary . (66) . 480 grs. Epileptics . (8) . 524 grs. Total . (74) . 485 grs.
GROUP III, 96 cases (moderate morbid appearances)	Ordinary . (27) . 551 grs. Epileptics . (4) . 617 grs. Total . (31) . 560 grs.	Ordinary . (59) . 482 grs. Epileptics . (6) . 484 grs. Total . (65) . 482 grs.
GROUP IV, 90 cases (severe morbid appearances)	Ordinary . (27) . 509 grs. Epilepti- form cases (11) . 516 grs. Total . (38) . 511 grs.	Ordinary . (44) . 455 grs. Epilepti- form cases (8) . 460 grs. Total . (52) . 456 grs.
GROUP V, 75 cases (gross morbid appearances)	Total . (25) . 513 grs.	Total . (50) . 437 grs.
Grand total . 417	Grand total . 136 males	Grand total . 281 females

dementia paralytica) are analysed and classified. It has been considered desirable, owing to their varying and usually greater weight, to separate the epileptic hemispheres from the remainder. Apart from this detail, the table contains the average weights of the hemispheres belonging to the several groups above

referred to, in order that they may be compared with one another, and with the normal average weights of stripped male and female hemispheres. The latter figures have been estimated from Marchand's statistics by the aid of Huschke's ratio of the relative weights of the conjoined cerebellum and pons and of the cerebrum.

In this table it is probable that the average weights in the right-hand column are the more reliable, owing to the greater number of the female hemispheres. As, however, both sets of figures support the same conclusions, and, indeed, differ very little in detail, any departure from relative average accuracy which may exist is not of importance.

The following facts are readily elicited from the table :

The weights throughout are considerably below the average normal, and this statement applies even to Group I, where no wasting exists, and to Group II, where little or no wasting has occurred.

In the case of Group III, however, it is possible that the wasting which has occurred may be sufficient to account for the decrease in average weight, on the supposition that this originally reached the average normal.

In Groups IV and V, in which much wasting exists, it is difficult to estimate the original weights of the brains, which may or may not have been up to the average normal.

It is clearly shown in the table that the cases in Group III originally possessed a greater weight than those in Groups I and II.

The cases in Groups I and II are therefore, macroscopically, cases of "amentia," as defined by the writer.

Regions of Wasting of the Cerebrum in Mental Disease.

The cases in which wasting of the cerebrum exists may approximately be divided into three categories—those in which the wasting is chiefly or wholly due to involution of the cortical neurones, those in which it is chiefly or wholly due to local, or fairly general, atrophies which are directly of vascular origin, and those in which both these conditions exist.

The mixed cases will not be further referred to, and it is sufficient with reference to the cases of vascular origin to state that all degrees, from definite old or recent softenings to

extensive or quite local secondary atrophies of convolutions, often with vermiform or cross-striated markings, are included. The cases which are chiefly or entirely due to retrogression or involution of the cortical neurones will, however, be more fully considered.

In cases belonging to the last category the relationship of the degree of wasting to the degree of dementia is, on the whole, very definite, and the regions of relative wasting can be determined with considerable accuracy. Taken generally—for individual variations exist—the *regions of wasting* of the cerebrum in dementia, as ascertained by personal study of over a thousand cases, are as follow :

(1) The greatest amount occurs in the prefrontal region (anterior two thirds or so of the first and second frontal convolutions, including the neighbouring mesial surface, and the anterior third or so of the third frontal convolution).

(2) The wasting is next most marked in the remainder of the first and second frontal convolutions. [In dementia paralytica Broca's convolution should, as a rule, be included here, and (2) and (3) should follow (4).]

(3) It is, perhaps, next most marked in the ascending frontal and Broca's convolutions, though this grade should, in many cases at least, follow (4).

(4) It is next most marked in the first temporal convolution and the insula, and in the superior and inferior parietal lobules. In practically all cases it is more marked in the two former than in the two latter.

(5) It is least marked in the remainder of the cerebrum (including the orbital surface of the frontal lobes), particularly the inferio-internal aspect of the temporo-sphenoidal lobe and the posterior pole of the hemisphere.

In the experience of the writer exceptions to this general order are invariably due to vascular or traumatic causes, and should, therefore, be excluded from the ordinary and normal wastings of dementia.

Reference may here be made to the researches of Watson, who independently, and from the histological standpoint, has arrived at almost exactly similar conclusions regarding the comparative degrees of affection of the different regions of the cortex cerebri in several cases of juvenile general paralysis. In this investigation, though he does not explicitly state the fact in his paper,

Watson made the necessary allowances for differences in the type of fibre wealth in the several regions examined, by a comparison of sections of each area with corresponding sections taken from the same areas of normal brains. It may also be added that Schaffer, working on different lines, has arrived at very similar conclusions regarding the respective degrees of affection of the different regions of the cortex cerebri in ordinary general paralysis of the insane (dementia paralytica).

Regions of Under-Development of the Cerebrum in Mental Disease.

Apart from the necessarily excluded abnormalities of development which are of vascular or traumatic origin, the degrees of under-development of the cerebrum in amentia follow the order given above, at least as regards (1) and (2). A further statement regarding macroscopic detail cannot be made, as it is more usual to find small and simply convoluted cerebra than brains with average but small convolutions, and it is relatively rare to meet with under-developed cerebra of average convolitional complexity which show a decrease reasonably comparable with the marked wasting which occurs in severe dementia. The question, in fact, of the functional value of an *under-developed* cerebrum requires for solution microscopic rather than macroscopic study, and, as the writer will demonstrate in the next section of this paper, the micrometric method applied from the lamination standpoint affords a ready means of determining the degree of departure from the normal. One case of idiocy, for example, which was published by the writer in a previous paper, and in which the brain, though somewhat below the average weight, appeared to the naked eye perfectly normal except for slight simplicity of convolitional pattern and a somewhat decreased development of the prefrontal region, when investigated by the micrometric method, gave general average measurements which were almost identical with those obtained from a female stillborn infant. Again, the writer has recently measured for Dr. Campbell the prefrontal cortex of a case of macrocephaly. The patient was a male adult idiot who died in Rainhill Asylum, and the encephalon weighed 1775 grammes. The result of micrometric measurement is as follows :

	Macrocephalic idiot.	Average normal (see Fig. 3).	Difference.	Percentage difference.
Layer I	0'278 mm.	0'301 mm.	-0'023 mm.	- 7'6
" II	0'663 "	0'831 "	-0'168 "	-20'2
" III	0'212 "	0'229 "	-0'017 "	- 7'4
" IV	0'236 "	0'230 "	+0'006 "	+ 2'6
" V	0'295 "	0'310 "	-0'015 "	- 4'8
Total . .	1'684 mm.	1'901 mm.	-0'217 mm.	-11'4

In this case, where the cortex cerebri might reasonably have been expected to be of at least average depth, the measurements demonstrate that the condition is one of idiocy (*cf.* Fig. 5, p. 254).

The Chief Causes of apparently Aberrant Morbid Appearances in Mental Disease.

It is not necessary to consider here the different factors which may produce morbid appearances that at first sight appear exceptions to the general statements just made. The writer, however, proposes briefly to refer, for illustrative purposes, to certain conditions which might appear to contradict his description.

Amongst cases suffering from more or less pure senile or pre-senile involution of the cortical neurones it is by no means exceptional to find idiots and severe imbeciles. Such patients, even at the age of 40, are frequently markedly senile, and, without any particularly obvious modification of their already low intelligence, may, on *post-mortem* examination, show distinct morbid appearances, including cerebral wasting of a more or less general type.

On the other hand, recent cases of marked mental confusion with dementia who certainly suffer from severe cerebral disintegration may show relatively slight macroscopic chronic morbid appearances, owing to incomplete removal of the products of neuronic degeneration. In these cases, however, as the writer has repeatedly observed, well-marked macroscopic and microscopic *acute* degenerative changes are invariably present.

In the severer grades of dementia, which frequently but not necessarily occur in patients of advanced age, it is common to

find extensive degeneration of the cerebral vessels. It might, therefore, appear probable that the age was the cause of the vascular degeneration and that this, again, was the cause of the dementia, which last would thus not necessarily be associated with neuronie involution, but would be the result of vascular lesions. The writer has, however, shown that the relationship between the presence of degeneration of the cerebral vessels and the development of dementia may be summed up as follows: "In a cerebrum which has begun to break down, or where degeneration has progressed to the 'moderate' stage (Group III), the presence or incidence of gross degeneration of the cerebral vessels will cause rapid progress of the neuronie degeneration, with gross dementia." Cerebra are, of course, frequently met with in which more or less marked macroscopic lesions exist as the result of vascular degeneration, but these fall into a different category and belong equally to the sane and the insane.

Finally, certain morbid appearances are commonly present in cases of mental disease as the result of the systemic diseases which are the cause of death. Of these the most usual in all types of case, whether of dementia or of amentia, is œdema of the pia-arachnoid and the cerebrum. In systemic tuberculosis, for example, this morbid appearance occurs with a frequency of over 30 *per cent.*, and it is also found in many patients who have died of progressive cardiac failure, of the different toxæmias and infections, or of these conditions combined.

Summary.

It is evident from the macroscopic data contained in the above description that the average weight of the cerebral hemispheres in amentia is below that of the normal average. Such cerebra, moreover, frequently show signs of underdevelopment, as, for example, a small prefrontal region and a more or less marked simplicity of convolutional pattern. Cases of amentia of vascular or traumatic origin are not included in this category.

It is in dementia, however, that macroscopic study of the intra-cranial contents is of especial value. In addition to morbid conditions of the cerebral membranes and intra-cranial fluid, macroscopic wasting of the cerebrum is visible; and all these

abnormal appearances vary in degree with the amount of dementia present. The region of the cerebrum in which wasting has occurred is of peculiar significance. It has its focus in the prefrontal region, in the middle of which lies the nodal point of Flechsig's anterior and most complex centre of association, and it exists to a lesser degree in the neighbouring fronto-parietal and temporal regions. Hence, even in the absence of the histological evidence now to be adduced, the facts already cited demonstrate that in dementia the anterior centre of association of Flechsig is atrophied, and that this atrophy apparently extends to the systems of fibres of association which pass to the neighbouring regions of the cerebrum.

(B) *General Histology of Mental Disease.*

(1) *The Cell and Fibre Architecture of the Prefrontal Cortex Cerebri.*

The cortex made use of for the following description, and that employed for the preparation of the micrometric data here summarised, was obtained from the focus of the cerebral wasting referred to above, namely, from the neighbourhood of the anterior pole of the hemisphere in the region of the second frontal convolution and at right angles to the (constant) transverse fissure of Wernicke. The area selected for micrometric examination was as far as possible of the same relative size in all the brains examined; serial sections were made, and as far as possible mathematical accuracy was attempted, both in the selection of the sections and in the preparation of the micrometric measurements from these.

The cortex cerebri, in the region referred to, consists in the adult of the five primary laminæ to which reference has already been made, and in this detail, except as regards unobvious specialisation which is probably connected with differences in function, resembles that of the other zones of association of Flechsig.

Of these five laminæ the first or superficial and the fourth or "inner line of Baillarger" are essentially fibre-layers. The remaining three, namely the second, the third, and the fifth, which contain respectively the pyramidal, the granule, and the polymorphic cells, are essentially nerve-cell layers. The writer

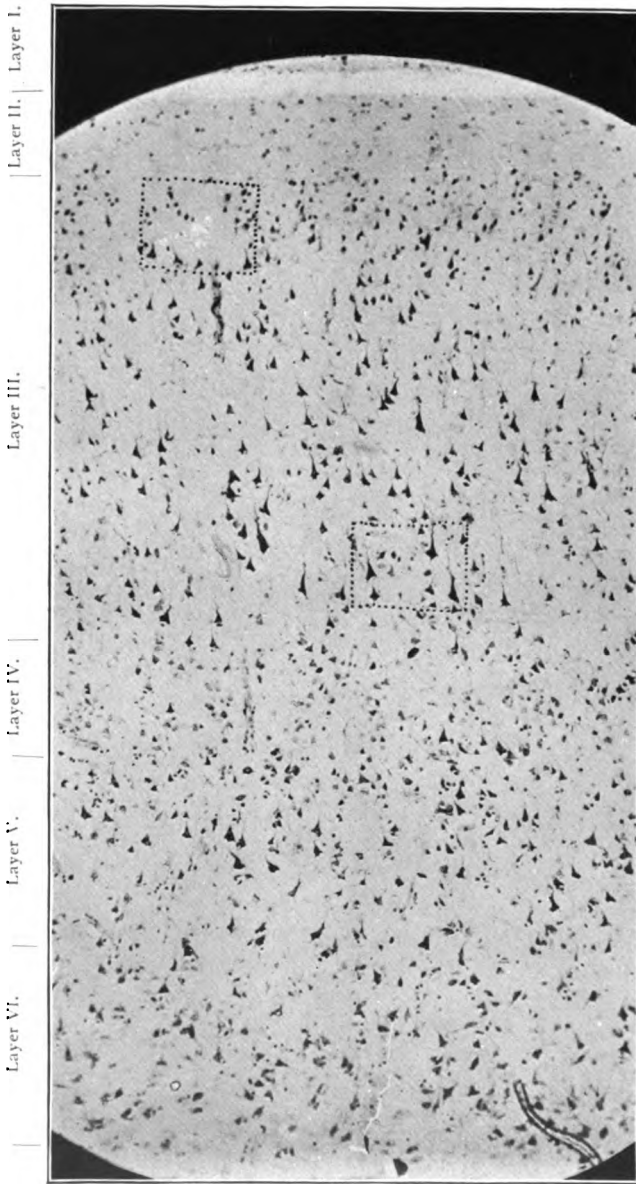


FIG. 1. 82 Diameters.

FIG. 2. 85 Diameters.

To illustrate Dr. Shaw Bolton's paper.

PLATE I.

Microphotographs of the prefrontal cortex cerebri just behind the pole of the hemisphere. The sections were made at right angles to, and across the middle of, the (constant) transverse fissure of Wernicke. The part of the section shown in the photographs is the "side" of the fissure, at a point midway between the lips and the bottom.

FIG. 1.—82 diameters. The cellular elements of the prefrontal cortex. High-power microphotographs of the upper and lower regions of Layer II are given on Plate II, figs. 3 and 4, and the exact position of these is indicated by the dotted areas.

Layer I. Superficial or outer fibre lamina.

Layer II. "Pyramidal" or outer cell lamina.

Layer III. "Granule" or middle cell lamina.

Layer IV. Inner line of Baillarger or inner fibre lamina. In this layer numerous large pyramid-shaped or irregular cells lie singly or in clusters (homologues of Betz cells and solitary cells of Meynert in the pre-central and occipital regions respectively).

Layer V. "Polymorphic" or inner cell lamina.

The well-developed condition of the cellular elements of the prefrontal cortex is clearly visible even in this low-power microphotograph.

FIG. 2.—85 diameters. The fibre-architecture of the prefrontal cortex. This microphotograph is introduced to show the position, indicated by dotted lines, of the high-power illustration on Plate IV, fig. 6, and thus demonstrate the existence, as high up as Layer III, of relatively coarse medullated fibres. Owing to the blood-vessel which appears in the illustration, the columns of Meynert are not visible in the central portion of the photograph, and, for the same reason, large pyramidal cells are absent from the lower part of Layer II.

PLATE II.

FIG. 3.—615 diameters. Microphotograph of the upper part of Layer II, in the position indicated in Plate I, fig. 1. The pyramidal and triangular cell-elements of this part of the layer are well developed, and their apical processes and numerous basal dendrites are clearly visible.

FIG. 4.—615 diameters. Microphotograph of the lower part of Layer II, in the position indicated in Plate I, fig. 1. The figure shows three large pyramidal cells with complex apical processes and numerous and well-developed basal dendrites.

Nerve-cells in a better condition of development would, to say the least, be difficult to demonstrate in any region in the cortex cerebri.



FIG. 3. 615 Diameters.

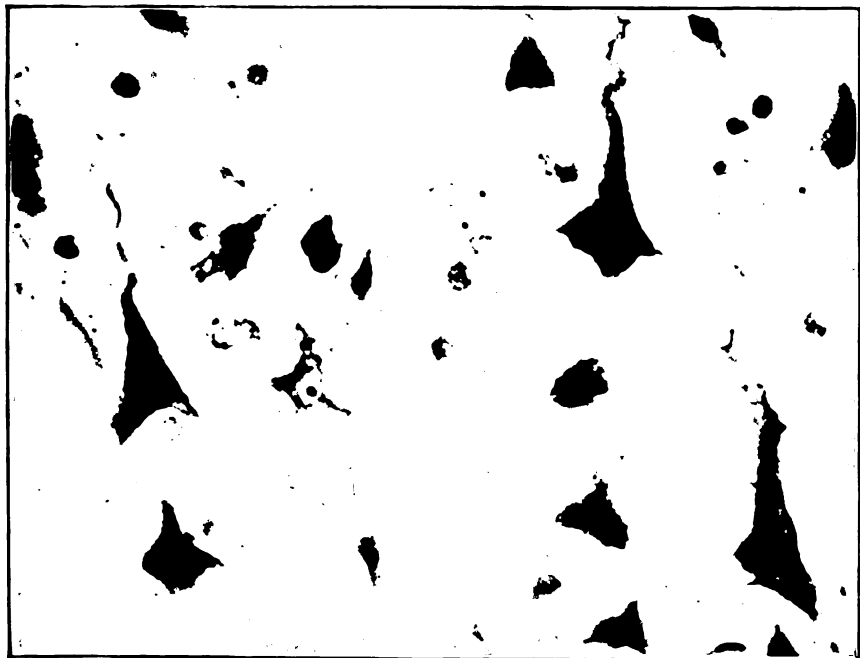


FIG. 4. 615 Diameters.
To illustrate Dr. Shaw Bolton's paper.

makes no attempt to subdivide the second or pyramidal layer (outer cell lamina), which is structurally and developmentally single, into artificial layers of small, medium, and large pyramidal cells.

In the following description the cellular elements of the prefrontal cortex will first be referred to. An account will then be given of the nerve-fibre architecture of this region. Finally, the structure of the prefrontal cortex cerebri will be briefly considered from the micrometric aspect.

(A) *Cellular Elements of the Prefrontal Cortex.*

Lamina I.—Superficial layer. Molecular layer. Outer fibre layer. This layer resembles the corresponding layer in other regions of the cortex in possessing few and insignificant cellular elements.

Lamina II.—Layer of pyramidal cells; outer cell layer. This layer is well developed, and is of practically the same average depth as in the visuo-psychic region of the cortex (a posterior zone of association), namely, .83 mm. This depth is somewhat greater than that of the combined third, fourth, and fifth laminæ, which is .77 mm., and in this respect the cortex of the prefrontal region again resembles that of the visuo-psychic area. These facts, as is shown in the next section (p. 251), which deals with the mode of evolution of the cortex cerebri, prove that the layer under consideration is as well developed as is the corresponding layer in the visuo-psychic region (a posterior zone of association).

The nerve-cells in this layer are well developed and pyramidal in shape, and those in its lower half are large and well formed and possess well-marked and complex apical processes and numerous basal dendrites. In the upper third of the layer the cells are smaller and more closely packed, but even here well-formed cells, of a triangular rather than a pyramidal shape, and possessing well-marked apical processes and basal dendrites, are present.

Microphotographs of the deep larger and of the superficial smaller cells are figured on Pl. II, figs. 3 and 4, and in the low-power microphotograph on Pl. I, fig. 1, the respective parts of the layer in which these cells lie are illustrated.

Lamina III.—Layer of granules. Middle cell layer. This

layer is well developed and resembles in its average depth and in its cellular elements the corresponding layer in the visuo-psychic region (a posterior zone of association).

The nerve-cells in this layer are small and closely packed. They are of irregular shape, but as a whole are rounded in outline, or are triangular with convex sides, and they possess two or three short, thin processes.

In the upper and lower limits of the lamina the special cells belonging to the layer are encroached upon by scattered cellular elements belonging to the adjacent laminæ (II and IV).

Lamina IV.—Inner line of Baillarger. Inner fibre layer. This layer, in average depth and general characters, resembles the corresponding layer in the visuo-psychic region (a posterior zone of association).

The cellular elements contained in it are scattered and of a mixed type. In the upper part of the layer, however, triangular or pyramidal-shaped cells of considerable size lie singly or in clusters (homologues of Betz cells and of solitary cells of Meynert in the precentral and the occipital cortex respectively), and similar solitary cells lie here and there in the lower part of the layer.

Lamina V.—Layer of polymorphic cells. Inner cell layer. This layer, in average depth and general characters, again closely resembles the corresponding layer in the visuo-psychic region (a posterior zone of association).

The cellular elements are numerous and irregular in shape, and lie in all directions. They, on the whole, possess at any rate from two to five well-developed processes. As in other regions of the cerebrum, their shape varies considerably with the part of the convolution under examination. At the "side" of the convolution (parts in contact between the surface of the brain and the bottom of a fissure) they are mostly irregular in shape. At the "bottom" of a fissure they are often fusiform in shape and lie parallel to the surface. At the "apex" of a convolution (part where an abrupt twist occurs at the lip of a fissure, etc.) they are largely fusiform in shape and radiate towards the surface of the brain between the "radiations of Meynert." Finally, on the "flat" external surface of a convolution their shape and arrangement are intermediate between those on a "side" and those at an "apex."



FIG. 5. 385 Diameters.
To illustrate Dr. Shaw Bolton's paper.

PLATE III.

FIG. 5.—385 diameters. Microphotograph of the upper half of Layer I, the superficial or outer lamina of the cortex. The outer covering of neuroglia is shown at the top of the figure as a more darkly stained portion. The complex meshwork of varicose fibrils which exists in this layer is well illustrated in the figure. The photograph, however, gives but a poor idea of the great fibre wealth which is visible in an actual section, owing to the technical difficulties which attend the reproduction of a mass of delicate fibrils lying in many planes.

PLATE IV.

FIG. 6.—385 diameters. Microphotograph of the columns of Meynert and the intra-radiary fibre plexus in the exact position indicated by the dotted lines in Plate I, fig. 2. Even as high in the cortex, therefore, as lamina III, the granule layer, relatively coarse medullated fibres, which lie both vertically and obliquely, are common. The illustration admirably demonstrates the great fibre wealth of the intra-radiary plexus in this region, though multitudes of the finer fibrils have been lost during the process of reproduction.

FIG. 7.—385 diameters. Microphotographs of the columns of Meynert and the intra-radiary plexus in the lower part of Lamina IV. Numerous relatively coarse medullated fibres lie in the columns and run obliquely across the field, and the plexus is of remarkable complexity and delicacy.

The illustrations on these plates indisputably prove the great cell and fibre wealth of the prefrontal region of the cortex cerebri, and form the best reply to the criticism of the writer's researches which Dr. Campbell appears to have founded on his conclusion that "The structural development of the 'prefrontal' cortex is exceedingly low. It presents an extreme of fibre poverty; all its fibre elements are of delicate calibre, and its association system is particularly deficient. Its cell representation is on a similar scale. The cortex is also shallow."



FIG. 6. 385 Diameters.

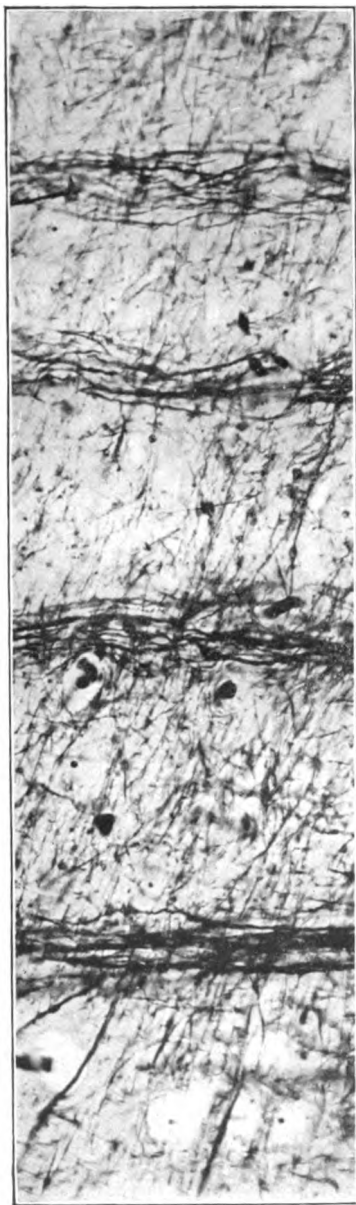


FIG. 7. 385 Diameters.

To illustrate Dr. Shaw Bolton's paper.

(B) *The Nerve-Fibres of the Prefrontal Cortex.*

For convenience of description the fibre-architecture of the prefrontal region will be considered as far as possible under the laminæ of the cortex cerebri which have been already referred to.

(1) *Superficial or molecular layer, first lamina.*—Throughout the whole of this layer, excepting the thin outer neuroglial covering, is a very complex and delicate meshwork of fine varicose fibrils. These fibrils interlace in every direction, though a considerable proportion lie approximately parallel to the surface. Many, of rather coarser calibre, pass vertically or obliquely into and from the subjacent pyramidal or outer cell layer (Lamina II). This meshwork is traversed obliquely by scattered medium and even coarse varicose fibrils. Beneath the outer fibreless covering is a definite but imperfect layer of medium and coarse varicose fibrils, the continuity of which increases with the thickness of the section. Lastly, in the deeper part of the layer, just before it passes into the pyramidal or outer cell layer, a sufficiently distinct decrease in the complexity of the fibrillar meshwork exists to enable the line of separation between the two laminæ to be detected even if the nerve-cells of the latter are invisible. In Plate III, Fig. 5, the nerve-fibrils of the upper half of this lamina are illustrated.

(2) *Pyramidal or outer cell layer, second lamina.*—Through the lower boundary of this layer the terminations of the radiations of Meynert, composed of fine and medium and also several coarse medullated and varicose fibrils, pass upwards, and some of the fibrils can be traced through the upper confines of the layer into the outer or first lamina of the cortex.

Lying throughout the lamina under description is an intricate meshwork of mixed fibrils, which is coarser below, and attains its maximum delicacy and complexity about the upper trisection of the lamina and below the aggregated smaller pyramidal cells. In the outer part of the lamina which is occupied by these cells the meshwork is complex, delicate, and wavy, owing to the manner in which the fibrils interlace in every direction between the individual cells.

(3) *Third, fourth, and fifth laminæ; middle or granule cell-layer, inner fibre-layer, and inner or polymorphic cell layer.*—

Owing to the fact that no exact relationship exists between the fibre-structure of this part of the cortex cerebri and the three primary laminae of which it is composed, the whole will be included under one description.

This region of the cortex is traversed vertically by the radiations of Meynert, and lying horizontally in it are two fibre-plexuses. The outer and more delicate of these is situated at the junction of the pyramidal layer (second lamina) and the granule layer (third lamina), and encroaches on the latter. The inner and denser of these horizontal fibre-plexuses lies in the region of the fourth lamina (inner fibre layer of primary cortical structure).

Radiations of Meynert.—These columns are composed of medullated and varicose fibrils of different calibre, and include many coarse medullated fibres (see Plate I, fig. 2, and Plate IV, figs. 6 and 7).

Interradiary plexus.—This plexus is of remarkable and delicate fibrillar wealth, and is traversed obliquely and horizontally by numbers of coarse medullated and varicose fibres. In the two regions above referred to a distinct band is produced by a horizontal condensation of the fibrillae. Of the two bands the inner (fourth lamina) is the more dense, and the outer (plexus lying between the second and third laminae and encroaching on the latter) is the more delicate. Even in the latter, however, many coarse medullated and varicose fibres lie obliquely and horizontally, and these may be followed at times for considerable distances (see Plate IV, figs. 6 and 7).

The interradiary plexus is of the least density in the lower part of the granule layer (third lamina), but even here is of great and delicate fibre wealth, and in structure is homologous with the band of fibres lying directly above it at the junction of the second and third laminae. The interradiary plexus is of rather coarser composition, and forms a dense meshwork round the nerve-cells in the fifth lamina (polymorphic or inner cell layer), and in structure is homologous with the fibre-band lying immediately above it in the fourth lamina (inner fibre layer of primary cortical structure).

The horizontal fibre bands of the prefrontal cortex.—In order to avoid misinterpretation in one of the most difficult details of the fibre architecture of the cortex, it seems desirable, finally,

to refer, in the form of a summary, to the exact position of the horizontal fibre bands of the prefrontal region.

Of the five primary laminae of the cortex cerebri, two—the first and the fourth (outer and inner fibre layers)—are in essential structure fibre-layers. These laminae are laid down in the developing cortex before nerve-fibres appear, and are not to be confounded with the fibre-bands of the adult cortex.

The horizontal fibre bands of the adult cortex are four in number, and, as a whole, decrease in thickness from below upwards.

The fourth and deepest fibre-band.—Inner line of Baillarger. This band occupies the position of the fourth primary lamina of the cortex. In specimens stained for nerve-fibres this band is usually visible in sections prepared from the centres of association, but is commonly invisible in sections taken from the sensory spheres, owing to the immense number of projection fibres which traverse the cortex vertically in these regions. In the prefrontal region (centre of association) it is, as a rule, readily discerned in carefully differentiated specimens.

The third fibre-band.—Outer line of Baillarger. This band is much thinner than the last described; it lies between the second and third laminae (pyramidal or outer and granule or middle cell layers), and it somewhat encroaches on the latter of these. It is usually readily visible in sections taken from nearly any part of the cortex cerebri. It is especially prominent in the visuo-sensory area of the cortex (the most definite sensory projection sphere), it has received the name "line of Gennari," and it is here separated from the second lamina (pyramidal or outer cell layer) by an additional layer of granules. This fact proves its connection with the third lamina (granule or middle cell layer); and the association of the third lamina, including this fibre-band, with the optic radiations, is demonstrated by the fact that in long-standing or congenital blindness the outer layer of granules is decreased in thickness to the extent of more than 10 per cent., and the fibre-band to the extent of nearly 50 per cent.

The second fibre-band.—Superradiary fibre-band. This fibre-band is thinner than the last described. It is usually readily demonstrated in sections taken from nearly any part of the cortex cerebri, though its position appears to vary somewhat in different regions. In the prefrontal cortex it consists of a

delicate fibre-band, which in structure is a condensation of the general fibre meshwork of the second lamina, and lies approximately at the outer trisection of this lamina (pyramidal or outer cell layer) and below the aggregated smaller pyramidal cells.

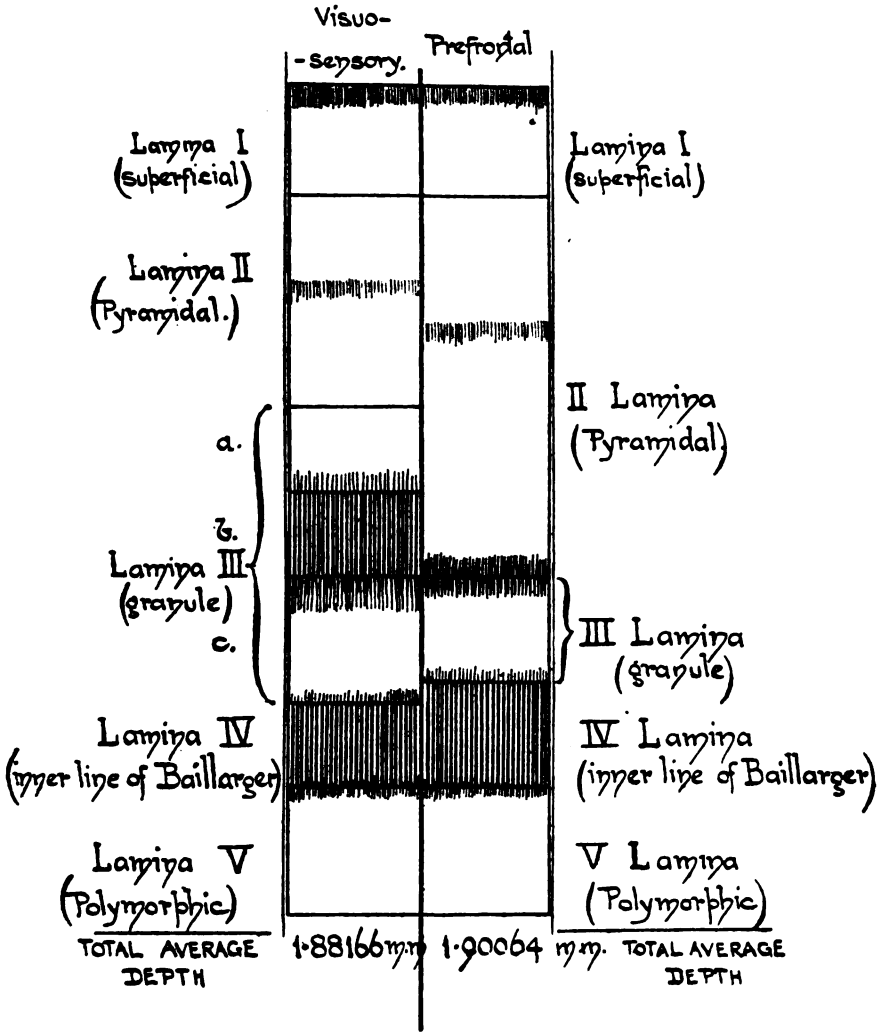
The superficial or first fibre band.—Tangential layer of fibres. This fibre-band lies in the outer part of the first or outer lamina (outer fibre layer) of the cortex, just beneath the thin outer neuroglial covering. The coarseness of its constituent fibre elements varies in different regions of the cortex. In the prefrontal region it consists of a definite but imperfect layer of medium and coarse varicose fibrils, the continuity of which increases with the thickness of the section.

The horizontal fibre bands of the cortex in the visuo-sensory and prefrontal regions are compared in the following diagram, which approximately represents their relative positions and in a gross manner their respective depths.

It is finally desirable to add, for the sake of clearness, that the fibre-architecture of the cortex depends for its chief characters on the lamination and relative development of the cell-elements. In other words, the fibres lie wherever there is room for them, and their arrangement depends upon the position, size, and number of the pre-existing cells. In the fourth lamina, where cells are relatively few, a dense plexus develops and forms a definite horizontal band. Between the second and third laminae, where the large pyramids are more or less definitely separated off from the subjacent granules, another band, which there is reason to believe is closely associated with projection fibres, is usually quite definite. In the upper part of Lamina II, below the smaller and frequently aggregated pyramidal or triangular cells, around which a wavy plexus of fibres exists, a more or less definite condensation of fibres is usually perceptible as a further horizontal band. Finally, in Lamina I, the fibres which it contains form a fairly definite horizontal condensation in the outer part of the lamina, and this is probably a natural mechanical arrangement which has occurred during the growth of the fibres into the lamina.

The above account of the fibre structure of the prefrontal region differs so absolutely, both generally and in detail, from that recently published by Campbell, in his *Histological Studies on the Localisation of Cerebral Function*, that an explanation of

FIG. 2
Rough diagram of the
FIBRE BANDS OF THE CORTEX CEREBRI



NOTE.—This diagram is not intended to show either the exact thickness of the bands or the relative number of fibres contained in them.

this difference is necessary. The description given by this author is briefly as follows :

“‘*Zonal layer of fibres.*’ In the ‘prefrontal’ area the development is so poor that a few scattered, short, wavy fibrils alone remain to denote the existence of the layer” (*cf.* on the other hand Pl. III, fig. 5).

“‘*Supra-radiary layer.*’ When we come to the ‘prefrontal’ area only a few short and irregularly scattered fibres can be seen. But since nerve-cells, although small, are present in abundance in the same situation, and it is impossible to think of nerve-cells without accompanying nerve-fibres, I should qualify my statement by saying that scarcely any fibres are present which even a delicate method like that we owe to the ingenuity of Wolters and Kulschitzky, will reveal.”

“‘*Line of Baillarger*’” (= outer line of Baillarger or outer of the two inter-radiary fibre bands). “In the ‘prefrontal area’ . . . the formation is found to be very weak ; it contains no large fibres at all, scarcely any which can be designated medium-sized, and the delicate elements which do compose it are both short and scarce.”

“‘*Radiations of Meynert.*’ Coming to the ‘prefrontal’ cortex the attenuation is more pronounced, and large and medium-sized fibres having disappeared, the fasciculi are composed entirely of delicate varicose elements” (*cf.* on the other hand Pl. IV, figs. 6 and 7).

“‘*Interradiary plexus and association fibres.*’ The ‘prefrontal’ plexus in turn differs from the ‘frontal’ in being still more open, and in containing no fibres of large calibre. The latter feature is one which I regard as of great histological importance” (*cf.* on the other hand Pl. IV, figs. 6 and 7).

In his summary Campbell adds :

“(5) The structural development of the ‘prefrontal’ cortex is exceedingly low. It presents an extreme of fibre poverty ; all its fibre elements are of delicate calibre, and its association system is particularly deficient. Its cell representation is on a similar scale. The cortex is also shallow.”

The cause of the discrepancy between Campbell’s and the writer’s descriptions lies in the difference of method adopted. The writer, by the methods he employs, is able to stain the nerve-fibrils which are present, and is even able to state positively that the variation in fibre architecture which occurs

in the several regions of the cortex is not so much a difference in fibre wealth as a difference in coarseness of fibre structure. Campbell, on the other hand, has throughout used the Wolters-Kulschitzky modification of the Weigert-Pal process for the staining of his fibre preparations.

Several years ago the writer conducted a lengthy investigation into the chemistry of the Weigert-Pal method (*Journ. Anat. and Phys.*, 1897 and 1898), and showed that this process "is not a specific method for the staining of medullated nerve-fibres with hæmatoxylin, but is a method of dyeing fibrils, which comprises three distinct operations—the mordanting of the fibrils, the formation of a lake in them, and, finally, the removal of the stain by oxidation from nearly every other part of the complex tissue under treatment." In his papers he classified the several lakes, formed by hæmatoxylin with various metallic salts, according to their relative value, and eventually, in his later investigations on cortical structure, made use of ammonium molybdate and iron alum as the most trustworthy mordants. As every technical dyer is aware, unless a fabric is properly mordanted (in the staining of woven fibres with basic dyes) no amount of dyeing will give a satisfactory result, and it is in this detail that the Wolters-Kulschitzky method is untrustworthy, as it depends for its results on the staining rather than on the mordanting part of the process.

In the staining of nerve-fibrils, as the delicacy and complexity of the meshworks of these become greater, the process of mordanting must be more and more thoroughly carried out. Of all the regions of the cortex, the fibre-plexuses are the most delicate and complex in the prefrontal region, and there is a corresponding difficulty in obtaining a satisfactory result. In this part of the cerebrum especially, the mordanting and staining processes require to be carried out most thoroughly and the oxidising process most carefully. To a worker unaccustomed to the particular processes referred to, the earlier results are almost certain to be disappointing, as both practice and persistence are necessary in order to take advantage of the full staining capabilities of the tissue. In some brains, even after repeated and persistent attempts, a more or less complete failure results, and this is in all probability due to some chemical alteration in the tissues of either *ante-* or *post-mortem* occurrence. The writer has therefore prepared his photographs from speci-

mens which were kindly lent to him by Dr. Watson, in order to provide independent confirmation of the superiority of the staining processes he advocates.

This, then, is the reason of the discrepancy between the above descriptions, and it is a matter of regret to the writer that such an extensive investigation as that conducted by Dr. Campbell should have lost much of its value owing to a preventable cause, and that this author should have founded on an untrustworthy basis his very positive statements concerning the fibre architecture of the prefrontal cortex.

(c) *The Prefrontal Cortex from the Micrometric Aspect.*

The general structure of the prefrontal cortex from the micrometric aspect is derived from an examination of three normal brains. The average depths of the different layers of which the cortex is composed were obtained by a method already published in detail in a previous paper. They are shown graphically in percentages in Fig. 10, p. 263, and are stated in millimetres in the following table.

FIG. 3.

		Case I.	Case II.	Case III.	Average of Cases I, II, and III.
Layer I	Outer fibre layer	0.27713 mm.	0.34141 mm.	0.28308 mm.	0.30054 mm.
Layer II	Outer cell layer	0.83616 "	0.90143 "	0.75590 "	0.83116 "
Layer III	Middle cell layer	0.24117 "	0.21953 "	0.22579 "	0.22883 "
Layer IV	Inner fibre layer	0.23592 "	0.22271 "	0.23233 "	0.23032 "
Layer V	Inner cell layer	0.30166 "	0.31033 "	0.31737 "	0.30979 "
Total depth . . .		1.89204 mm.	1.99541 mm.	1.81447 mm.	1.90064 mm.

Of the three cases, Case 2 gives higher and Case 3 lower results than Case 1: and the average of the three cases is practically identical with that of Case 1. It will be noticed in the table that such differences as exist occur in the first and second laminæ only. Lamina II, the pyramidal or outer cell layer, is of all the cortical layers the easiest to measure accurately. This layer, therefore, varies in depth in different normal individuals, a fact, as will be seen later, of the very greatest signifi-

cance. In the case of Lamina I, the superficial or outer fibre layer, whilst every care was taken to obtain accurate results, it is certainly the portion of the cortex most likely to sustain injury during the process of preparation for microscopic examination. As, however, the mode of development of this layer demonstrates that, after attaining a certain depth, it afterwards increases *pari passu* with Lamina II, it is probable that the two laminæ are structurally and functionally associated.

(2) *The Mode of Development of the Primary Cell and Fibre Laminae of the Prefrontal Cortex Cerebri.*

The micrometric basis for this description is derived from an examination of five selected cases, namely, two fœtuses of about four and six months respectively, two stillborn infants (male and female), and one child of the age of six weeks. The results are displayed graphically in percentages of the normal adult depth in Fig. 10, p. 263.

In the fœtus of four months lamination has not begun, and the cortex consists solely of a superficial indifferent layer and of a deeper layer of undifferentiated neuroblasts. The average depth of the former is 0·154665 mm., and of the latter 0·67758, a total of 0·832245 mm., which is less than half the normal adult general average depth.

For simplicity of exposition, the process of development will be first described in the case of each separate layer, and the results will then be summarised.

PRIMARY FIBRE LAYERS OF THE CORTEX.—*Lamina I: Superficial layer, outer fibre layer.*—At the fourth month of fœtal life the cortex consists of this layer and of a deeper undifferentiated mass of neuroblasts. The layer under description is already about one half of the adult depth, and it remains unchanged until the development of lamination in the sixth month. At birth, however, it has attained to a depth which is about two thirds of the adult normal. It is probable that its further development to the normal adult depth occurs in association with that of the subjacent second, pyramidal, or outer cell layer.

Lamina IV.—Inner fibre layer, inner line of Baillarger.—This layer appears in the sixth month of fœtal life, and almost at once attains to nearly the normal adult depth. The cleavage

of the partially differentiated neuroblasts of the cortex into an upper and a lower portion by the development of this layer is the most striking feature of the process of lamination. In view of what will be stated later concerning the functions carried on by the inner cell layer, this cleavage of the neuroblasts is an occurrence of the greatest significance.

PRIMARY CELL LAYERS OF THE CORTEX.—*Layer II: pyramidal layer, outer cell layer.*—The pyramidal layer is the last cell layer to develop during the process of lamination. In a foetus of six months this layer is separable from the subjacent middle cell layer owing to the less differentiated condition of its cell elements, and it is at this period only one fourth of the depth to which it attains in the adult. At birth and in early infancy it is still little more than one half of the adult depth.

Layer III: granule layer, middle cell layer.—The granule layer develops in the sixth month of foetal life, and at this period it is separable from the superjacent outer cell or pyramidal layer owing to the more differentiated condition of its cell elements. At this period it is already one half of the adult depth, and by the time of birth it has attained to a depth which is nearly three fourths of this.

Layer V: polymorphic layer, inner cell layer.—The polymorphic layer is separated off, as has already been stated, from the rest of the partially differentiated neuroblasts by the development of the fourth or inner fibre lamina at the sixth month of foetal life. The polymorphic layer is already, at the period referred to, about three fourths of the adult depth, and it undergoes a slow further development until after birth. In a child of six weeks it has attained a depth which is within 18 per cent. of the adult normal.

Summary.—The *inner cell layer*, therefore, appears before the others and is almost at once of a depth which is about 75 per cent. of the adult normal. It remains almost of a stationary depth until after birth. Its depth in a child of six weeks is 82 per cent. of the adult normal.

The *middle cell layer* appears next in order and is almost at once about one half of the normal adult depth. It gradually increases in thickness, and at birth it has attained to a depth which is 75 per cent. of the adult normal.

The *outer cell layer* is the last layer of the cortex to be de-

veloped, and at this time it is only one fourth of the normal adult depth. It gradually increases in thickness, and in an infant of six weeks it has attained to a depth which is about 60 per cent. of the adult normal.

The functional significance of the facts contained in this section will be referred to later, after the consideration of the condition of the cortical laminæ in amentia and dementia respectively.

(3) *The Prefrontal Cortex in Amentia.*

(a) *Low-grade amentia.*—The micrometric basis for the facts to be adduced concerning the condition of the prefrontal cortex in low-grade amentia is derived from an examination of four cases which exhibited different grades of idiocy and imbecility. In one of the cases both hemispheres were examined, as an additional means of checking the results. The measurements obtained from these hemispheres showed throughout a remarkable similarity, such a resemblance, in fact, that it was quite easy after all the figures had been worked out, to pick them out as belonging to the same cerebrum. The general average measurements of this case are as follows :

FIG. 4.

Low-grade amentia.		Right hemisphere.	Left hemisphere.
I	Outer fibre layer	0·27598 mm.	0·28955 mm.
II	Outer cell layer	0·72886 "	0·77021 "
III	Middle cell layer	0·20053 "	0·19929 "
IV	Inner fibre layer	0·19327 "	0·19941 "
V	Inner cell layer	0·27231 "	0·27444 "
Total		1·67095 mm.	1·73290 mm.

It will be noticed that the general average measurements in the two columns are practically identical except for the fact that the second or outer cell layer is somewhat deeper in the left hemisphere.

In all the cases the depth of the cortex varied according to the mental capacity of the individual. In the lowest case, an idiot, it was 72·94 per cent. of the normal, and in the highest, a mild imbecile, it was 89·95 per cent. of the normal. The chief

factor in the production of the difference in depth was in all the cases the thickness of the second, pyramidal or outer cell layer.

In the following table the general average measurements of the combined cases are compared with those of the combined normal cases which are given on p. 250 (Fig. 3). In the table the actual and the percentage decreases in depth are shown in the third and the fourth columns respectively.

FIG. 5.

		Average normal.	Average low-grade amentia.	Decrease.	Percentage of decrease.
Layer I	Outer fibre layer	0'30054 mm.	0'25576 mm.	0'04478 mm.	15 %
" II	Outer cell layer.	0'83116 "	0'66858 "	0'16258 "	20 %
" III	Middle cell layer	0'22883 "	0'19277 "	0'03606 "	16 %
" IV	Inner fibre layer.	0'23032 "	0'19925 "	0'03107 "	13 %
" V	Inner cell layer .	0'30979 "	0'27491 "	0'03488 "	11 %
Total		1'90064 mm.	1'59127 mm.	0'30937 mm.	16 %

On examination of this table it will be seen that more than half of the actual decrease in depth occurs in the second or pyramidal layer (outer cell layer). In the last column the percentage decrease of each separate layer is stated, and this, when compared with the section on the mode of development of the primary laminae of the prefrontal cortex cerebri (p. 251), affords absolute proof that the cortex of the cases just referred to is in a condition of arrested development. The percentage decrease is the smallest in the fourth or inner cell layer, and it is the largest in the second or outer cell layer, that in Layer III, the granule or middle-cell layer, occupying an intermediate position. In the case of the primary fibre laminae also the decrease is more marked in Layer I, the outer, than in Layer IV, the inner. All these facts agree exactly with the order and mode of development of the different laminae of the cortex cerebri.

The prefrontal cortex cerebri in low-grade amentia is, therefore, in a state of arrested development, and this arrest especially affects the second or pyramidal layer (outer cell layer), which is the last lamina of the cortex cerebri to be evolved.

(β) *High-grade amentia*.—The three cases employed for the preparation of the micrometric data here considered are examples of recurrent and chronic insanity without dementia, which showed no intra-cranial morbid appearances on *post-mortem* examination.

The total depth of the cortex cerebri in these cases varies from 89.45 to 94.4 *per cent.* of the normal, and the chief factor in the production of the decrease in depth is the condition of the second, pyramidal, or outer cell-layer.

In the following table the general average measurements of the combined cases of high-grade amentia are compared with those of the combined normal cases, and the actual and the percentage decreases in depth are shown in the third and fourth columns.

FIG. 6.

		Average normal.	Average high-grade amentia.	Decrease.	Percentage of decrease.	
Layer	I	Outer fibre layer	0.30054 mm.	0.26150 mm.	0.03904 mm.	13 %
"	II	Outer cell layer	0.83116 "	0.72599 "	0.10517 "	13 %
"	III	Middle cell layer	0.22883 "	0.21823 "	0.01060 "	5 %
"	IV	Inner fibre layer	0.23032 "	0.21811 "	0.01221 "	5 %
"	V	Inner cell layer	0.30979 "	0.30106 "	0.00873 "	3 %
Total	.	.	1.90064 "	1.72489 "	.17575 "	9 %

On examination of this table it will be seen that considerably more than half the actual decrease in depth occurs in the second, pyramidal, or outer cell-layer. If the percentage decrease in each separate layer be compared with those in Fig. 5, p. 254, and with the description of the mode of development of the primary laminae of the cortex cerebri, it will again be seen that the condition is one of arrested development. In high-grade amentia, however, compared with low-grade amentia, the decrease in depth is proportionately more marked in the second, or outer cell-layer. The fifth, or inner cell-layer shows the least decrease, and the third, or middle cell-layer shows very little more. The major portion of the decrease exists in the second, or outer cell-layer, which is the last of the cell laminae to be evolved. In the case of the primary fibre laminae, the decrease is much more marked in Layer I (the outer) than in

Layer IV (the inner), which fact also agrees with the mode of development of the cortical laminæ. As has already been shown, though Layer I is first existent, Layer IV rapidly attains almost to the adult depth, whereas Layer I continues to increase in depth *pari passu* with the development of the second lamina (the outer cell layer).

Hence *the prefrontal cortex cerebri in high-grade amentia is in a condition of arrested development*, which especially affects the second, pyramidal, or outer cell layer, which is the last of the cell-layers to be evolved; *and this arrest of development has occurred later in life than has the corresponding arrest in low-grade amentia.*

(4) *The Prefrontal Cortex in Dementia.*

(a) *Chronic insanity with dementia* (the ordinary chronic lunatic with dementia).—The micrometric data employed as a basis for this description are derived from two cases of chronic insanity with dementia, which at the *post-mortem* examination exhibited a moderate degree of morbid change in the intracranial contents—namely, moderate excess of intra-cranial fluid, moderate thickening of the pia-arachnoid, and moderate wasting of the cerebrum.

The total depth of the cortex cerebri in these cases was respectively 87·17 and 88·81 *per cent.* of the average normal.

In the following table the general average measurements of the combined cases are compared with those of the combined normal cases, and in the third and fourth columns are respectively stated the actual and the percentage decreases in depth.

FIG. 7.

		Average normal.	Average chronic insanity with dementia.	Decrease.	Percentage of decrease.
Layer I	Outer fibre layer	0·30054 mm.	0·25260 mm.	0·04794 mm.	16 %
Layer II	Outer cell layer.	0·83116 "	0·69245 "	0·13871 "	17 %
Layer III	Middle cell layer	0·22883 "	0·21041 "	0·01842 "	8 %
Layer IV	Inner fibre layer	0·23032 "	0·21652 "	0·01380 "	6 %
Layer V	Inner cell layer.	0·30979 "	0·29282 "	0·01697 "	5 %
Total		1·90064 mm.	1·66480 mm.	0·23584 mm.	12 %

On examination of the table it will be seen that more than one half of the actual decrease in depth, which is here chiefly or entirely due to cortical wasting, occurs in the second, pyramidal, or outer cell-layer. The percentage decrease is least in the fifth, or inner cell-layer, which is the first to be developed, and greatest in the second, or outer cell layer, which is the last to be evolved, that in the third, or middle cell layer occupying an intermediate position. In the case of the fibre laminæ the first, or outer, follows, as before, the second, or outer cell layer, and shows the greater decrease; and the fourth, or inner, shows the lesser, and in this follows the fifth, or inner cell layer.

Hence, during the process of cortical involution the layers which are the latest to be developed undergo the greatest degree of retrogression, and those which are the earliest undergo the least. In other words, the order of involution of the primary laminæ of the cortex cerebri is exactly the reverse of that of their evolution. The neurones of the cerebral cortex therefore conform to the general biological law with regard to the processes of evolution and involution.

The prefrontal cortex cerebri in chronic insanity with moderate dementia has therefore undergone dissolution in the reverse order to that of its evolution, the layers which have developed the latest being the most involuted, and those which have appeared the earliest being the least.

(β) *Gross dementia and gross dementia paralytica.*—Of the three cases examined micrometrically, two were cases of gross dementia and one was a case of gross dementia paralytica (general paralysis of the insane). In these cases the mental power of the patients was at its lowest ebb, and at the *post-mortem* examination gross morbid changes existed in the intra-cranial contents, namely, great excess of intra-cranial fluid, extreme thickening and opacity of the pia-arachnoid, and extreme wasting of the cerebrum.

The total depth of the cortex cerebri in these cases varies from 84.06 to 77.53 *per cent.* of the average normal.

Marked wasting exists in all the layers of the cortex, but an exact determination of the respective degrees in the different cell and fibre laminæ is impossible owing to the amount of chronic neuroglial and vascular proliferation which exists, especially in the first or outer fibre and the second or outer cell layers, and hence increases their depth.

In the following table the general average measurements of the combined cases of gross dementia are compared with those of the combined normal cases and with those of the combined stillborn infants.

FIG. 8.

		Normal. Average of cases 1, 2, and 3.	Stillborn infants. Average of cases 6 and 7.	Gross dementia. Average of cases 18, 19, and 20.
Layer I	Outer fibre layer .	0·30054 mm.	0·20238 mm.	0·26996
" II	Outer cell layer .	0·83116 "	0·50471 "	0·66709
" III	Middle cell "	0·22883 "	0·16610 "	0·18748
" IV	Inner fibre "	0·23032 "	0·16631 "	0·17002
" V	Inner cell "	0·30979 "	0·22696 "	0·22705
Total		1·90064 mm.	1·26646 mm.	1·52250

Allowing for the neuroglial and vascular proliferation which exists in the first two laminæ of the cortex of the gross demented, the second and third columns of figures in the table show a marked resemblance to one another, as do the corresponding mental conditions; and as children under the age of a few months are still relatively helpless and mindless, an even closer parallel of measurements might be obtained by the employment of such cases.

The two series given, however, representing as they do the condition of the cortex cerebri *at birth*, when the mental processes are about to begin, and *at death in the final stage of decay of the prefrontal region*, with the mind practically gone, are sufficiently striking.

(5) *The Neopallium of the Mammalia, and the Functional Significance of the Primary Cell Layers of the Human Cortex Cerebri.*

As has been stated, the human cerebral cortex is composed of five primary laminæ, of which the first or superficial and the fourth are, in essential structure, fibre-layers, and the second, third, and fifth are essentially nerve-cell layers.

The undifferentiated cortex cerebri consists of a superficial layer and of a deeper layer of neuroblasts. From this basis are

first developed the fifth, polymorphic or inner cell layer and the fourth, inner line of Baillarger or inner fibre layer. These laminæ rapidly attain almost to the adult depth and form a primary or "lower level" basis for the exercise of cerebral function. The third granule or middle cell layer develops next in order, and as has been seen in the description of the visuo-sensory cortex, this lamina is related in an important manner to the projection fibres for visual impressions. There is reason to believe that this association is not a peculiar one, and that the granule layer bears a similar relationship to the afferent fibres in the other projection spheres. Differentiation of the granule or third lamina is followed by the evolution of the second, pyramidal or outer cell layer, *pari passu* with which occurs a further development of the first, superficial or outer fibre layer. The last two of these layers constitute a second or "higher level" basis for the further development of cerebral function; and the degree of evolution of the second, pyramidal or outer cell layer is a direct index of the amount of general psychic capacity possessed by the individual.

Thus the fifth, polymorphic or inner cell layer deals with the lower organic and instinctive activities, and the second, pyramidal or outer cell layer with the higher psychic functions. The third, granule or middle cell layer, as will be pointed out later, deals with the reception and immediate elaboration of (? conscious) afferent impressions originating primarily in the sense organs.

The grounds on which the above description is founded have been already summarised and will be further referred to. It is, however, here desirable to briefly refer to the evidence, bearing on the subject, which has been adduced by Watson as the result of his elaborate study of the cerebral cortex of the mammalia, and which forms the complement of the writer's researches. Watson has shown that in the mammalia generally the neopallium is composed chiefly of the layers which have been referred to above as the third, granule, or middle-cell layer, the fourth, or inner-fibre layer, and the fifth, polymorphic or inner-cell layer, the second, pyramidal, or outer-cell layer being in a rudimentary condition. For convenience of description he refers to the combined fourth and fifth laminæ as the "infra-granular" portion of the cortex, and to the second lamina as the "supra-granular;" but, apart from this difference in terminology, his account of the lamination of the mammalian

neopallium is a confirmation of that which was originated by the writer in the case of the human cortex cerebri.

In his recently published papers on the Insectivoræ (*Proc. Roy. Soc.*, 1905, and *Arch. Neurol.*, vol. iii, 1906) Watson has shown that the second, pyramidal, or outer-cell layer, or, as he terms it, the "supra-granular," is in a rudimentary condition, whereas the combined depth of the remaining laminæ of the cortex differs little, in the mole, for example, from that of these laminæ in the human infant. He has made a careful study of the habits of the members of the order which he has examined, and he has discussed the relationship which exists between their psychic functions and the structure of their neopallium.

Watson, in his further and as yet unpublished work, has shown that the second, pyramidal, or "supra-granular" lamina develops *pari passu* with the increasing degree of intelligence which appears in the different orders of the mammalia, and he has correlated this physical basis with the educability and general intelligence of the respective animals. For example, the "supra-granular" lamina is better developed in the Rodents than it is in the Insectivoræ; it is again better developed in the Ungulates and the Carnivores than in the Rodents; and it is strikingly more developed in the Primates than in the Carnivores. On the other hand, the "infra-granular" portion (Laminæ IV and V of the writer) is for practical purposes equally developed in all these orders.

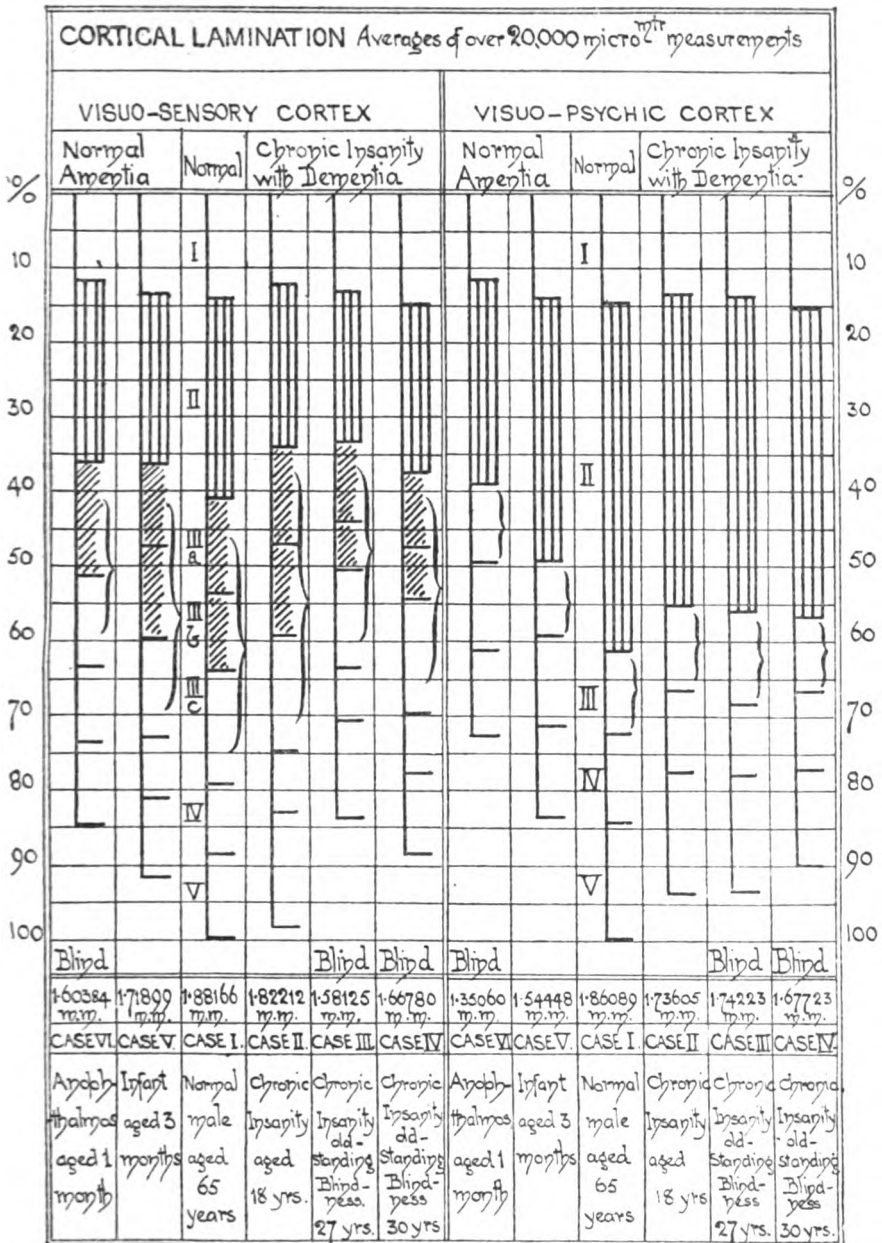
In other words, the primary or "lower-level" portion of the cortex cerebri above referred to is the only part which is fully developed in the lower orders of the mammalia, and in these it constitutes the most important cell-formation of the neopallium.

Watson, therefore, correlates the "infra-granular" portion of the neopallium with the instinctive activities in contradistinction to the educability existing in the different types of mammal.

These conclusions of Watson concerning the functional sig-

Note (Fig. 9).—The micrometer measurements on which this table is based have been already published (*Phil. Trans.*, 1900, pp. 165—222). The subdivisions from above downwards refer to the cell-layers described in the text. In the first half of the table Layers III A, III B, and III C are bracketed together, and are equivalent to Layer III in the second half, which has a bracket opposite to it. The shaded portion represents the additional "visual" layers, which are decreased in depth in long-standing blindness.

FIG. 9.



nificance of the primary cell laminae of the mammalian neopallium agree with, and form the complement of, those already published by the writer in the case of the human cortex cerebri.

The functional significance of the three primary cell layers of the cortex cerebri, together with the evidence on which this is based, will now be briefly summarised.

Certain of the micrometric data which the writer has obtained during the past ten years, and from which he has developed the following description, are shown in graphic form in Figs. 9 and 10, and these may be usefully referred to by the reader of the account which follows.

It may be remarked here that it was at one time the purpose of the writer to obtain more complete data concerning the age-periods of development of the cerebral cortex in foetal life and childhood. He found, however, considerable variations in the degree of development of different cases at stated ages, and therefore, in the absence of any data as to the respective degrees of intelligence in the different cases, was unable to pursue the subject to a satisfactory conclusion. He consequently confined his studies to cases in which it was possible to co-ordinate the mental states and the micrometric data. The results which he has obtained during these investigations are so absolute as to make very definite statements possible regarding the correlation of the degree and mode of development and the functional significance of the primary cell-laminae of the cortex cerebri.

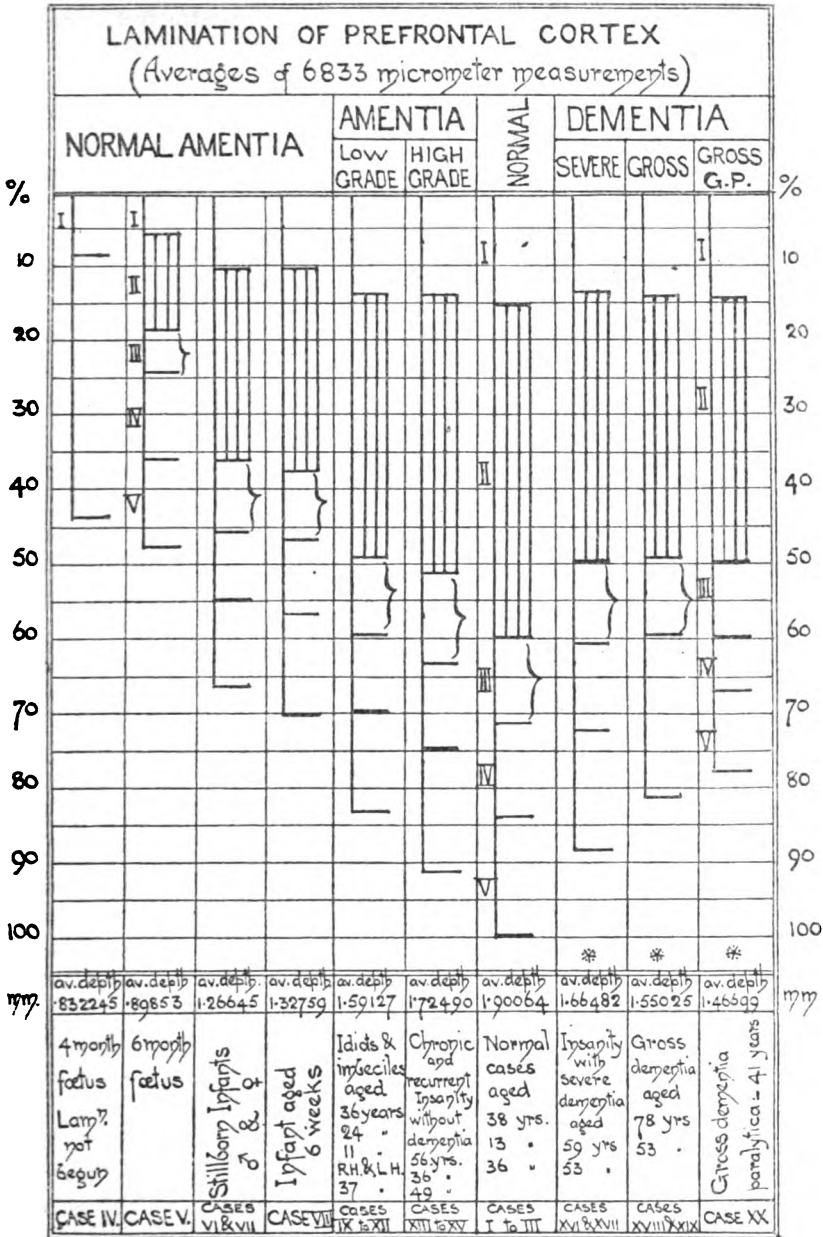
The fifth, polymorphic or inner cell layer.—This layer is the first cell-lamina of the cortex cerebri to be differentiated during the progress of lamination. In the prefrontal region of a foetus of six months it is separated off from the rest of the cortex by the fourth or inner fibre lamina, and is already within 29 *per cent.* of the normal adult depth. In a child of six weeks it has advanced to within 18 *per cent.* of the normal adult depth.

It is of extremely constant average adult depth.

A very slight decrease in the depth of this layer exists in cases of high-grade amentia and of chronic insanity with

Note (Fig. 10).—The micrometer measurements on which this table is based have been already published (*Archives of Neurology*, vol. ii, 1903, pp. 424—620 B). * In the first two layers of these columns, particularly the "Gross" and "Gross (G.P.)," vascular and neuroglial proliferation causes the depth to be greater than would have been the case if a formation of repair tissue had not accompanied the decay of the neurones.

FIG. 10.



moderate dementia. A considerable decrease, on the other hand, exists in more marked aments (whether normal aments or idiots and imbeciles), and in gross demented who are unable to carry on the ordinary animal functions, such as attending to their own wants, etc.

As has been shown by Watson, the "infra-granular" region contains the important cell-layers of the neopallium of the lower mammalia, and is very little inferior in depth to the normal adult human depth of the conjoined fourth and fifth laminæ.

The fifth, polymorphic or inner cell layer, therefore, in association with the fourth or inner fibre layer, subserves the lower voluntary and instinctive activities of the animal economy, and thus forms a lower level basis for the carrying on of cerebral function.

The third, granule or middle cell layer.—This layer is developed after the fifth, polymorphic or inner cell layer, and before the second, pyramidal or outer cell layer. In the prefrontal region of a fœtus of six months it has just become differentiated, by commencing specialisation of its constituent cells, from the superjacent second or outer cell layer, and it is already one half of the normal adult depth. In a child at birth it has become three fourths (73 *per cent.*) of the normal adult depth.

In the visuo-sensory area the optic radiations end in the midst of a hypertrophied and duplicated third or granule layer. The duplication is due to the interposition in the midst of the hypertrophied third or granule layer of a well-marked fibre band, the line of Gennari, which fibre-band, as has already been stated, is a hypertrophy of the outer of the two horizontal inter-radiary fibre plexuses of the adult cortex, namely, the "outer line of Baillarger." In old-standing or congenital optic atrophy the outer (and additional) of the granule layers is decreased in thickness by more than 10 *per cent.* and the line of Gennari is decreased in thickness by nearly 50 *per cent.*

As has been pointed out by Watson, a hypertrophied third, granule or middle cell layer appears to be characteristic of the projection areas of the cerebrum. In the case of the visuo-sensory area (visual projection sphere) the third or granule layer first becomes definitely duplicated in the order Primates, though slight indications of duplication occur in the higher Carnivores.

The third, granule or middle cell layer, therefore, primarily sub-

serves the reception or immediate transformation of afferent impressions, whether these arrive directly from the lower sensory neurones, or indirectly through other regions of the cerebrum.

The second, pyramidal or outer cell layer.—The data which have been advanced by the writer with reference to the functions of this layer will be considered under the regions of the cortex cerebri from which they have been derived, namely, the prefrontal, the visuo-psychic, and the visuo-sensory areas.

(a) *The prefrontal region.*—The pyramidal or outer cell layer is the last layer of the cortex cerebri to develop. It is visible owing to the undifferentiated condition of its constituent elements in a foetus of six months, and is at this time only one quarter of the normal adult depth. In infants at birth and at the age of six weeks it is still less than two thirds of the normal adult depth.

It is the only cell layer of the cortex cerebri which varies definitely in depth in normal brains.

It is under-developed to different degrees, not only in idiots and imbeciles, in the severer grades of which its depth is only two thirds of the adult normal, but also, and here to a lesser extent, in chronic and recurrent lunatics without dementia. The degree of its retrogression in demented patients varies directly, and to an equally marked degree as its subdevelopment in the case of amentia, with the amount of dementia existing in the respective cases.

(β) *The visuo-psychic region.*—The second, pyramidal or outer cell layer develops earlier in this region than in the prefrontal. In infants of one and three months it is respectively nearly two thirds and more than three quarters of the normal adult depth.

It reaches practically the same adult depth as in the prefrontal region.

It does not vary in depth according to the degree of dementia existing in the patients, though a small and practically constant decrease in depth, which may be due to either subdevelopment or retrogression, is evident in such cases.

(γ) *The visuo-sensory region.*—The second, pyramidal or outer cell layer develops much earlier in this area than in the visuo-psychic and prefrontal region. In infants of one and three months respectively its depth is already 84 *per cent.* of the adult normal.

In the normal adult this cell layer in the visuo-sensory area

is only about five ninths of its depth in the visuo-psychic and prefrontal regions of the cerebral cortex.

The second, pyramidal or outer cell layer of the cortex cerebri therefore subserves the "psychic" or associational functions of the cerebrum. These functions are pre-eminent in the prefrontal region, they are less important in the visuo-psychic region, and they are of least importance in the visuo-sensory region. These three areas are, therefore, of different grades in the hierarchy of cerebral function.

The second, pyramidal or outer cell layer, in association with the first, superficial or outer fibre layer, thus forms a "higher level" basis for the carrying on of cerebral function. It is superadded on a "lower level" basis, consisting of the fifth, polymorphic or inner cell layer and the fourth or inner fibre layer, which subserves the lower voluntary and instinctive activities of the animal economy.

As a complement to the above facts concerning the regional variations in, and the development and retrogression of, the second, pyramidal or outer cell layer of the human cortex cerebri, and its functional significance, the writer will now draw attention to the data concerning this layer which have so far been obtained by Watson during his histological investigation of the mammalian neopallium. He finds that in the Insectivora the pyramidal or outer cell layer is in a rudimentary condition, though the lower layers of the cortex approximate to the normal human adult depth. Further, the pyramidal or outer cell layer is better developed in the Rodents than in the Insectivores; it is, again, better developed in the Ungulates and the Carnivores than in the Rodents, and it is strikingly more developed in the Primates than in the Carnivores.

He therefore functionally correlates this layer with the educability and general intelligence which appear in an increasing degree during the ascent of the mammalian scale.

(IV) SUMMARISED EVIDENCE BEARING ON THE FUNCTIONAL REGIONS OF THE CEREBRUM AND ON THE GENERAL PATHOLOGY OF MENTAL DISEASE.

The evidence which has been briefly detailed in the preceding pages will now be summarised in order to demonstrate its bearing on the geography of the cortex cerebri in relation to function, and on the general pathology of mental disease.

From the standpoint of morbid anatomy the writer considers it proved, with the necessary restrictions already referred to, that the amount of cerebral wasting present in cases of mental disease varies directly with the degree of dementia present, and that this wasting has its maximum focus in the prefrontal region of the cortex cerebri.

Still more detailed and positive results have, however, followed his study of the general histology of the cortex cerebri by the micrometric method. The pyramidal or outer cell layer increases in depth *pari passu* with the development of the psychic powers of the individual, whereas the other cell layers of the cortex develop earlier, and soon reach their adult depth.

In the visuo-sensory area (a type of the centres of projection) the pyramidal, or outer cell layer develops earlier than in the visuo-psychic region (a type of the posterior centres of association), and even soon after birth is relatively little below the adult depth, which is only five ninths of the depth of this layer in the centres of association.

In the visuo-psychic area the pyramidal or outer cell layer develops earlier than, but attains the same adult depth as, in the prefrontal region. The layer decreases in depth in dementia, but this decrease is small and constant, and does not vary with the grade of dementia.

Further, in the prefrontal region, in the different types of mental alienation, grading from the idiot to the chronic and recurrent lunatic without dementia, the pyramidal or outer cell layer exhibits degrees of under-development, which vary inversely with the mental power of the individual. In this region the pyramidal, or outer cell layer is the only layer of the cortex cerebri which varies appreciably in depth in normal individuals. Finally, in dementia (which term is used to connote the mental condition of patients who suffer from permanent psychic disability due to neuronie degeneration following insufficient durability) the amount of thinning of the pyramidal or outer cell layer in the prefrontal region varies directly with the degree of dementia present.

Hence, throughout the regions of the cortex cerebri which have been examined by the writer the cellular elements which are especially concerned with the performance of associational functions are those of the pyramidal or outer cell layer.

This associational function of the cerebrum is pre-eminent in the prefrontal region, it is less marked in the visuo-psychic region (a posterior centre as association), and it is least of all evident in the visuo-sensory area (a centre of projection). There are therefore three grades in the hierarchy of cerebral function, namely:

(I) *Projection spheres*, or regions to which afferent sensorial impressions pass from the parts of the body devoted to the appreciation of the types of specialised sensation, namely, vision, hearing,* bodily sensibility, smell, and taste.

* The writer is of opinion, as will be seen from the following excerpt from a previous paper, that the projection area for bodily sensibility lies in an at present undefined region of the cortex behind the furrow of Rolando, and that the "excito-motor" area is the centre of lower association in relation with this. "It is by no means impossible that neither the 'motor' nor the 'sensori-motor' view is strictly correct. It may be that the area as now defined bears a similar relationship to some region behind the furrow of Rolando to that which, for example, the visuo-psychic region of the cortex bears to the visuo-sensory. That this is not a proposition without foundation is evident from the fact that, whilst Flechsig's projection system for visual impressions occupies the position of, though a greater extent of cortex than, the adult visuo-sensory area, his projection system to the central convolutions bears no such close relationship to the psychomotor area as now mapped out. In the adult this projection system more probably lies behind the furrow of Rolando than in front of it, judging from the increase of frontal development which takes place as the cerebrum attains its adult characteristics, and from the fact that half the system already lies behind the fissure. If this proposition were true a lesion of the psychomotor area would be homologous with one causing word-blindness or word-deafness, etc.; in other words, this area would be the lower association centre for kinæsthetic impressions. Such a function for this region, which possesses a direct efferent connection with the motor groups of lower neurones, seems probable in view of the evidence to be brought forward later concerning the functions of the parts of the frontal lobes lying anterior to this area. It is, to say the least, unlikely on developmental grounds that an area of the lowest order—namely, a centre of projection—would lie directly adjacent to such an important centre of association as that in the prefrontal region, and that it would possess at the same time its undoubtedly important motor functions. It is equally unlikely that such a centre, judging from our knowledge of the projection and associational areas attached to the senses of sight and hearing, would singly possess both projection and associational as well as motor functions. Our present knowledge points rather in the contrary direction. As cerebral development proceeds the areas of association increase out of proportion to those of projection, and the psychomotor area becomes elaborated *pari passu* with increasing development of the animal series, and thus resembles the areas of association rather than those of projection. It is consequently not improbable that the psychomotor region is the area of association for kinæsthetic impressions, and is the forerunner of the great anterior centre of association. If this were the case its participation in such important processes of higher association as voluntary attention would be readily intelligible, and the psychomotor area would also fall into series with the posterior centres of association, and not occupy its present anomalous and uncertain position in our scheme of the functions of the cerebrum" (*Brains*, Summer, 1903). The practical absence of a granule or middle cell layer from the psychomotor area, and the high development of this layer in the post-central region, accord with this view of the functional significance of these regions. Further, amongst others, Tschernak's experimental studies on the cat, and Campbell's recently published histological investigations, are both in favour of the existence, behind the psychomotor area, of a projection sphere for bodily sensibility.

(2) *Centres of lower association*, which lie in the immediate neighbourhood of each of the areas included in the first group, and which subserve the elaboration of the different varieties of sensorial impression into simple perceptions and the association of these psychic units into higher complexes.

(3) *The centre of higher association and co-ordination* in the prefrontal region, which subserves the grouping of these higher complexes into harmonious series of concepts by means of voluntary attention and selection. This region of the cortex cerebri is thus concerned with the performance of the higher processes of mind.

Though it is not the purpose of the writer to describe in detail the differences in degree of development and in structure which exist between the cerebrum of man and those of the anthropoid primates, it is desirable to indicate here briefly the chief of these. It consists in the immense development of the anterior and posterior zones of association which has occurred in the human brain. Concurrently with this increase in the extent of the great zones of association there has developed in man the power of abstract thought and the employment for this purpose of highly complex articulate and written language. As the centres of lower association in the anthropoid primates differ from those of man in extent and complexity, so do the percepts of the former differ from the highly complex lower psychic units of the latter. Equally does the rudimentary prefrontal region of the anthropoid primates, which imperfectly marshals the relatively simple lower psychic units of these animals, differ from the existing and still developing prefrontal lobe of man, the capacity of which for co-ordinating the infinitely complex lower psychic units, which are compounded in the human mind, into harmonious series of concepts by means of voluntary attention and selection, is only limited by the degree of functional development of this lobe in any particular individual of the race. The lower associational centres of man, which represent the physical basis of the content of mind, are thus co-ordinate in development with the centre of higher association and co-ordination, which represents the physical basis of the capacity

The writer would add, as his excuse for intruding the above remarks, that the delimitation of the excitomotor area by Sherrington and Grünbaum to a region lying entirely in front of the fissure of Rolando has necessarily reopened the vexed question of the significance of the "motor" area of the cortex, and thereby brought into prominence many investigations the results of which did not accord with the sensorimotor doctrine and area.

to voluntarily group into a harmonious and connected sequence the higher psychic units of the mind.

The latest-developed and most important portion of the grey mantle of the human cerebrum, namely, the prefrontal area, is the region which is especially affected in the subjects of mental disease.

In the conception of the general pathology of mental alienation, to the elaboration of which this paper is devoted, no hard-and-fast line is drawn between sanity and insanity. On the one side of the normal all degrees of subnormal mental power exist without any gap, from the intelligence possessed by the lowest example of low-grade amentia, though that existing in the different types of low- and high-grade amentia, directly up to that of the normal "sane," who individually vary considerably in mental capacity. On the other hand, all degrees of loss of mental power exist from the stereotypism of mental processes in many normal individuals, down through all grades of dementia from the mildest degree in some "sane" persons to the severest grade in the gross dement.

Insanity, from this point of view, is neither an obscure entity which attacks at random certain unfortunate members of an otherwise sane stock, nor a disease of the cerebrum of microbic, or at any rate toxic, origin, which might be cured or prevented by some method of sanitary or preventive medicine.

The *potential* lunatic (and the actual low-grade ament) is born, not made. The *actual* lunatic is an individual who is temporarily or permanently so out of accord with the environment of the sane as to require segregation, owing either to his inherent inability to cerebrate normally under the "stress" to which the cerebra of the civilised sane are without injury subject, or to the development of cerebral dissolution and dementia under its influence.

Mental disease, thus interpreted, becomes a unit under a fundamental natural law, that of arrest and decay of vital structures; the mind is as young or as old as the brain. The high-grade ament is a man who is required to do a man's work with a child-brain; the dement is a man unable to do a man's work with a (prematurely) worn-out brain. The former may fail and try again; the latter has tried for the last and perhaps also the first time and has failed.

This conception of the general pathology of mental disease

being accepted, the writer hopes that future research will result in the elaboration of a special pathology for the various types and degrees of amentia and dementia.

It is probable that, in most cases of insanity, not only is the capacity for the performance of higher associative and co-ordinative functions deficient, but the carrying on of these is hampered by the existence of aberrant (normally or subnormally) types and grades of lower associational processes, and even in some cases of an aberrant or imperfect capacity for the appreciation of primary sensorial impressions. As possible examples of the latter may be cited the occurrence of illusions and hallucinations, and of the former the development of delusions by aberrant ideational processes founded on false or imperfectly appreciated premisses.

That the elaboration of a special pathology is possible for at any rate some of the types of mental disease the writer is convinced, though he does not suggest that the elucidation of a physical basis for such symptom-complexes as those of "mania" and "melancholia" could be carried out by any methods at the command of the morbid anatomist or histologist. For example, he has formed the opinion from his *post-mortem* experience in different parts of the country (that the convolitional pattern and general cerebral development are on the whole less highly evolved in the emotional types of high-grade amentia than in the classes of "cranks and asylum curiosities," and of "systematised delusional cases." Further, considering the subject from a more extended point of view, he is of opinion that a relatively larger proportion of small and simply convoluted cerebra occur in certain rural and agricultural districts than are found amongst the mixed lunatics of the metropolis, and that a relatively larger proportion of such cerebra exists amongst the latter than is seen in the insane belonging to certain of the larger northern centres of population. In clinical agreement with this opinion are the undoubted truths that the delusional types which constitute the higher grades of amentia are more common in the second of the classes referred to than in either of the others, and that dementia of all types and grades, unfortunately too often precipitated by alcoholic excess, is most common in the last and least common in the first of these classes.

REPLY TO A CRITICISM OF THE WRITER'S RESEARCHES BY
DR. CAMPBELL IN HIS "HISTOLOGICAL STUDIES ON THE
LOCALISATION OF CEREBRAL FUNCTION."

Whilst it is the duty and the privilege of scientific investigators to correlate their own conclusions with those already published, to make full use of the researches and results of other workers, and where necessary to criticise and correct such results, there are certain hard-and-fast lines beyond which such criticism becomes unfair and even discourteous. Dr. Campbell in his recently published book has, in the opinion of the writer, transgressed the rules of fair criticism to such an extent as to compel him, in justice to his own work, to make a public reply and remonstrance.

Owing to the direct bearing of Dr. Campbell's remarks on the subject which has just been considered, the writer hopes to receive pardon for the unusual course which he is adopting in defending his researches through the medium of a scientific communication.

Dr. Campbell has produced a book which in some respects is unique. For the first time an attempt has been made by modern methods to map out the entire cortex cerebri according to the differences in histological structure which exist in its several regions; and this attempt has, from the general aspect, been successful. Dr. Campbell has done good work, from a comparative point of view, in that he has applied the same histological methods to the whole of the cortex cerebri, and though the greater part of his research has resulted in a confirmation of the conclusions arrived at by previous investigators, his patient industry and the success which has crowned his efforts are worthy of all commendation.

This is not the place for a criticism of his individual descriptions of histological structure or of the methods which he has adopted, and therefore only such reference will be made to these as is necessitated by the purpose the writer has in view.

It is proposed to refer here to two chapters only—those dealing with the "visuo-sensory and visuo-psychic areas" and with the "frontal and prefrontal areas," as these chapters contain the criticism to which reference has been made.

In a paper which was published in the year 1900 in the *Philosophical Transactions of the Royal Society*, the writer defined

by histological methods a cortical area, which he described as the "visuo-sensory area." This area was mapped out minutely in six hemispheres, two of which were obtained from cases of long-standing blindness, and one of which was from a case of anophthalmos. As the result of an extensive micrometric examination of the whole of the cortex contained in this region, as well as of the surrounding cortex, he was able to prove that the area above referred to was the visual projection centre. The surrounding and differently specialised cortex in which old-standing optic atrophy causes no modification of the lamination was described by him under the term "visuo-psychic." This investigation was an extensive one, and required nearly four years for its completion. The writer, in fact, found it necessary to divide each occipital lobe into nearly as many separate blocks as Dr. Campbell appears to have divided a whole hemisphere, and he therefore cordially endorses this author's remark, that "the occipital lobe is of such an awkward shape that it is almost impossible to divide it into a series of sections, all of which will show the cortex cut at right angles to the plane surface and free from the damaging effect of obliquity."

In view of the *proof* which the writer adduced that the region referred to was not merely a special cortical area but was also the visual projection centre or "visuo-sensory area," it is somewhat surprising to find the following statements in Dr. Campbell's monograph: "Examining in serial sections the occipital lobes of the brains of five cases of old-standing total blindness and one of anophthalmos, and using as a criterion the atrophy and disappearance of certain nerve-cell and fibre elements, Dr. Bolton was able to map out with the greatest distinctness, an area which corresponds in all important respects with that which clinico-pathological, developmental, and experimental researches have indicated as the visuo-sensory area.

"It will be unnecessary for me to describe the limits of the area defined by Dr. Bolton, for on referring to his diagrams and descriptions it may be found that if I did so I should merely reiterate what I have said already regarding the limits of my visuo-sensory area, but as we agree that the area over which the line of Gennari is distributed represents the cortical visuo-sensory centre, it obviously follows that it is unnecessary to resort to pathological material for a definition of the field,

and as a matter of fact it can be determined in a normal brain even without the aid of a microscope."

The writer can only conclude that Dr. Campbell has not carefully read the paper, in view of the fact that he seems to think that the investigation was restricted to cases of blindness and was confined to a mere delimitation of the cortical area referred to. This area can readily be defined by the naked eye, but the writer would emphasize the point that such a definition *proves* nothing regarding the functions of the area.

Dr. Campbell's histological studies have enabled him to more or less definitely map out several cortical areas, but on what rests the proof of their functions? Not on Dr. Campbell's work, but on the observations of previous investigators. In spite of his apparent obtuseness to the difference between histological delimitation and proof of function, Dr. Campbell has himself, in fact, endeavoured to adduce proof of the functions of the pre-central and post-central convolutions by the examination of cases of amputation and of tabes dorsalis respectively.

The sentence, "It will be unnecessary for me to describe the limits of the area defined by Dr. Bolton, for, on referring to his diagrams and descriptions, it may be found that if I did so I should merely reiterate what I have said already regarding the limits of my visuo-sensory area," is a somewhat quaint mode of putting the cart before the horse, and this is not the only instance in the monograph of an inversion in order of time.

The writer has thought it desirable in common fairness to make the above reference to the chapter dealing with the visual region of the cortex, though the extracts he has cited caused him amusement rather than annoyance.

Dr. Campbell's remarks concerning the writer's work on the prefrontal region, however, distinctly pass the limits of fair criticism. These will now be briefly considered.

The section in the monograph which deals with "histological data" concerning the "frontal and prefrontal" areas consists, except for a few lines, entirely of a criticism of the investigations carried out independently by the writer and Schäfer, and concludes with the following warning:

"I have digressed more than I intended to discuss these conclusions of Bolton and Schäfer, but I have felt that it was important to take more than a passing notice of them, because

they might be converted into unsound capital by those, unpractised in histological research, who are investigating the functions of the brain and particularly those of the frontal lobe."

The writer does not propose to reply, as he might justifiably do, by warning his readers against Dr. Campbell's researches, but prefers rather to consider seriously this author's chief criticisms and statements. Amongst the latter is the following sentence :

" Without for a moment discrediting the accuracy of Bolton's observations, and while admiring the work for the care bestowed on it, I must, nevertheless, say that his arguments seem to rest on frail premisses."

This remark appears from what follows to mean that Dr. Campbell does not question the accuracy of the writer's observations regarding the morbid anatomy of dementia, but that he objects to the deductions drawn from these. Dr. Campbell appears to think (1) that the regions in which wasting is visible in cases of dementia have no bearing on the functional significance of the parts wasted; (2) that the wasting in dementia, or at any rate in dementia paralytica (general paralysis) is due to a morbid process affecting all parts of the cerebrum equally; (3) that the parts of the cerebrum which show the most wasting really do so because they are built up "with attenuated and collapsible radiations and an inter-radiary network untraversed by strong fibres"; and (4) that wasting in the regions stated may be assisted by "physical disease, causing general body emaciation," "the nutritional supply of the brain, and the influence of gravity."

Before considering this criticism of his conclusions, the writer proposes to join issue with Dr. Campbell on two important subjects, the cell and fibre structure of the pre-frontal region, and the regional distribution of the morbid process in general paralysis. Dr. Campbell appears to shelve the distribution of the lesion in dementia and leaves the reader to infer either that it is unknown or that it is the same as occurs in general paralysis, namely "ubiquitous."

As the former of these subjects has been fully referred to on pp. 240-250, it is unnecessary here to do more than remark that the writer directly negatives the views expressed in the following paragraph :

"(5) The structural development of the prefrontal cortex is exceedingly low. It presents an extreme of fibre poverty; all its fibre elements are of delicate calibre, and its association system is particularly deficient. Its cell representation is on a similar scale. The cortex is also shallow."

With reference to the distribution of the morbid process in general paralysis, Dr. Campbell states:

"Indeed, in the dementia of general paralysis, one of the conditions which he (*i.e.*, the writer of the present paper) has selected for study, we have very good reasons for supposing that the morbid process has a tendency to be ubiquitous, and yet in given cases of this disease in which our microscopic examination proves the universality of the cortical affection, we might still be correct in describing the prefrontal region, etc., as the parts which to the naked eye exhibit most atrophy, and the same might apply to ordinary forms of dementia."

The writer has arrived at very different conclusions regarding the distribution of the morbid process in this disease. He has shown that the centres of association are more severely affected than are those of projection, and that the prefrontal centre of association is by far the most severely affected region of the cerebrum. He would add that a similar remark applies to the distribution of the lesion in dementia. In other words, in cerebral dissolution the order of retrogression is the reverse of the order of evolution. For reasons of space he refers any interested reader to his previous papers for a description of his researches regarding the pathology of dementia paralytica, and also to the papers of Watson and of Schaffer, both of whom have independently arrived at similar results to his own.

Turning now to the warning and criticism, the writer would point out that, as in the case of the visual area, so here Dr. Campbell seems to be unaware of the extent and minuteness of his researches concerning the correlation between the mental conditions and the macroscopic and microscopic appearances of amentia and dementia. That Dr. Campbell's theoretical objections have no substantial basis in the case of dementia is proved by the fact that the writer has obtained corresponding histological results in the case of amentia, in which macroscopic morbid appearances are not present, and to which, therefore, such objections do not apply. As the writer's researches are available in a summarised form in the present

communication, it is unnecessary here to make further reference to them.

With regard to the question of cortical architecture, Dr. Campbell is unaware of the complexity and delicacy of the fibre structure of the prefrontal region, as the method which he has adopted has not enabled him to demonstrate it. Dr. Campbell has therefore not appreciated the significance of the evidence on which the writer has demonstrated that this region of the cortex cerebri is well developed and extremely complex in structure, and is the latest part of the cerebrum to be evolved, the highest in function, and the first to undergo dissolution—in other words, that it is not a cortical area with a possible future, but one with an actual and important present and a certain future.

In summary, the writer considers that Dr. Campbell's warning against his work is discourteous in the extreme; that his criticism is unfair in that he has obviously not read the papers carefully, if at all; and that his objections are baseless and are due to his lack of knowledge of the clinical and pathological evidence on which the conclusions are founded. He also joins issue with Dr. Campbell regarding the histology of the prefrontal region by directly denying the alleged poverty of structure of this part of the cerebrum, and by advancing photographic proof of its cell and fibre wealth. He regrets that Dr. Campbell should have so overrated his own personal investigation, which from a general point of view is of great value, as to claim the right, as the result of a relatively coarse and wholesale method of examination of the entire cerebrum, to warn his readers against the researches of another worker, which are more limited in scope, have occupied a longer time for even their partial completion, and are more elaborate in method and detail than his own.

(To be continued.)

The Morison Lectures for 1906 (¹): *The Pathology of General Paralysis of the Insane.* By W. FORD ROBERTSON, M.D., Pathologist to the Scottish asylums.

ABSTRACT.

STATISTICS seem to indicate that general paralysis of the insane has been increasing during recent years. The etiology and pathogenesis of the disease, notwithstanding many positive and dogmatic assertions that have been made regarding them, have hitherto remained a profound mystery. In the recent literature of the subject there can be recognised a growing dissatisfaction with the syphilitic hypothesis. The pathological alterations known to occur in the nervous system consist chiefly in acute and chronic degenerative changes in the cortical nerve cells, degeneration of the medullated fibres of the brain, especially in the first layer of the cortex, hypertrophy and proliferation of the neuroglia in the cortex and elsewhere, formation of granulations of the ependyma, proliferative changes in the walls of the cerebral vessels, generally accompanied by the development of plasma-cells, thickening of the pia-arachnoid in consequence of chronic proliferative changes in its tissues, the appearance of large numbers of lymphocytes in the cerebro-spinal fluid, and early tabetic lesions in the spinal cord. During the last six years a series of researches have been carried out in the laboratory of the Scottish asylums with the object of elucidating the essential pathology of the disease. Dr. L. C. Bruce has also made independent clinical investigations of a similar nature. In 1901 Dr. Bruce recorded the results of continuous observations made upon the temperature and leucocytosis in individual cases. He showed that febrile attacks generally occur every two or three weeks, and that these attacks are accompanied by leucocytosis, and that in the third stage leucocytosis may occur from time to time without rise of temperature. He concluded from his observations that general paralysis is a disease directly due to poisoning by the toxins of bacteria, whose point of attack is through the gastric and intestinal mucous membranes. In a paper published at the same time, the writer maintained similar views on the ground of the results of an examination of the pathological

changes in the alimentary tract in a series of cases. Further evidence of chronic toxæmia was found by Dr. A. C. Ainslie in the constant occurrence of widespread and often well-marked chronic endarteritis of the extra-cerebral vessels, even in cases in which senile changes could be excluded. In 1902 Dr. G. Douglas McRae, Dr. Jeffrey, and the writer commenced a bacteriological investigation. It was found that a diphtheroid bacillus was specially prominent in the gastro-intestinal and respiratory tracts in cases of general paralysis, and that a similar organism could frequently be isolated from the brain. The hypothesis was advanced that general paralysis is the result of a chronic toxic infection from the respiratory and alimentary tracts, permitted by general and local impairment of the defences against bacteria and dependent upon the excessive development of various bacterial forms, but especially upon the abundant growth of a Klebs-Löffler bacillus of modified virulence, which gives the disease its special paralytic character. Dr. McRae and the writer have since been continuing these bacteriological investigations, and every step forward has resulted in the elucidation of some fact that has made this diphtheroid hypothesis more probable. Histological investigations have yielded much confirmatory evidence. Dr. Shennan and the writer have made a short series of experimental investigations with diphtheroid bacilli isolated from cases of general paralysis. The organisms have proved non-virulent to guinea-pigs. Rats fed upon bread mixed with unsterilised broth cultures developed nervous symptoms and died in about ten weeks. These animals presented evidence of the occurrence of many of the morbid processes that can be recognised in the nervous system of the general paralytic, but they survived too short a time to make it possible for the complete histological picture to be developed. In three of the animals there was a widespread invasion of the tissues by the bacillus in a filamentous form, which has also been found invading the tissues in several cases of general paralysis. Dr. L. C. Bruce has made a similar observation upon a goat which he injected with cultures derived from the same source as those used in the experiments upon the rats. The goat became paretic, and died in a condition resembling a "congestive attack." Its brain shows changes resembling those in an early case of general paralysis. In May of last year Dr. McRae and the writer recorded that

they had found that diphtheroid bacilli are constantly present, often in very great numbers, in the genital tract in both male and female paralytics. Further, in seven consecutive cases of general paralysis combined with tabes the urine has been found to be loaded with diphtheroid bacilli. It was also ascertained that bacilli having little affinity for staining reagents, but having a distinct resemblance to diphtheroid bacilli, could be observed in the blood during congestive attacks, in the centrifuge deposit from the cerebro-spinal fluid removed by lumbar puncture, and in the urine. These and other similar observations raised the question whether diphtheroid bacilli are not from time to time gaining access to the blood and being rapidly destroyed by phagocytic and lysogenic actions. In order to gain light upon this question, Dr. McRae and the writer have investigated experimentally the action of the living blood upon pure cultures of diphtheroid bacilli isolated from cases of general paralysis. It has been ascertained that the bacilli are taken up by leucocytes with great rapidity and that they may be completely dissolved in the interior of the leucocytes within two or three hours. An endeavour has been made to estimate exactly the power of the leucocytes of different individuals to dissolve these bacilli, and it has been found that this power is distinctly greater on the part of the leucocytes of the general paralytic than on that of the leucocytes of controls. The appearances of the dissolving bacilli in the experimental films are identical with those presented by the imperfectly staining micro-organisms that can be seen in various situations in the general paralytic. The results of this experimental study suggested that failure of previous attempts to obtain cultures from the blood and cerebro-spinal fluid is dependent upon the fact that most of the bacilli are dead and that the few living ones that are occasionally present are quickly killed by the continued action of the phagocytic cells. An endeavour was, therefore, made to obtain growths by leaving the tubes in the cold for twenty-four hours and then incubating them. This plan has proved successful with the blood from four cases, and with the centrifuge deposit from the cerebro-spinal fluid in two. In all of these cases pure growths of a diphtheroid bacillus were obtained. The growths are at first generally extremely feeble. A feeble culture may be invigorated by subculturing upon blood-films.

There are many weighty arguments against the view that general paralysis and tabes dorsalis are essentially syphilitic in their origin. They have been ably stated by Bianchi and some others. The part played by syphilis is no doubt an important one, but it is only that of weakening the general and local defences against bacteria. There is the clearest evidence that the general paralytic suffers from an active bacterial toxæmia. The evidence that a diphtheroid bacillus—either an attenuated form of the Klebs-Löffler bacillus or more probably an altogether distinct micro-organism—is the specific etiological factor in general paralysis and tabes dorsalis is briefly as follows: A bacillus of this nature is, according to the results of our investigations, present in large numbers, either in the alimentary or respiratory tract, or in both, and in the genito-urinary tract, in all cases of advancing general paralysis. This bacillus has a thread form, which has been found invading the walls of the respiratory or alimentary tract in five cases of general paralysis. It can be shown that this bacillus invades the pulmonary tissues in cases of general paralysis, and that it is commonly the only micro-organism present in large numbers in the catarrhal pneumonic foci that occur in most of such cases dying in congestive attacks. A growth of a diphtheroid bacillus has now been obtained in cultures made from the brain *post mortem* in ten cases of general paralysis out of twenty-four in which cultures were made from this organ. Diphtheroid bacilli exhibiting metachromatic granules in Neisser preparations have been detected in the fresh blood in one case and in sections of the brain in two cases. It has been ascertained by experimental methods that these diphtheroid bacilli in contact with the living blood are rapidly taken up by the polymorpho-nuclear leucocytes, and that they may be completely digested in the course of two or three hours. Bodies exactly corresponding in appearance to these dissolving bacilli can be detected in the blood and cerebro-spinal fluid of the living general paralytic, especially during a congestive attack. Whilst the fact that most of the bacilli present are in process of disintegration satisfactorily explains the long succession of negative results of endeavours to obtain cultures from the blood and cerebro-spinal fluid, we have, by the use of special methods, succeeded in obtaining pure growths of a diphtheroid bacillus from the fresh blood in four cases of general paralysis, and from the cerebro-spinal fluid

withdrawn by lumbar puncture in two cases. In sections of the brain prepared by special methods disintegrating diphtheroid bacilli can be recognised in the walls of the vessels and in the pia-arachnoid in many cases of general paralysis. The centrifuge deposit from the urine of the general paralytic, especially during a congestive seizure, commonly contains abundant diphtheroid bacilli that have been more or less affected by lysogenic action. In seven consecutive cases of general paralysis combined with tabes we have found the centrifuge deposit from the urine to contain, not only these altered diphtheroid bacilli, but also living ones, showing distinct meta-chromatic granules. In such cases a culture of the bacillus can be obtained from the urine. Experimental infection of three rats and a goat with diphtheroid bacilli, isolated from a case of general paralysis, has resulted in the production of symptoms and tissue changes resembling those of general paralysis. Lastly, there is evidence that the active polymorphonuclear leucocytes of the general paralytic have, as a rule, a greater power of dissolving these diphtheroid bacilli than that possessed by the normal leucocyte. It would therefore appear that the general paralytic has acquired against these diphtheroid bacilli a certain degree of specific immunity, by means of which he is enabled to maintain the struggle against these bacilli, notwithstanding an otherwise defective local and general power of resistance. The bacillus appears to be conveyed from individual to individual, as a rule by contagion. There is ample warrant for the conclusion that if a mucosa is healthy the organism can neither multiply at the surface to any important extent nor invade the tissues. A preliminary weakening of the local and general defences is evidently necessary. There are numerous inimical forces that can produce this condition of impaired local and general defence, but there are three that seem to have special importance. They are the pathogenic agent of syphilis, alcohol, and nitrogenous foods used in excess. There is evidence that a mere saprophytic infection may continue for a long time without leading to any important toxic effects. It is probably only when the bacillus invades the tissues that the paralytic toxæmia becomes of any great intensity. Invasion appears to take place most commonly from the bronchi, although it can also be shown to have taken place from the alimentary tract in many cases. At

the seat of such invasion what is virtually a life-and-death struggle between the bacilli and the leucocytes takes place. It is a conflict in which the leucocytes after a long succession of victories are ultimately defeated, for their power of renewal is limited, whilst that of the bacilli is virtually unlimited. Local invasion manifests itself clinically in a congestive attack. Large numbers of the bacilli reach the circulation either by way of the lymphatics or through the capillary walls. They can be seen in the blood-stream in the neighbourhood of infective foci. Most of the bacilli that reach the blood are quickly seized by leucocytes and digested, but many escape from the circulation in one or other of two ways, namely, through the capillaries of the kidney into the urine and through the walls of the cerebral vessels into the adventitial lymph channels. The further disintegration of the bacilli that takes place in these lymph-channels gives rise to a local toxic action. There is thus a general toxæmia due to the disintegration of the bacilli at the seat of invasion and in the blood, and an added local cerebral toxic action dependent upon the disintegration of the bacilli that have passed through the endothelium of the cerebral vessels. In some instances the successful repulsion of an invasion is followed by a prolonged period in which the bacillus is kept at bay. Clinically this corresponds to a remission. More commonly there is a continuous comparatively slight absorption of toxins from the infective focus and a succession of more or less severe invasions, which time after time are repelled. In the end, however, the defensive forces are overcome. There is then a fatal congestive attack. With regard to the pathogenesis of tabes dorsalis, it is to be noted that Orr and Rows have recently shown that tabetic lesions of the cord can be produced by the absorption of toxins from peripheral septic foci. The toxins pass up the perineural sheaths without injuring the nerve-fibres, and affect the fibres of the posterior root as they enter the cord at the spot where they lose their neurilemma sheath. In order to account for the similar lesions that occur in tabes it is necessary to find some peripheral toxic focus. The evidence at present points to this focus being in the bladder. In ten consecutive cases of tabes (three being cases from which material was supplied by Dr. Orr of Prestwich Asylum) abundant living diphtheroid bacilli have been found in the urine, and therefore these patients were suffering from a

diphtheroid cystitis. In these cases the bacilli were present in too great numbers to have come merely from the urethra, which in other cases very frequently contains some diphtheroid bacilli. If further observations confirm the testimony of these ten cases, we shall be bound to conclude that in tabes there is in the urinary tract an infective focus comparable to that which occurs in the respiratory or alimentary tract in general paralysis. The bacilli are invading, and therefore produce toxic effects far greater than those that result from the simple passage of the disintegrating bacilli through the urinary tract.

There is evidence that the general paralytic defends himself, and often with prolonged success, by manufacturing specific bacteriolytic anti-bodies. It seems therefore worth while to produce such anti-bodies in suitable lower animals and to use them as therapeutic agents. This method of treatment is at least going to be given a trial at the Royal Edinburgh Asylum.

(1) Delivered at the Royal College of Physicians, Edinburgh, on January 24th, 26th, and 29th.

The Prognosis in Dementia Paralytica. (1) By GEORGE GREENE, M.A., M.B.Cantab., Assistant Medical Officer, Claybury Asylum.

THE difficulty of informing the relatives of patients suffering from dementia paralytica on the probable duration of the disease led the writer to inquire into those symptoms and signs which appeared to be of value in prognosis.

Text-books on insanity give little information concerning the subject, beyond stating that the affection usually lasts less than three years. This statement, as will presently be shown, is of little value, since some patients die within a few weeks after the onset of the disease, whilst others survive for many years.

The subject will be dealt with in the following order :

(1) Variations in the course of the disease at different periods of life.

(2) The influence of sex.

(3) The effect of alcohol.

(4) Variations in the course of the disease according to the associated mental state.

- (5) The evidence to be obtained from an examination of the fundus oculi, pupil, and pupil reflexes.
- (6) The effect of epileptiform convulsions.
- (7) The prognosis in the degenerate as compared with that in the highly developed individual.
- (8) The special features of the juvenile cases.
- (9) The special features when associated with tabes dorsalis.
- (10) The types of patients in whom remissions occur.

(1) *Variations in the Course of the Disease at Different Ages.*

The duration of dementia paralytica bears a distinct relation to the age at which the symptoms of the disease first make their appearance. The adjoined table illustrates the variations in the duration of dementia paralytica according to the different ages at which the disease occurs. The table is based upon records obtained from 500 cases of general paralysis.

In many instances, because of the extreme difficulty of obtaining reliable information concerning the patient's condition previous to admission, the age at onset of the disease is reckoned as beginning from the date at which the patients entered the asylum. Unless otherwise stated, this remark also applies to other places in this paper where reference is made to the duration of general paralysis.

It will be seen, on examination of the table, that the longest expectation of life is in those subjects in whom the disease begins at an early age, whilst the more rapid forms of the disease usually occur towards middle life. Thus, from the age of fifteen up to thirty-five years the duration of the disease steadily diminishes. After this age has been passed, however, the duration slightly increases as the fifth decade is reached, to sink again as old age approaches.

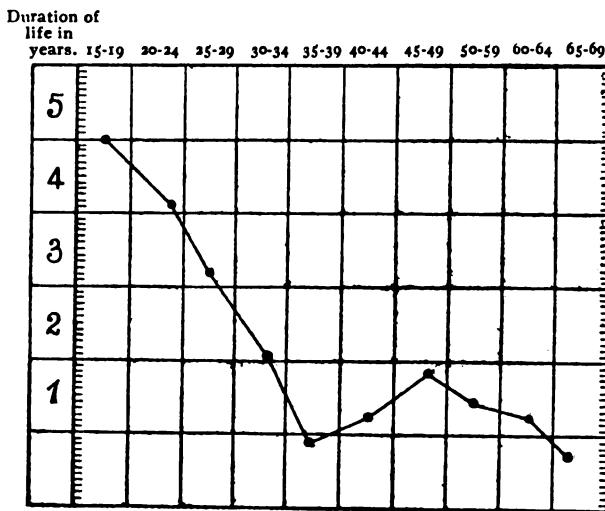
It is probable that the relatively long duration of the disease in young subjects is due chiefly to two causes. First, many are of the juvenile type, in which a high degree of degeneracy is frequently present. (It will be shown that degenerates live longer than highly-developed subjects.) Secondly, owing to their youth, they have been exposed in only a minimum degree to the various forms of stress, in consequence of which their neurones are less likely to have been damaged, and the patient

is thus left in a condition better fitted to withstand the invasion of the disease.

That the shortest duration of life should occur when the onset of the disease begins between the ages of thirty-five and thirty-nine is what might naturally be expected, since, at this period of life, the individual is most likely to be undergoing the greatest mental and bodily strain. The neurones of a subject liable to become a victim to general paralysis are thus reduced to a more or less unstable state, so that he is in a poorer condition to withstand the devastating effects of such a disease.

Probably the increase in the duration of the disease after

Ages at which the Disease commenced.



the age of forty-five years is an indication that the individuals in whom the onset of the malady occurs subsequently to this period are possessed of relatively stable neurones in virtue of which they are enabled to fight for a longer time against the ravages of the disease. Further, at and after this time of life most individuals have passed the period of greatest strain. The gradual decline in the duration of life after the onset of the disease in subjects of the age of fifty years and upwards is, perhaps, the result of the increasing effects of such senile changes as arteriosclerosis and the like, which may tend to accelerate the progress of the malady.

(2) *The Influence of Sex.*

The sex of the patient is one of the most important factors to be taken into consideration in any attempt to estimate the duration of life in a subject of dementia paralytica.

Females affected with the disease, on the whole, live considerably longer than males. In 128 female cases the average duration of the disease was twenty-three months, whilst in 400 male cases the average duration was only fifteen months.

The following observations appear to afford some explanation of this difference in the expectation of life in victims of the disease in the two sexes.

The female general paralytics as a class present more of the ordinary stigmata of degeneracy than do the male, and they have a smaller and simpler type of brain from the point of view of the female average than have the males considered from the standpoint of the male average. Females on the whole are much less exposed to the various forms of mental and bodily stress than are males, and therefore have not these devitalising factors to contend against.

Lastly, it is frequently asserted that epileptiform convulsions tend to hasten the progress of the disease; and although this statement is not in accordance with the writer's experience, still as the matter has some bearing upon the point under discussion, attention may be directed to the rule that the female general paralytic is much less liable to such seizures, both with regard to number and severity, than is the male.

(3) *The Effect of Alcohol.*

It is well known that the subjects of general paralysis are frequently addicted to the excessive consumption of alcohol. In many instances it is difficult to ascertain the precise part which alcoholic excess plays in the genesis of the disease, since it is often doubtful whether the abuse of alcohol has hastened its onset or whether the tendency to drink is merely a part of the loss of self-control so often present in the early stage of the disease. These conditions may occur separately or in some cases they may be associated.

It is often noticed that general paralytics in whom the abuse of alcohol has been a recently acquired vice rapidly improve when they are placed under conditions which exclude

intoxicating liquors. This amelioration is the more marked if the case be an early one in which mental symptoms due to alcoholism preponderate over those due to paralysis.

It is chiefly the last-mentioned class of cases in which it would appear that alcohol has hastened the onset of the disease. In a large proportion of such cases, when once the alcoholic stimulant has been withdrawn, the improvement is often very rapid, the patient quickly passing from a restless, noisy and confused state into apparent convalescence.

These cases usually run a chronic course, remaining in a more or less unstable condition; but in some instances they improve sufficiently to be eventually discharged, and they constitute a large percentage of the sum of remissions.

Although, as stated above, general paralytics in whom recent drinking has been a prominent feature improve as a rule when removed to an asylum, an amelioration is much less frequent in those subjects who for years have been heavy drinkers. Even in the latter class of cases there is occasionally an improvement in the mental symptoms after intoxicants have been discontinued, but the majority of such cases run an average course. It is probable that the chronic alcoholic is less likely to improve, because his neurones have been permanently damaged by the prolonged use of a poison which, in the case of the recent drunkard, has only acted long enough to produce a temporary disturbance. The one is a destructive lesion, the other merely a derangement from which, under favourable conditions, recovery may ensue.

Taken as a whole, the alcoholic cases of dementia paralytica generally soon show some improvement and run a somewhat longer course than the average of all cases of the disease.

Of 25 cases in which a history of recent drunkenness was obtained, 19 showed an improvement in three weeks, whilst in an equal number of cases in which there was no history of alcohol, only 12 showed an amelioration in the same time. The average duration of life after the onset of the disease was in the former cases four months longer than in the latter.

(4) *Variations in the Course of the Disease according to the Associated Mental State.*

The prognosis in dementia paralytica varies according to the associated mental state.

By different authors almost every form of insanity has been described in conjunction with the physical signs of the disease, but it is intended to discuss here only those mental states which appear to have a direct relation to the ultimate course of the malady.

The following mental states will be especially considered : early dementia, mania, melancholia, exaltation of ideas, and fixed and systematised delusions.

Early dementia.—General paralytics in whom a marked degree of dementia is an early and prominent symptom are nearly always characterised by an extremely acute course. The rapidity in the progress of the disease is, moreover, much accelerated when dementia is associated with a dull, apathetic state, bordering upon stuporose melancholia, a condition in which the patient remains in the same position throughout the day, regardless of his surroundings. This type of general paralysis constitutes a large proportion of those rapidly fatal cases which die within a few months or less after admission into an asylum. The patients quickly exhibit a condition which resembles that usually seen in the terminal stage of the disease, excepting that they are well nourished and show little signs of progressive paralysis.

Inquiry into the previous histories of these cases usually shows that the onset of the disease has been sudden, the patients having for the most part followed their occupations in a perfectly normal and satisfactory manner up to a period of a few weeks previous to their coming under treatment.

Of 25 cases at Claybury Asylum who were admitted with or passed into this condition within their first month of residence, 15 died within six months, 8 died within a year, whilst only 2 survived over the latter period.

Mania.—General paralysis with mania runs a variable and inconstant course. In many instances the maniacal symptoms rapidly disappear, but the patients retain their delusions, which may persist for a longer or shorter period before dementia supervenes. In others both the maniacal symptoms and delusions persist until a time when the patients begin to lose bodily strength and become demented, the disease then terminating in the usual manner.

In some cases both the delusions and maniacal symptoms disappear within a few months of the onset of the malady, the

patient afterwards remaining for a variable period in an extremely unstable condition, although he may slowly improve and eventually regain his mental equilibrium. On the whole general paralysis with mania runs a little longer course than the average of all cases, the average duration of fifty cases of this type being sixteen months.

Melancholia.—Melancholia is the predominant mental symptom in 20 *per cent.* of all cases of general paralysis.

In some instances the depression is so marked that the paralytic nature of the affection is not suspected until the patient has been under observation for several months or, in exceptional cases, even for years. In those subjects in whom general paralysis is not at first suspected the disease usually runs a relatively long course; and it not infrequently happens that they are discharged as recovered from what was believed to be pure melancholia, only to return again after a short time, when they are then discovered to be really suffering from dementia paralytica. The subjects of melancholia in whom the physical signs of paralysis are difficult to elicit usually live for a considerable length of time. The above-mentioned type, however, only forms a small proportion of the melancholic subjects of general paralysis. In the majority of cases with melancholia the disease is more rapid than the average, as melancholia is often associated with deficient appetite and loss of weight, conditions which accelerate the course of the complaint. The great majority of cases of general paralysis in whom melancholia is the predominant mental symptom prove fatal within a year.

In estimating the prognosis in melancholic general paralytics the state of the bodily health must be taken into consideration, since it frequently happens that an exacerbation of any bodily affection to which the patient may be subject is followed by a marked deterioration in his mental condition. For instance, many general paralytics with a mild degree of melancholia become acutely depressed after an attack of bronchitis or slight coryza. In this way an unjustifiably grave prognosis may be made, which is subsequently rectified by amelioration of the mental symptoms as the bodily affection improves. On the whole, however, the duration of general paralysis associated with melancholia is shorter than the average duration of the disease accompanied by other mental states.

Exaltation of ideas.—The presence of exaltation of ideas

gives little help in estimating the probable duration of the disease. The expectation of life in subjects presenting this symptom is on the whole a very variable one, and no definite statement can be made beyond this, that it is unusual for such cases to run an extremely acute course. In many instances, more especially if the onset of the malady has been associated with mania, the accompanying delusions of exaltation gradually become less prominent and may ultimately disappear, when the patient may pass into a quieter and less confused condition. From this point the patient may slowly pass into dementia, or may relapse into an excitable and exalted condition. Other patients remain in a chronic state of exaltation which persists until the final stage of the disease is reached. In some instances exaltation of ideas is followed by melancholia, which, in its turn, is succeeded by the rapid onset of paresis and death.

From the foregoing remarks it is evident that, in estimating the prognosis in those general paralytics in whom exaltation of ideas is the most prominent symptom, the mental symptoms alone are of little value. It is, therefore, essential, in order to elicit a correct conclusion, to consider the other aspects of the case.

Fixed and systematised delusions.—As regards the duration of life, the presence of fixed and systematised delusions in the course of general paralysis is usually a favourable sign. In a fair proportion of such cases the delusions show an early tendency to wane and disappear. This amelioration in the mental symptoms is occasionally followed by a remission of the disease, lasting for several months before the patient relapses. In the majority of such cases, however, the delusions persist, and are often associated with periodical attacks of excitement, during which exacerbations the physical signs of the disease become more apparent. It occasionally happens that patients who are at first thought to be suffering from monomania or chronic delusional insanity eventually prove to be general paralytics.

There is frequently a strong resemblance between general paralytics with fixed delusions and cases of chronic delusional insanity. In the former, on account of the delay in the appearance of the signs of paralysis, the disease makes relatively slow progress, whilst the latter, from the extreme chronicity of their

course, tend to accumulate and fill our asylums. The more limited and systematised the delusions in these subjects the more chronic is the course of the disease. For example, a general paralytic with only one fixed delusion has a much better expectation of life than one who has numerous varied delusions which change from day to day.

Of 48 cases of general paralysis with fixed and systematised delusions, only 16 died within a year and 21 lived over two years, the average duration of the disease in the 48 cases being twenty-four months.

(5) *The Evidence to be obtained from an Examination of the Fundus Oculi, Pupil, and Pupil Reflexes.*

The Argyll Robertson pupil is present in about 28 *per cent.* of all cases of dementia paralytica.

Except in tabetic general paralysis, the presence of pupils which do not respond to light is usually associated with a course of more than average rapidity. Pupils which are inactive to light occur most frequently in patients in whom the accompanying mental state is one of well-marked early dementia.

Sluggish reaction of the pupils to light is present in about 50 *per cent.* of all cases of the disease. This sign is not such a bad prognostic indication as the presence of the Argyll Robertson pupil; subjects exhibiting it, as a rule, run a variable course, although the average duration of the disease is longer than when the pupils are fixed to light.

The pupils react normally to light in 22 *per cent.* of all cases; and, taken as a whole, it is this class of case, so far as we may judge from the pupillary signs alone, in which as regards duration of life the prognosis is most favourable.

A comparison of 50 cases of each of the three above types showed that in the subjects with fixed pupils the average duration of life was 11, with sluggish 15, and with normal pupils 23 months respectively.

Inequality of the pupils occurs in about 20 *per cent.* of all cases of dementia paralytica, and, as a rule, when this sign is present the disease is a little more rapid than in the average of other cases. Instances occasionally occur in which from day to day, or even during the same day, the pupils show wide and

rapid variations in size. Thus in some patients one pupil may be larger in the morning and the other in the evening, or *vice versa*. When this is the case the disease nearly always runs a very rapid course, usually terminating fatally within a few months of its onset.

These rapid oscillations in the size of the pupils are usually seen in the early stage of the disease, although they do also occur later ; but in these instances also the condition generally appears a short time before death.

Hippus occurred in three patients, and in all these the disease terminated fatally within a month after the first appearance of the symptom. In two of these cases the total duration of the disease was under five weeks.

It would appear from the foregoing remarks that the alteration in the dimensions of the pupils may be taken as an index of the amount of active degeneration of cerebral tissue which is taking place.

Optic neuritis may occur at any period of the disease, but it is much less frequently observed in the early than the later stages. Optic neuritis does not appear to have any special prognostic indication.

Optic atrophy was present in the early stages of the disease in three subjects, one of whom lived fourteen months, another thirty months, whilst the third has survived for three and a half years and is still alive.

Judging from these three cases alone, it would seem that the prognosis of general paralysis, like that of tabes, is more favourable as regards the relative duration of life when the disease is associated with the early onset of optic atrophy.

(6) *The Effect of Epileptiform Convulsions.*

Contrary to the opinion frequently expressed, the study of the cases included in this series shows that the occurrence of epileptiform convulsions in the course of dementia paralytica does not appear to have any general bearing upon the prognosis of the disease. From an examination of seventy-four cases of general paralysis in which the presence or absence of convulsions was carefully noted, the following deductions were made :

(a) There was little difference in the duration of the disease

between those subjects in whom convulsions occurred frequently and those in whom they were few or altogether absent.

(b) In a few subjects the disease terminated fatally within a few months or even weeks from the onset of the disease without the occurrence of a single convulsion.

(c) Convulsions, although often preceded by an elevation of temperature, with restlessness and excitement, are frequently followed by a temporary amelioration in the mental symptoms.

(d) In chronic cases of dementia paralytica periodical successions of convulsions often occur.

(e) That a convulsion *per se* is seldom directly responsible for producing a fatal issue.

(7) *The Prognosis in the Degenerate as compared with the Highly Developed Individual.*

The standard of mental and bodily development is one of the most important factors in estimating the prognosis in dementia paralytica.

It is usual for general paralytics presenting congenital physical defects to outlive those of their fellows who are of a more highly developed type, and in whom stigmata of degeneracy are absent.

This statement is supported by the *post-mortem* statistics, which show that in subjects with a large and well-constructed brain the disease usually terminates more quickly than in those in whom the brain is small and relatively poorly developed. It would appear that on the one hand the greater the degree of intelligence and the more highly the subject is organised, the more rapid is the disease, and that, on the other hand, the less the degree of intelligence and the less highly the subject is developed, the longer is the affection in coming to its invariably fatal termination. The basis for the foregoing assertion is founded on the following two sets of statistics. The first relate to the standard of mental and bodily development shown by clinical examination, the second to the *post-mortem* records of the condition of the brain as regards its development.

The compilation of the first set of statistics was made from the examination of 118 patients suffering from general paralysis.

In each case notes were made concerning both the standard

of mental development and the presence or absence of the various stigmata of degeneracy. Of these 118 patients, 20 had subsequently to be excluded from the classification because they died from some intercurrent affection before the terminal stage of paralysis had been reached. The remaining 98 cases, however, were divided into three classes, as follows :

Class A.—Those with slight or no visible stigmata of degeneracy, and of average or above mental powers.

Class B.—Those with moderate stigmata of degeneracy and with mental powers a little below average.

Class C.—Those with marked stigmata of degeneracy associated with feeble-mindedness or defective intelligence.

The annexed two tables will show the number of cases which came under each of these three classes, the approximate duration of life in each case, the average duration of life in each class, and the percentage of deaths occurring between certain periods. All dates are reckoned from the time the patients were admitted into the asylum.

TABLE I.

Showing the number of cases placed under each class, the approximate duration of life in each subject, and the average duration of life in each class.

Class A.—Fifty-eight cases. Those with slight or no signs of degeneracy and average or above mental powers :

23 died between 1 and 6 months after admission

16 " " 7 " 12 " " "

10 " " 13 " 24 " " "

9 lived over 24 " " "

Average duration 11 " " "

Class B.—Twenty-four cases. Those with moderate stigmata of degeneracy and with mental powers a little below average :

9 died between 1 and 6 months after admission

7 " " 7 " 12 " " "

4 " " 13 " 24 " " "

4 lived over 24 " " "

Average duration 14 " " "

Class C.—Sixteen cases. Those with marked stigmata of degeneracy associated with feeble-mindedness and defective intelligence :

2	died between 1 and 6 months after admission
2	" " 7 " 12 " " "
5	" " 13 " 24 " " "
7	lived over 24 " " "
Average duration	23 " " "

In Class A, B, and C three, two and three cases respectively are still alive. Their duration of life has only been reckoned up to the present time, so that the figures quoted at the bottom of each class represent an average which is a little too low.

TABLE II.

Showing the percentage of deaths occurring between certain periods after admission in the three classes :

								Classes A B C		
Percentage of patients dying between 1 and 6 months after admission								40	37	13
" " " " 7 " 12 " " "								28	29	13
" " " " 13 " 24 " " "								17	16	30
" " living over 24 " " "								15	16	44

From table II the following deductions may be made. In Class A, representing subjects with high development, a large proportion—nearly 40 *per cent.*—died within six months after admission ; whereas in Class C, representing the degenerate type, only 13 *per cent.* died within a short time. Again, in Class C 44 *per cent.* lived over two years, whilst in Class A only 15 *per cent.* survived beyond this period.

Concerning Class B little need be said but to point out that in it the figures represent a very fair mean between the other two classes.

Although the foregoing tables demonstrate that general paralysis runs a more rapid course in subjects of high intelligence than in those of a degenerate stamp, the following statistics further the belief and place it on a still more definite basis.

Records were collected from the *post-mortem* books at Claybury Asylum of the brain-weights and the complexity of the convolutions in 100 cases in which the diagnosis of general paralysis was confirmed by the autopsy. These 100 cases were then divided into the four following groups :

Group I.—Brains over 1300 grm., with average or above average development and cerebral complexity.

Group II.—Brains under 1300 grm., with average or above average development and cerebral complexity.

Group III.—Brains under 1300 grm., with under-development and simple convolucional pattern.

Group IV.—Brains under 1200 grm., with under-development and simple convolucional pattern.

The brains in these cases were weighed immediately after removal from the cranium, with the membranes attached and before any appreciable amount of fluid had drained away. By this method a fairly correct estimate of the brain-weight previous to disease was obtained, for the thickening of the membranes and the amount of cerebro-spinal fluid compensate, to a greater or less extent, for the atrophy of the brain associated with the terminal stage of the disease.

In classifying the individual brains under one or other group, the cerebrum was viewed as a whole and a general estimate made of the convolucional pattern in addition to obvious signs of under-development. Special attention was paid to the Sylvian angle, the intra-parietal fissure, and the presence of superficial and deep annectants. The calcarine fissure was also carefully examined, with special reference to the distance it extended towards or round the occipital pole, which affords one of the criteria of the degree of development of the parietal lobe.

The annexed two tables will show the number of cases which come under the several groups, the approximate duration of life in the asylum of each patient, the average duration of life in the asylum of patients in each class, and the percentage of deaths occurring between certain periods, dating from the time each patient came under observation.

TABLE III.

Showing the number of cases placed under each group, the approximate duration of life in each case, and the average duration of life in each group.

Group I.—Sixty cases. Brains over 1300 grm., with average or above average development and cerebral complexity :

27	died between	1	and	6	months after admission.		
14	"	"	7	"	12	"	"
11	"	"	13	"	24	"	"
8	lived over	24		"	"	"	"
Average duration		12		"	"	"	"

Group II.—Eleven cases. Brains under 1300 grm., with average or above average development and cerebral complexity :

4 died between	1 and	6 months after admission.
3 " "	7 " 12	" " "
2 " "	13 " 24	" " "
2 lived over	24	" " "
Average duration	13	" " "

Group III.—Fifteen cases. Brains under 1300 grm., with simple convolutions and under-development :

4 died between	1 and	6 months after admission
3 " "	7 " 12	" " "
3 " "	13 " 24	" " "
5 lived over	24	" " "
Average duration	19	" " "

Group IV.—Fourteen cases. Brain under 1200 grm., with simple convolutions and under-development :

2 died between	1 and	6 months after admission.
2 " "	7 " 12	" " "
4 " "	13 " 24	" " "
6 lived over	24	" " "
Average duration	27	" " "

TABLE IV.

Showing the percentage of deaths occurring between certain periods after admission in these four groups :

	Groups			
Percentage of patients dying between 1 and 6 months after admission	I	II	III	IV
" " " " 7 " 12 " " "	45	36	27	14
" " " " 13 " 24 " " "	23	27	20	15
" " " living over 24 " " "	19	18	20	28
" " " living over 24 " " "	13	18	23	43

These two Tables (III and IV) give very similar results to those seen in Tables I and II. Inspection of Table IV shows that of Group I, which represents the highly-developed subjects, 45 *per cent.* died within six months after admission, whereas in Group IV, representing the degenerate subjects, only 14 *per cent.* died within that period. Again, in Group IV, 43 *per cent.* lived over two years, whilst in Group I only 13 *per cent.* survived over that period. Groups II and III show a very fair mean between Groups I and IV.

Tables I and III are of interest apart from their bearing upon the prognosis of dementia paralytica. It is frequently asserted that the malady affects almost exclusively individuals possessed of high intelligence and more than average cerebral development—indeed, that those having the best minds amongst our town population are much the most liable to fall victims to the disease. This conclusion may have arisen from the rule that the individual with higher mental powers, when he becomes affected by the disease, generally becomes the noisy, turbulent and exalted patient, who presents the more vivid clinical picture as compared with the individual less mentally gifted, whose clinical manifestations are less impressive and therefore rather more apt to be overlooked. A careful study of a large number of cases shows, however, that the disease is not very prone to affect individuals with the higher cerebral development.

On reference to Table I, compiled from ninety-three cases, it will be seen that *57 per cent.* of the cases occurred in subjects who would be considered of average, or above average, intelligence, whilst in the remaining *43 per cent.* individuals defective in this respect fell below a moderate average standard, for as many as *17 per cent.* exhibited a very well marked degree of mental insufficiency. Again, Table III, compiled from the study of the cerebral development in 100 consecutive patients upon whom autopsies were made, shows that in *60 per cent.* the brain reached or was above a moderate average development as regards weight and complexity. In *40 per cent.* the cerebrum fell below this standard, and in *14 per cent.* was much below it both in relation to weight and development.

A satisfactory explanation of the result that the degenerate general paralytic, after being attacked by the disease, as a rule lives longer than his more highly-developed brother, is somewhat difficult.

Many as are the opinions on the causation of general paralysis, they may be condensed into two opposing views. According to the first of these views, ⁽²⁾ general paralysis is due to a premature primary decay of the neurones occurring in a potential lunatic, who has become syphilitised and exposed, to a greater or less extent, to the various forms of stress—drink, worry, and the like. From this point of view stress does no more than determine the period of onset of the disease, and toxins, from whatever source derived, although they may hasten the

progress of the malady, have likewise but a secondary effect. The essential factor in the genesis of the disease is declared to be the possession by the individual of neurones of inherited defective durability, even though these may be well developed. Upholders of the second view deny the existence of any primary decay of the neurone itself owing to defective durability, but assert that its destruction is effected through the influence of toxins of syphilitic or other origin, acting either directly on the neurone or chiefly upon the walls of the minute cerebral blood-vessels, whereby changes in these are brought about and interference with the nutrition of the nervous elements produced.

That the syphilitic toxin or toxines may produce profound changes in the walls of the cerebral blood-vessels there is indisputable pathological evidence, but the statement that such toxins induce any primary decay of the neurone itself, at least in instances of acquired syphilis in the adult, is a mere assumption⁽³⁾. The second of the two views above outlined is supported by quite insufficient evidence, whilst the first appears to be in accordance with the facts as at present known.

In whatever way the destruction of the nervous elements is brought about, there seems to be little doubt that, excluding those lesions which are directly and obviously due to syphilis, the neurones first affected are those which are onto-genetically and phylogenetically the latest developed⁽⁴⁾. It has been proved that the pyramidal layer of nerve-cells is the last to be laid down in the process of onto-genetic development, and that the distinction between the cerebral cortex of the highly intellectual individual and that of the ament lies in the greater depth of the pyramidal layer in the former as compared with the latter⁽⁵⁾. Thus the more highly intellectual subject, as compared with one who is more or less an ament, is provided with a greater number of these later developed, but relatively unstable, neurones, and accordingly is furnished with a larger amount of material less able to withstand the process of the disease. Destruction of these neurones in large numbers at quite an early stage of the malady may lead to the accumulation of degeneration products, such as neurin and cholin, which, by their irritative properties, cause proliferation of the neuroglia and of the elements of the vascular walls, with consequent impairment of the nutrition of the neurones. Hence more neurones become rapidly attacked in a secondary destructive process, followed in its turn by a

further accumulation of degenerative products and a further injurious effect upon the nutritional supply of the nervous structures. Thus a vicious circle, which is constantly enlarging, is early and rapidly established.

In the ament it is presumed that, owing to the relatively smaller number of highly unstable neurones present, such a vicious circle is formed more slowly and with greater difficulty, so that the ament, if secondary effects could be altogether excluded, might survive until the primary process of decay had affected his lower neurones. Naturally one would not expect to meet with such an extreme case, but almost all degrees are found between the limits above sketched.

The explanation thus suggested of the increased rapidity of the disease in the individual with the greater cerebral development is supported by pathological evidence. In the case of the ament in whom the disease has run a slow course it is found that there is a comparative absence of active neuroglial and vascular change, and that the destruction of the nervous elements is almost entirely of a primary nature, a state which presents a decided contrast to the appearance of the cerebral cortex in a case which has proceeded rapidly to a fatal termination, in which there is much active proliferation of the neuroglia and of the elements of the vascular walls, together with striking evidence of secondary acute destruction of large numbers of neurones.

(8) *The Special Features of the Juvenile Cases.*

The course of juvenile general paralysis is relatively very long as compared with that in adults. Few juvenile subjects die within two years of the onset of the disease, whilst this period is considerably exceeded in many. The average duration of the disease in nineteen cases was five years, the shortest being ten months and the longest nine and a half years. It would seem that the comparative longevity in the juvenile cases as compared with that in adults is in part due to the high degree of degeneracy which is nearly always present in these subjects. The comparative absence of the various forms of mental and bodily stress is also another factor which influences the duration of the disease.

In juvenile subjects the prognosis appears to be worse when

epileptiform convulsions occur, although convulsions in juvenile subjects are usually neither so frequent nor so severe as in adults. When they do occur, however, the disease is likely to be more rapid, and this rapidity of progress is especially marked if the convulsions occur early in the disease. Various forms of mental disorder may accompany the malady, but attacks of mania or excitement are relatively rare. The majority of juvenile cases are of an imbecile type, but delusions of diverse characters are not infrequently associated. The usual course for the disease to follow is a steadily progressive dementia, gradually terminating with emaciation, paresis, and death.

A remission, or even a temporary amelioration resembling a remission, did not occur in any of the nineteen cases.

From the study of the above cases, and from the fact that the writer has been unable to obtain evidence of a remission occurring in any other case of juvenile general paralysis, it would seem probable that remissions do not occur in this form of the disease.

(9) *The Special Features when associated with Tabes Dorsalis.*

Ataxic symptoms are associated with general paralysis during some period of this disease in about 10 *per cent.* of all cases. In a large proportion of these cases the ataxic symptoms do not make their appearance until an advanced stage of general paralysis has been reached. These cases will not be discussed here, as when the tabetic symptoms are first apparent the patients are already on the verge of a fatal termination; thus it is difficult to say in what manner the course of general paralysis is influenced thereby. In other instances general paralysis does not appear until the tabetic symptoms have existed for many years. In these subjects the onset of general paralysis usually brings about an early and rapidly fatal termination.

In a small proportion of cases (probably about 2 *per cent.*) the symptoms of tabes dorsalis and general paralysis appear almost simultaneously. These cases, in which general paralysis and tabes dorsalis appear together thus early, have several characteristic features.

The duration of life is much above the average, in 22 cases being two years and nine months, or more than twice the average length of life in the non-tabetic forms of the disease.

The subjects affected were for the most part of a relatively older age than is usual in this disease, the youngest subject affected being 34, whilst the majority were over 40 years of age. A slowly progressive dementia, not infrequently associated with a mild degree of melancholia, was the predominant mental feature in nearly all cases. Delusions were seldom well marked, and when present were usually of a mild, persecutory nature, and bore a relation to the associated melancholia.

Exaltation of ideas was present in only 1 out of the 22 cases. From the foregoing remarks there is reason to believe that if the symptoms of dementia paralytica appear at a time when the tabetic symptoms have only recently appeared the duration of the disease is usually long, whilst if the symptoms of general paralysis do not appear until tabes has been established for several years or more the disease usually runs a rapid course.

It would thus appear on the one hand that the association of tabes with general paralysis is of favourable import so far as the prognosis of the latter disease is concerned, but on the other hand that the presence of general paralysis is unfavourable as regards the prognosis of tabes.

Taken as a whole, tabetic general paralytics are characterised by comparative longevity and a steadily progressive course usually free from maniacal attacks and exacerbations, but eventually slowly terminating in paresis, dementia, and death.

(10) *The Types of the Disease in which Remissions occur.*

An arrest in the symptoms of general paralysis sufficiently complete and lasting to enable the patient to be discharged is an occurrence of comparative rarity.

A definite history of a remission was obtained in only 4 out of 200 subjects who died in Claybury Asylum; 3 *per cent.*, however, of all general paralytics admitted during two consecutive years eventually became sufficiently recovered for discharge. The smaller percentage of recoveries in the first instance is accounted for by the exclusion of those patients who had a remission, were discharged, and then died elsewhere than in Claybury.

Examination of previous histories of general paralytics not infrequently shows that many of these patients have had a

short and passing attack of mental aberration occurring some months or years previous to admission. These short attacks of mental disorder, in which the mind has perhaps been affected for a few days or weeks only, should, however, be regarded as prodromal symptoms, rather than as a definite manifestation of the disease afterwards followed by a remission.

The following is a summary of the chief results obtained from an analysis of 20 cases of dementia paralytica in which a definite remission occurred. The observations refer to the condition of the patient on the first occasion of his detention in an asylum.

In 13 cases the associated mental state was melancholia, in 5 mania, and in 2 confusion of ideas bordering on dementia. That such a large proportion of the patients (namely 65 *per cent.* of the cases) who subsequently had a remission of the disease should have exhibited melancholia as their prominent mental state is of interest, and is all the more remarkable when it is remembered that melancholia is present only in 20 *per cent.* of all cases of general paralysis. In 4 of these 13 cases the patients were admitted on the first occasion suffering from what was then believed to be pure melancholia—*i.e.*, unassociated with general paralysis. In due course, however, they were discharged recovered, only to return afterwards with definite paralytic symptoms.

Auditory hallucinations were present in 8 cases, exaltation of ideas in 2, fixed and systematised delusions in 6, and varied delusions occurred in the remainder. The very high proportion of cases with aural hallucinations is here the chief point of interest, since, taking all cases of dementia paralytica together, only 6 *per cent.* are subject to delusions of this character.

In 7 cases a history of recent drinking was obtained. In 17 cases the pupils were equal, in 3 unequal, in 1 fixed to light, in 10 the reaction to light was sluggish, and in 8 normal. Slight irregularity of the pupils was present in 2 cases. In 14 of the cases the patients recovered within six months, 5 within nine months, and the remaining 1 within eighteen months.

SUMMARY.

From the foregoing remarks it seems that the chief indications of favourable import, so far as the prospect of a remission

is concerned, are the presence of melancholia, auditory hallucinations, equal pupils which respond to light, and a history of recent drunkenness, but it would appear that there is little prospect of a temporary recovery if the disease continues for a period over six months without showing signs of amelioration.

(a) The expectation of life is best in young subjects. From the age of fifteen up to thirty-five the duration of the disease steadily diminishes. From thirty-five to forty the acutest forms occur ; after the latter age the duration again rises, but only to sink as old age approaches.

(b) Females live nearly twice as long as males.

(c) Subjects in whom the abuse of alcohol has been a recently acquired vice usually pursue a favourable course.

(d) The early onset of dementia is a very unfavourable symptom. Few melancholic subjects survive over a year. Subjects with mania and exaltation of ideas pursue a variable course ; the presence of fixed and systematised delusions is usually an indication that the course of the disease will be protracted.

(e) Pupils inactive to light, sluggish reaction to light, rapidly alternating pupils, and hippus are all unfavourable signs. Normal reaction to light and the early appearance of optic atrophy are favourable signs as to duration.

(f) Epileptiform convulsions have little or no general bearing on the course of the disease.

(g) The degenerate lives longer than the highly-developed subject.

(h) The disease in juvenile subjects pursues a long and chronic course, slowly terminating with a steadily progressive dementia.

(i) The association of early tabes with early general paralysis is an indication that the course of the latter disease is likely to be lengthened.

In conclusion, I have to offer my best thanks to Dr. Robert Jones, Dr. Mott, and Dr. Watson for their kindness in supplying me with the necessary material for the compilation of the above figures.

(¹) Read at the Quarterly Meeting of the Medico-Psychological Association, in London, November 16th, 1905.—(²) Bolton, "Histological Basis of Amentia and Dementia," *Archives of Neurology*, 1903.—(³) Ford Robertson.—(⁴) Watson, "Juvenile General Paralysis," *Archives of Neurology*, 1903.—(⁵) Bolton, *loc. cit.*—(⁶) Watson, *loc. cit.*

Mental (or Asylum-trained) Nurses; their Status and Registration. By T. OUTTERSON WOOD, M.D., Senior Physician, West End Hospital for Nervous Diseases, Welbeck Street, London, W.

GENTLEMEN,—I need offer no apology for once more bringing this subject before you, as its importance demands our immediate and careful consideration. More especially is this the case at the present time, because since I last alluded to it (at our annual meeting in July, 1905) the Select Committee of the House upon the State Registration of Nurses, has given to our nurses the stamp of official recognition, by inserting in their report the following opinion:—"The claims for Registration of Mental or Asylum Nurses have been laid before your Committee. They are of opinion that a separate Register of Registered Asylum Nurses should be kept by the Central Body, to which should be admitted the names of Nurses who have served for not less than three years (in not more than two Asylums) and who have received the certificate of the Medico-Psychological Association and can produce satisfactory certificates of good character."

I have quoted the opinion of the select committee, *in extenso*, because I desire to draw attention to the fact, that it recommends "*a separate register of registered asylum nurses.*" Now, if that means that the Central Body shall keep a register of the asylum nurses that *we* have registered (and they must have been registered by us if they hold our certificate), it means that we must be careful to see that our system of registration is so good that it will be accepted for the purposes of State Registration in any Act of Parliament that may ultimately be passed. Therefore, the sooner we see about its re-organisation the better, and this is my reason for taking the opportunity of bringing the matter forward to-day.

This official recognition of the just claims of our nurses to be included in any scheme of State Registration will, it is to be hoped, tend to restrain the efforts of those who would restrict the nurses calling to any single class. There is no room on one pedestal for all of them—nursing is the birthright of all, and whether it falls to the lot of man or woman to minister to

the sick and suffering, it cannot be claimed as the prerogative of any—I take it that the essentials of good nursing are not merely technical, but they are also largely personal, and comprise such attributes, among others, as trustworthiness, reliability, promptitude in emergency, patience, cheerfulness, self-denial, and last, but not least, courage in the face of danger, and, in the words of the motto of the Royal British Nurses' Association, the nurse must be "Steadfast and True." Attributes such as these belong to no sex or class, and no certificate can confer them. Training and education may, however, develop and strengthen them, and no one recognised this more than the members of our Association when we inaugurated our system of training years ago.

The hospitals of to-day can justly claim to have the sick within their walls tended by a body of well-equipped female nurses, who are taught, trained, and examined in their duties. We can likewise claim that the patients in our hospitals for the insane are nursed and cared for by an equally devoted, trained, taught, and examined band of competent mental nurses, *including males* as well as females. Parturient women of all classes, rich or poor, can have the aid of specially-trained obstetric nurses, and, under the control of the Midwives Board, there is developing another class of trained women who are being taught, trained, and examined in the special work of their calling. Again, in the outlying places among the scattered communities of the agricultural class, as well as in the slums of the cities, there are being developed the rural and district nurses. All these nurses, in their several departments, are doing good service to the State, which, by the force of public opinion, is becoming more and more alive to its responsibility for the proper nursing of the poor and needy.

We, in our own special work, are not less conscious of the responsibility that rests upon ourselves to do all that in us lies to render efficient the nursing of those who suffer the greatest of all afflictions, the disorders of the mind.

That we have been alive to our responsibilities, and that we have not worked in vain to achieve the object for which we have striven for years, is proved by the verdict of the independent tribunal, which has recognised the right of our male and female nurses, who have gone through the curriculum laid down by our Association, who have been examined and found

worthy of holding our certificate for proficiency in nursing the insane, to State recognition, and it has added to its recommendation that they shall also be able to produce certificates of good character, about which there need be no difficulty if it be done officially, as I shall endeavour to show presently.

Now, having referred to the status given to our nurses by the Select Committee, before passing to the subject of registration I should like to say a few words with regard to the work asylum nurses are trained to do, because it may help us to appreciate how vastly it differs in its special character from the work of other nurses. The nursing of the insane is by no means limited to sick nursing, as the medical and surgical nursing of our cases (I mean the hospital nursing in its strict sense) is but a part of their daily routine, for, when the medical or surgical case of the insane individual is successfully treated and recovery comes, there yet remains the mental disorder, which has been present all the time, and which must also be nursed and treated to recovery. Here it is that our special teaching and training becomes so valuable, and the individual fitness of the nurse proves of such importance. Thus it places upon us the responsibility for seeing that those who hold our certificate are not only technically, but are also personally, qualified for this particular work. When the sick insane patient recovers from the illness which has rendered detention in bed necessary, be it some phase of mental disease, be it pneumonia, fever, or a fracture or other injury, the real special nursing of the insane so inseparable from successful treatment must still be carried out if recovery is to be promoted. The popular idea is that no patients require nursing unless they are bedridden; than this nothing can be more fallacious. In the case of the insane, the very nature of mental disorder in so many cases renders exercise and occupation in the open-air imperative, and this would be impossible but for the care and vigilance of trained and competent nurses. This treatment can only be rendered successful by means of such nurses, and no hospital can give them the training this special work requires, and more particularly is this so with regard to our male nurses. Having thus briefly alluded to the status of our nurses and the special nature of their work, it will be well worth our while to consider if we cannot in some way improve our system of registration so as to bring it up to

present and future requirements, more especially with the view of strengthening our position when the question of State Registration comes again before the legislature.

There is no doubt whatever that there will very shortly be one, if not more, bills promoted, and we must be prepared to strengthen the advanced position we have so far gained. This, I think, can best be done by supporting the Bill which is being promoted by the Royal British Nurses' Association, and, as soon as ever possible, by enlarging and improving our present system of registration, which, however excellent for our purpose during the last ten years, is in urgent need of extension and reorganisation now, in order that it may keep pace with the increasing sphere of our operations.

The reason why I think we should support the Bill of the Royal British Nurses' Association is because, in the Bill which it is now promoting, it is proposed that our Association shall have a representative upon the Central Board. This was omitted in the Bill as originally drafted, but on January 8th, as your President, I attended a meeting of the General Council, accompanied by the Chairman of our Parliamentary Committee, Professor Ernest White, and we succeeded in satisfying the Council that, in view of the fact that the Select Committee had recommended that our mental or asylum trained nurses should be State registered, we justly claimed to have some one to represent their interests on the Central Board. This was ultimately passed by a large majority.

Now as to Registration.

According to our present arrangement the names of nurses proposing to present themselves for examination are sent in to the Registrar at a given time before the examinations, which are held each year in May and November.

The collection of all these names from the various institutions scattered throughout the kingdom entails a considerable amount of work and responsibility upon the Registrar, who seems to have no possible opportunity of knowing anything about the personal qualifications of all these hundreds of male and female nurses who are registered year by year.

To remedy this, and to bring our system up to our present requirements, and to make it so complete that we may be able

to advocate keeping in our own hands the registration of mental or asylum-trained nurses for the purposes of State Registration, I would venture to suggest some such scheme as the following :—

(1) That in each Division of the Association the Divisional Committee shall act as the Registration Board for that Division, with the Secretary or some other member of the committee as the Local Registrar.

(2) The Local Registrars shall receive applications of all candidates for examination from the various institutions within their Divisions. They shall make, by means of printed forms approved by the Council, all necessary inquiries as to the personal fitness and good character of each candidate. The replies received shall be laid before their Boards, and the names of those candidates who satisfy the Boards in these respects shall be sent up to the General Registrar, together with the names of the institution or institutions in which they have been trained, and the date or dates of their training.

(3) The names of candidates who have successfully passed the examinations shall be laid before the Council of the Association, as the Central Registration Board, by the General Registrar for its approval, and for its authority for the certificates to be signed by the President before placing them upon the Register, wherein shall also be entered the name of the institution or institutions in which the candidates have been trained, and the date or dates of training.

By the adoption of some such plan as this the recommendations of the Select Committee with regard to the production of certificates of good character would be met officially, and it would help us to insure a closer personal knowledge of the candidates, which can only be procured locally, and which would greatly strengthen our position in advocating our system of registration before a Governmental Board.

These, briefly, are the broad principles I venture to submit to the meeting. I feel sure, if this important matter can be taken in hand and settled without delay, that we shall have made a satisfactory step towards placing our registration upon a wider basis, and that it will also place us in a stronger position with regard to State Registration, and give us a more reliable method of acquiring a personal knowledge of our nurses than we at present possess.

I have not, for obvious reasons, said anything about the examinations themselves, because they are outside this question of registration, and because they are entirely within the province of the Education Committee, which we know is doing all that is possible to keep up the standard and to work out the details of the examinations. I have only briefly and crudely laid the subject before you, and I trust the members present will give us the benefit of their views upon it, and help us to formulate a scheme that will work out in detail so as to meet the pressing requirements of the moment.

There is just one other matter I should like to draw attention to, and it is this. I hear there is a Register, but how few of us have ever seen it, and yet it is most important that we should do so, in order that we may be able to say, if asked by a Central Board for State Registration, that we have seen it. I also think it would be a good thing if the Register could be laid before the Council for inspection from time to time, and that each president in turn should sign it. It is a very valuable book, and it would be well if an authentic duplicate could be prepared and deposited among the archives of the Association. This duplicate should be kept up to date, and also be produced, compared with the original, and signed by each president in turn at the same time as the original Register. Our record would then be safe in the event of the original being lost or accidentally destroyed.

DISCUSSION

At the Quarterly Meeting held on February 23rd, 1906, at the West Riding Asylum, Wakefield.

Dr. HAYES NEWINGTON expressed the great indebtedness of the Association to Dr. Outterson Wood for his energetic action in this matter. Dr. Wood had been mainly instrumental in ensuring for asylum nurses the consideration which was due to them, and in arranging that the Association should control the registration of its nurses. He knew that the Bishop of Wakefield, who was present, was in sympathy with the Association's work, and he expressed the hope that his Lordship would do them the honour of expressing his views on this important subject.

The BISHOP OF WAKEFIELD (rising) said: Gentlemen,—In response to your kind invitation, I should like to say what a great privilege I take it to be to be invited to meet you upon this occasion, and what a privilege it is to bear my humble testimony to the great value of trained nurses in mental cases. I am a member of a profession which is very closely brought into contact—perhaps more closely than any profession except your own—with all sorts and conditions of men. In the course of our visitation among the poor we are constantly brought into contact with cases which afterwards develop into those that are received into your asylums. We also follow these cases into your asylums, as Dr. Bevan Lewis could bear testimony. I can only say that whenever I have had the honour of an opportunity, as I had recently in Kent, and since then in the West Riding of Yorkshire, of looking

into an asylum, I have been hardly able to express my sense of the extraordinary change which has taken place in the surroundings of the insane who are received into these institutions. This difference is more marked in the department of attendants and nurses who now wait upon them than in any other department. I can remember very well the state of things forty years ago, and there is no doubt of the enormous advance which has taken place in that part of the work, and I believe I am right in saying that that advance is due, more than to any other cause, to the patient and praiseworthy work of your Association.

Dr. NEWINGTON.—I beg to propose a very hearty vote of thanks to the President for his able address, and I would suggest that this matter be remitted to the sub-Committee already charged with the work of registration.

Dr. HARDING said he was extremely reluctant to intervene in the discussion, but as one who had taken a great interest in the subject for some years he felt he ought to say a few words. From what the President had said he gathered that there were two questions for consideration. First, what was to be the qualification for the registration of nurses? and second, what was to be the constitution of the body which was to determine the extent of the training which was to qualify for it? He was as jealous as anyone that the asylum nurse should stand on a level with the hospital nurse. In the past the former had been put on a lower level, and he regretted to find that separate registration for asylum nurses was proposed. If the Medico-Psychological Association's Certificate was to be the standard, he was sorry it was not a higher one. He fully appreciated the difficulty of the Legislature recognising a number of qualifying bodies, and he could see the advantage of having one qualifying certificate for purposes of registration. He was prepared, if the Medico-Psychological Association carried its point, to give every assistance to such members of his staff as desired to qualify for registration, but he would use all his influence to allow a nurse possessing any other qualification to register it. He presumed that no other body than the Association, however capable, was to have a voice in deciding what was to be the training of an asylum nurse. That, he contended, was a false position. They would find other people claiming to have representation upon the Committee, and it was a claim which could not be resisted.

Dr. PERCY SMITH seconded the reference of the subject to the sub-Committee, and this was agreed to.

The PRESIDENT acknowledged the vote of thanks, and said he had taken a deep interest in this question, both inside and outside the Association, for the last ten years, and he was very gratified with the result.

The Nursing Staff at the Metropolitan Asylum, Leavesden; Notes upon a Scheme of Promotion. By
FRANK ASHBY ELKINS, M.D.

SINCE October, 1902, there has been in operation at the Metropolitan Asylum, Leavesden, a system of promotion for nurses and attendants.

When a vacancy occurs in the office of charge nurse, deputy charge nurse, night nurse, or third nurse the vacancy is announced in the mess-room, and applications are invited to be forthcoming by a given date.

When the vacancy is for a charge nurse those eligible are

any other charge nurse, any holding a nursing certificate, or any occupying the position of deputy charge nurse.

When the vacancy is for a deputy charge nurse those eligible are any other deputy charge nurse, any holding a nursing certificate, any who have performed three months night duty, or any who have regularly attended the lectures and demonstrations for two years.

When the vacancy is for a night nurse those eligible are any deputy charge nurse, any holding a nursing certificate, any who are third nurses, or any who have regularly attended the lectures and demonstrations for one year.

When the vacancy is for a third nurse those eligible are any who have had sufficient experience in both infirmary and non-infirmary wards, or any possessing a St. John ambulance certificate.

A similar arrangement exists with respect to the male attendants.

The applicants for a given post are interviewed by the medical superintendent acting in consultation with the assistant medical officer of the division, and the matron or the senior head attendant as the case may be. The character, the record, the length of service, the various other qualifications, and the several abilities and disabilities of each candidate are carefully considered, and an appointment is made. In the case of charge and deputy charge posts, and in the case of night attendants, who are allowed to live out and who receive money in lieu of board, lodging, and washing, the appointment is made subject to the necessary approval of the Asylum sub-Committee.

The post of third nurse or attendant is not an official one, and therefore carries with it no increase of pay, but it places the official on the first rung of the ladder of promotion and settles him or her in a given ward. All members of the nursing staff below the rank of third nurse or attendant are moved about from ward to ward as required by the matron and senior head attendant respectively.

It will be seen that charges and deputy charges may move from one ward to another when a vacancy occurs. This arrangement allows movement from an ordinary to an infirmary ward or from a tubercular to a non-tubercular ward. It also allows a deputy charge nurse to leave her charge nurse with whom she may not be working very well. In practice this

works well. Nurses become weary of the turmoil of a noisy ward, tired of dealing with a group of demented having no marked physical ailments, or annoyed by having constantly to work with someone whom they do not like. When a nurse desires removal from a ward which requires a good head, and in which she has been very successful, there is a feeling of regret on the part of her superior officers that she desires the change and a feeling of anxiety when the newly-appointed nurse takes over the duty. But generally in a very short time the new official rises to the occasion and proves the old proverb true, "There are as good fish in the sea as ever yet were caught." It is surely right to consult the wishes of the most trustworthy of our nurses, and these removals from ward to ward, although they may cause some extra trouble to superior officers, do prevent resignations, and so retain skilled nurses in the service.

It will be seen that although every encouragement is given to those who hold a nursing certificate (as a matter of fact most of the higher posts lately bestowed have gone to such certificated members of the staff), yet promotion is not barred to those who, for various reasons, are unable to obtain the certificate, but who, nevertheless, have proved themselves good mental nurses.

It has been asked what is the course pursued when an official is reduced in rank. Since the scheme has been put in force, some, whose conduct had not been all that could be desired, have been threatened with reduction to a lower rank, and in the case of one deputy charge attendant reduction has actually taken place. This involved reporting the proposed reduction to the Asylum sub-Committee, and giving the reasons for the suggested action. But this same course would have been necessary if there had been no special scheme of promotion.

Have there been any difficulties in the actual working of the scheme? There have been none of importance, and those which did occur were mostly in the early history of the system. On some occasions there have been no applicants or only an unsuitable one for a given post. In these cases the post has been re-advertised, throwing the vacancy open to a larger number of candidates by taking one step backwards in the scheme. On two occasions in the earliest history of the scheme, when it appeared likely there would be several applicants for a

particular post, only one put in an appearance. Inquiry showed that all the other attendants, who were expected to apply had desisted in order not to spoil the chances of the one. It was the evident feeling of the staff that these men who had previously been passed over deserved promotion. The attendants themselves had nominated their own candidate! The selection was approved, and subsequent events have fully justified the choice. Such incidents, occurring as they did in the early days of the new scheme, were condemnatory of the older methods of promotion. In the old days great dissatisfaction was undoubtedly felt among the staff when nurses and attendants were picked out as those who seemed most suitable for promotion, without properly taking into account the claims and fitness of others for the vacant posts. On the female side, in the early history of the scheme, there was sometimes a dearth of candidates. Some were shy of applying, some wanted first to see what others did, some thought that if another who appeared to them a stronger candidate was applying the proper thing to do was not to apply or to withdraw if an application had been sent in. More than once, the applications not being satisfactory, the post was re-advertised, more of the staff being made eligible, with the result that applications were then received from those who should have applied in the first instance. These incidents, which exemplify traits of female character, did not occur on the male side. It may be observed that the scheme does limit choice somewhat, but to the restricted number of candidates it is often a very pleasant duty to say, with perfect truth, "Although Nurse — is chosen, any of you would have filled the post efficiently." A newly-joined member of the staff cannot be promoted because he or she has quickly gained the favour of superior officers, or on the ground solely that he or she seems the very person for rapid preferment. On the other hand, the system places no obstacle in the way of anyone striving for promotion. A gradual promotion through all the ranks cannot fail to afford good experience, and produces the best charge nurses.

The following table shows the average duration of service up to December 31st, 1905, of the charge, deputy charge, and night nursing staff at Leavesden :

	Yrs.	Mos.		Yrs.	Mos.
16 charge attendants . . .	10	... 10	|	16 charge nurses	8 ... 2
14 deputy charge attendants . . .	4	... 11	|	15 deputy charge nurses . . .	4 ... 5
17 night attendants	8	... 8	|	20 night nurses	4 ... 0

During 1904 and 1905 four blocks of buildings, each consisting of a very large day room and two large dormitories, and each needing one charge and one deputy charge nurse or attendant, have been converted into twelve infirmary wards, each for fifty patients, and each needing one charge and one deputy charge nurse or attendant. In this way the average length of service of the charges and deputy charges has been recently greatly reduced. The night attendants, most of whom are married men, include many who have been long in the service, and who, for various reasons, have not applied for, or have not received, promotion to higher posts. It is among the night nurses more particularly that the scheme of promotion has been so successful in lengthening service. Formerly they complained, and not without cause, that when on night duty their chances of promotion were greatly diminished. In consequence, they were allowed to come off night duty after they had served three months, but this arrangement was not in the interests of the patients. Now, however, they feel themselves on the line of promotion, and, being voluntarily on night duty, they seldom ask to come back to day duty except for promotion or they may leave in order to be married. Moreover, the number of those who prefer night duty to the responsibilities of occupying the posts of charge and deputy charge nurses is gradually increasing, so that it is expected that the average duration of the night staff on the female side will soon approximate to that of the male night attendants. Those who set a high value upon night nursing in asylums will, it is thought, welcome any scheme which tends to retain the services of an experienced night staff.

A volunteer is worth many pressed men, and it becomes simply a pleasant duty to make a choice from a group, every one of which desires promotion. A number of the staff—not wholly confined to the juniors—seem to have no desire for promotion. Certain of the older members occupy little niches of their own, perform their duties efficiently, and are satisfied with their positions. For such the ladder of promotion has no attraction. Others want a certain amount of promotion, but do not desire the responsibilities of the higher posts. Others,

again, do not intend to remain long in the service for such reasons as an anticipated marriage in the near future. As all the applications for promotion are voluntary, such and their like make no attempt to alter their circumstances, and so, when a vacancy occurs, they do not need consideration.

One objection has been urged against the scheme. It is that, although the ladder of promotion does allow a quicker preferment to the more quick-witted and better class, yet there are a certain number of less brilliant members of the staff who, by means of persistent application for posts, at last win their way upwards in virtue of their long service and experience, and because there is nothing whatever against them on the records. But it is undoubtedly true that these slow-rising nurses do, in the end, often make really efficient and trustworthy officials, often stay longer in the service than the more brilliant ones, slowly learning their work, and filling their niche with credit and modesty. Often they are the most sympathetic and kind of our nurses, though they often take a long time to adapt themselves to the circumstances of their post. It is not thought that the patient's interests suffer, but it is acknowledged that the tempers of superior officers are tried in the period during which the training of the slow nurse is taking place. It seems to the writer that the scheme does credit to itself by allowing a certain number of such nurses to rise to the higher posts.

The scheme is an attempt to deal with promotion in a spirit of the utmost judicial fairness, always bearing in mind the best interests of the patients as paramount considerations. Finally, it may be stated, the scheme having generally worked well for over three years, it is proposed to continue it.

On the Etiology of Asylum Dysentery. M.D. (Cantab.)
Thesis, with some recent Additions, by W. BERNARD
KNOBEL, M.D., M.R.C.S., L.R.C.P., late A.M.O., London
County Asylum, Bexley.

THE term "dysentery" includes many diseases which, though clinically and pathologically similar, are widely different in their etiological and epidemiological characters.

Not only have many different micro-organisms been credited

with causing the disease, but the disease appears epidemically in one region at a certain season and endemically in another region, and the course and sequelæ of the disease in one type are quite different from those of the other ; further, the disease when associated with war and famine shows little respect for climate or season.

Therefore I consider it is not only confusing but wrong to call a disease merely "dysentery" without qualifying it according to one or other of its characters.

In the words of Mansom, "dysentery" is "but the name of a symptom, or group of symptoms, indicating an inflamed condition of the colon. . . . Dysentery simply means inflammation of the colon. There may be many kinds of inflammation" (1). And the same applies to the term "colitis."

So, on account of the uncertain state of our knowledge concerning the etiology of all forms of dysentery, I consider it better to designate the disease under consideration "asylum dysentery" or "asylum colitis" to distinguish it from other forms of dysentery and colitis.

It is held by Dr. Mott and others that asylum dysentery is identical with the form of dysentery that prevails in the Tropics and which was formerly rife in England and Ireland, and was so prevalent in Millbank penitentiary.

As is well known, the great causes of dysentery as it occurred formerly in this country were a polluted water supply, bad drainage, and defective hygiene; and, according to A. Davidson (2) "the marked decline in the prevalence of dysentery must be ascribed to improved water supply and sewerage, to the draining of marshes, and to a general amelioration of the condition of the population in respect of food and lodging." Chiefly, no doubt, due to a pure water supply and to improved drainage, dysentery has practically disappeared from this country ; it is not found to occur to any extent even amongst the poor of London, although they live in greatly overcrowded districts, without fresh air and sunlight, on bad and scanty food, and are very defective in personal hygiene. The disease is rarely seen in the out-patient department of a large general hospital, and only occasionally are patients admitted with what is termed "dysentery" or "colitis" according to whether the patient has been abroad or not. It is exceedingly rare for cases of blood-and-mucus diarrhœa to

occur in the workhouses or infirmaries in London, and they never occur in the prisons of this country. Yet a form of dysentery remains in our lunatic asylums, not only in the older asylums but also in the more recent, where the water supply is above suspicion, being often the same as that supplied to the surrounding neighbourhood, where the drainage is perfect, where there is an abundance of fresh air and sunlight, where the overcrowding, if it exists, which is seldom, is nothing compared with the overcrowding in the poorer districts of a large town, and where the personal cleanliness of the majority of the inmates is much better than is found amongst the sane poor.

Not only does this disease attack the inmates of our asylums, but it occurs to an extent, I venture to think, far greater than is realised by the profession generally, and notwithstanding the attention that has been paid to the disease during the last four years by asylum authorities, and the increased precautions that have been taken in the way of isolation and disinfection, etc., of those attacked by the disease, there has been practically no diminution in the annual number of cases or in the number of deaths due directly to this cause.

Deaths from colitis, enteritis, and diarrhoea were reported in the year 1892 from 55·2 *per cent.* and in 1901 from 67 *per cent.* of all asylums in England and Wales, and the proportion of "dysenteric" deaths to deaths from all causes in those asylums was in 1892 2·2 *per cent.* and in 1901 5·1 *per cent.* (³).

The number of deaths returned from all asylums in England and Wales as due to colitis or dysentery was, in 1901, 202; 1902, 267; 1903, 257; and 1904, 224. In 1903 cases of dysentery occurred in 72·5 *per cent.* of all asylums in England and Wales, the number of cases being 1225 in that year, and in 1904 the disease prevailed in 69·3 *per cent.* of all asylums, the number of cases being 1016.

The following table shows the prevalence and severity of the disease in the London county asylums :

	1901	1902	1903	1904
Number of cases of dysentery	303	389	232	231
Number of deaths from dysentery	72	77	64	53
Percentage of deaths in cases of dysentery	23·7	19·8	27·5	22·9
Percentage of deaths from dysentery to deaths from all causes	5·6	5	4·3	3·8

From the above figures one is able to form some idea of the wide distribution of dysentery in the lunatic asylums of this country and the large mortality from this cause.

On the other hand, from the *Reports* of St. Bartholomew's Hospital I find that in thirty years—1873—1904—only eighty-nine cases of "dysentery" have been admitted, and thirty-seven cases under the headings "colitis," "ulcerative colitis," "enterocolitis," etc.; a large majority of the former were cases of chronic dysentery in patients who had been abroad.

On inquiring from the Medical Superintendents of twenty-seven workhouses and Poor-Law infirmaries in London as to the existence of cases of blood-and-mucus diarrhœa or severe intractable diarrhœas of doubtful origin, twenty-two replied that they had never had any cases, the periods over which their observation extended being given in five instances, and were twenty, eighteen, fourteen, eight, and six years respectively. In the remaining five institutions the replies briefly were as follows: "One or two cases in ten years," "About six cases in twenty years," "Very few, chiefly in old soldiers."

The total number of deaths from dysentery returned from all asylums, as given above, was, for 1903, 257. The total number of deaths from this cause in England and Wales given in the Registrar-General's Report for 1903 was 310, showing that outside asylums only the small number of fifty-three persons were reported as dying from dysentery.

From inquiries made at the Home Office and elsewhere, I am able to state that blood-and-mucus diarrhœas do not occur in any of the prisons of this country at the present day, nor is there any record of dysentery prevailing in the past in prisons, except at Millbank and to a slight extent in the Chatham hulks.

Thus one must conclude from the above evidence that asylum dysentery is a disease peculiar to lunatic asylums; that dysentery in any form only occurs very rarely in other large institutions such as workhouses, infirmaries, and prisons, where people are congregated together and live under very similar conditions to those obtaining in asylums; and that cases of dysentery are very rarely seen in a general hospital, and consequently must be rare amongst the class that attend such a hospital.

One must look, then, for some conditions which may be pre-

disposing or exciting causes of dysentery, and which are present in lunatic asylums and absent elsewhere, to account for the prevalence of this disease amongst the insane.

I will, therefore, review in detail those factors which appear to me to have an important bearing on the etiology of asylum dysentery, at the same time discussing briefly the views held by others.

Bacteriology.

Although it is highly probable that all forms of dysentery are microbic in origin, yet the very varied bacteriological results obtained by different observers and the wide differences in the epidemiological characters render it likely that not one, but many, micro-organisms, either singly or as a mixed infection, can give rise to similar clinical and pathological results.

First, it has been proved beyond doubt that the *Bacillus dysenteriae* described by Shiga is the cause of epidemic dysentery in Japan, and this bacillus has been isolated from cases occurring in epidemics in other tropical countries.

Secondly, there are many who believe that the *Amæba coli* is the cause of the endemic dysentery of the tropics, at the same time admitting that it is frequently found in the stools of healthy persons.

Others, again, hold the view that a pathogenic form of the *B. coli communis* gives rise to this disease, while the *B. pyocyaneus* was found to be associated with a very fatal epidemic occurring in America.

In regard to the epidemic dysentery which occurred in South Africa during the war, Lieut.-Col. Bruce has described six different bacilli and one micrococcus which he isolated from the stools and some of the organs of different cases. In no case did he find the *Amæba coli* or the *B. dysenteriae*.

Turning now to the work that has been done on the bacteriology of asylum dysentery.

In 1899 an outbreak of this disease in the Derby County Asylum was made the subject of special reports by Dr. Legge, Medical Superintendent, and Dr. Barwise, Medical Officer of Health for Derby County. The conclusions arrived at by both these observers were, that a virulent form of the *B. enteritidis sporogenes* was the probable cause of the outbreak of

dysentery, and that a non-virulent form of the same bacillus was widely distributed throughout the asylum. Sections through the ulcerated portions of intestines showed in the submucous layer bacilli resembling the *B. sporogenes*, and typical cultures of the bacillus were obtained from the stools of eight cases of dysentery. The bacillus was also present in the stools of some patients who had not suffered from dysentery (⁴) (⁵).

In the same year Dr. Durham described a minute micrococcus which he had isolated in pure culture from the intestinal contents, the blood, spleen, liver, kidneys and bile of seven typical cases of asylum dysentery, and which he states was absent in three cases not affected by dysentery but dying in the asylum (⁶).

In 1898 the bacteriological results obtained by Dr. Goodliffe, Pathologist to the Lancaster County Asylum, after investigating an outbreak of dysentery in that asylum for nearly two years, were published by Dr. Gemmel in his work on *Idiopathic Ulcerative Colitis*.

Dr. Goodliffe succeeded in isolating from the stools of all undoubted cases of dysentery examined a bacillus very closely resembling *B. coli*; but he regarded it as a distinct organism, and termed it the "bacillus of ulcerative colitis." The bacillus was capable of cultivation on artificial media, and retained its individuality through many generations (⁷).

In 1904 Dr. J. W. H. Eyre published the results he had obtained from the bacteriological examination of a small number of cases of dysentery at Claybury. He states that "a bacillus identical with *B. dysenteriae* (Shiga) . . . can be isolated from the stools of many cases of asylum dysentery," and that "the blood-serum of some of these cases of asylum dysentery. possesses a specific agglutinative action when tested against *B. dysenteriae* isolated from the stools of similar cases, and also against strains of *B. dysenteriae* isolated from cases of dysentery in tropical climates." He further states that a similar bacillus has been isolated from cases of epidemic diarrhoea occurring in asylums for the insane in America (⁸).

In April, 1905, Professor McWeeney showed before the Royal Academy of Medicine in Ireland a series of cultures of an organism he had isolated from the stools of a typical case of asylum dysentery, and demonstrated its resemblance to the typhoid bacillus (⁹).

It is probable that the bacillus isolated by Goodliffe, also that isolated by Eyre, and the organism isolated by McWeeney are types of the same bacillus, but whether it is identical in every respect with the *B. dysenteriae* of Shiga or is a pathogenic form of the *B. coli* or a distinct organism, it is at present impossible to say.

It seems very improbable that a bacillus in one country can give rise to widespread epidemics, such as the epidemic dysentery of Japan, and in another country can produce a disease practically limited to lunatic asylums.

It certainly appears to me far more likely that asylum dysentery is caused by some microbe or microbes that are universally distributed either as normal inhabitants of the colon, or in the air, dust, or soil, etc., and which, though normally innocuous, become pathogenic, either from some increase in their virulence or numbers or from their association with other organisms, such as the ordinary pyogenic microbes, when acting in a tissue whose vitality and power of resistance are already weakened by the accompanying nervous disease.

What is the bacteriological explanation of those cases of acute colitis that are associated with pyæmic conditions—with pneumonia, with Bright's disease, with scurvy, etc.? Is it that they are due to some "specific" micro-organism and should be labelled "infective"? or does the explanation given above apply equally well to these as to cases of asylum dysentery? Just as these cases of colitis are regarded as secondary to the accompanying disease, might we not regard asylum dysentery as a colitis secondary to mental and nervous diseases?

I will now discuss two conditions which must be associated with the bacteriological origin of asylum dysentery, and for which there is strong evidence in favour of their being potent factors in its causation.

(1) *Soil*.—The geological nature of the soil upon which an asylum is situated need not be considered in its relation to dysentery, for the disease occurs in many asylums throughout the kingdom built on different soils. It is probable that an "unhealthy" soil will predispose to dysentery as it will to many other diseases, and the existence of this may to some extent explain the large number of cases of dysentery that have occurred in K 1 Ward at Bexley Asylum. This

asylum is peculiarly situated as regards the soil on which it is built, the female side being upon sandy loam and the male side on a stiff clay, particularly that end of the male quarter containing the J and K Wards.

Neither is it necessary for me to discuss the question of organic pollution of the soil ; since, after frequently investigating the state of the ground surrounding wards at Bexley Asylum, where dysentery prevailed, I am convinced that pollution of the soil did not exist there, and so had no bearing on the causation of this disease.

The important point in relation to soil which seems to have a decided influence in determining an outbreak of dysentery in an asylum is disturbance of the subsoil.

It is well known that the disease frequently breaks out in new asylums shortly after occupation. This has been the case in most of the recent asylums, although the modern institutions are built with every regard for perfect hygiene. It occurred at Claybury, at Bexley, the Manor and Horton asylums, the four latest additions to the London county asylums. In these dysentery appeared within a few months of the opening of the asylum ; and the same has happened also in the following asylums :

West Ham Asylum, opened in 1901. In 1902 there were 26 cases of dysentery ; in 1903, 56 cases ; 1904, 15 cases.

Winwick Asylum, opened in 1902. In 1903 there were 24 cases of dysentery, with 11 deaths ; 1904, 20 cases, with 9 deaths.

Notts Asylum, rebuilt and opened in 1902. In 1903 there were 15 cases of dysentery, with 7 deaths.

East Sussex Asylum, opened in 1903. Six cases of dysentery are reported as occurring in that year and in 1904 23 cases.

The only explanation that has hitherto been given to account for this disease occurring in a new asylum is, that it was started by the transference of a chronic case of asylum dysentery from another institution. I will show later, in discussing the question of contagion, that the transference of recovered dysenterics, soon after an attack, from ward to ward has little, if any, influence in causing fresh cases ; much less must it have when patients who, months before, may have suffered from dysentery are sent to another asylum.

Further, there are some striking instances where the disturbance of the subsoil due to rebuilding or extending an old asylum has been followed by an extensive outbreak of dysentery.

In the Fifty-Seventh *Report* of the Commissioners in Lunacy the following comment is made upon a severe outbreak of dysentery that occurred at the Hants County Asylum in 1902, there being in that year 71 cases, with 20 deaths: "Prior to 1902 there had been no death from dysentery for upwards of ten years." The disease in 1902 "occurred in epidemic form, and its appearance followed closely upon disturbance of the soil due to the relaying of drains at the close of the year 1901."

There is, in this instance, a double possible cause, the effluvia consequent upon relaying the drains and the disturbance of the soil.

While working for a short time in 1902 at the Oxford County Asylum, Littlemore, I ascertained that no cases of blood-and-mucus diarrhoea had occurred during the ten years residence of the senior A. M. O. (Dr. Good); I also learnt that a new wing was shortly to be built to accommodate another 200 patients. The foundations for the new building were begun on April 1st, 1902, and the first case of dysentery occurred on August 6th, 1902. Since that date up to March, 1905, there have been 42 cases.

With regard to this outbreak no other cause than the one I suggest could be found to account for it.

At the Warwick Asylum in 1902 somewhat extensive additions and alterations were made. There were no cases of dysentery in this asylum in 1902, but in 1903 no less than 60 occurred.

At Denbigh Asylum building operations for extending the asylum were commenced in 1901 and were not completed in 1904. The Commissioners' *Report* for 1901 states that there had been no cases of dysentery. The *Report* for 1902 gives 9 cases. The annual return of dysentery cases for 1903 shows 13 cases and that for 1904, 23 cases.

At Plymouth Asylum accommodation for 200 patients was being built in 1903. There were no cases of dysentery in 1902; in 1903, 3 cases; in 1904, 23 cases.

At Parkside Asylum, Cheshire, somewhat extensive buildings

were begun in 1902 and were not finished in 1904. The Commissioners' *Report* for 1901 states that "except for a few cases of influenza, no zymotic disease has appeared in the asylum."

In 1902 there were 11 cases of dysentery, in 1903 there were 28 cases of dysentery, in 1904 there were 56 cases of dysentery.

Although the instances of outbreaks of asylum dysentery following a disturbance of the subsoil are, within my own knowledge, few, yet they are very suggestive that one of the normal habitats of the germ of this disease is in the deeper layers of the soil.

(2) *Sewage and faecal effluvia*.—I will first give some instances in which cases of blood-and-mucus diarrhoea or severe diarrhoea have occurred as the direct result of the breathing of sewage effluvia, and will then discuss how this may effect the incidence of dysentery in modern asylums.

T. W. Thompson states that "sewer and cesspool emanations, especially in concentrated form and suddenly let loose, may occasion attacks of fatal diarrhoea. They may probably cause a diarrhoeal epidemic" ⁽¹⁰⁾.

McClellan relates how two men, while being driven in India, were exposed for only a few seconds to a "putrid and intolerable stench" due to the emanations from a sewer close by, into which some boiling water had been thrown. Both men and the coachman "were soon attacked by nausea and were smartly purged" ⁽¹¹⁾. He further states that the real cause of the prevalence of diarrhoea in the Wellington Barracks, near Conoor, was "a privy atmosphere" ⁽¹¹⁾.

In the account of the outbreak of dysentery at the Cumberland and Westmoreland Asylum in 1865, given by Dr. Clouston, he says, "All the positive evidence that can usually be produced to determine the cause of any disease can be produced to connect this epidemic of dysentery with exhalations from a field irrigated by sewage as effect and cause" ⁽¹²⁾. He also gives an account of a workman employed at the asylum, but living three miles away, who accidentally breathed a quantity of foul air from a drain at a time when there had been no diarrhoea or dysentery in the asylum for four months previously. Within a few days he was attacked by "vomiting, severe diarrhoea, and intense abdominal pain" ⁽¹²⁾.

A man has recently been an in-patient at the Oxford Infirmary suffering from dysentery, which commenced four days after working on the drains connected with an old house in the neighbourhood. He was seen by Dr. Good, who informed me that the case was identical with the cases of asylum dysentery that have occurred at Littlemore in the last three years. This was his second attack, the former one, some years previously, having come on after similar work.

At Chartham Asylum "a man not resident in the asylum, who was employed on the drains, had two attacks" of dysentery ⁽¹²⁾.

Dr. Barwise mentions how a gentleman visited one of the sewage farms in Derbyshire "at a time when he was not in robust health" and "was the next day rendered prostrate by a severe attack of diarrhoea" ⁽⁶⁾.

These cases show conclusively that not only a severe diarrhoea, but a blood-and-mucus diarrhoea may occur in the sane and insane as the direct result of the inhalation of sewage effluvia when concentrated, or that emanating from stagnant sewage.

That the effluvia from diluted sewage in properly ventilated drains do not cause these diseases is shown by the fact, which I elicited from the Local Government Board and Sir Shirley Murphy, that the men employed in cleaning, etc., the London sewers do not suffer from diarrhoea or dysentery or any disease which can be accounted for by their work.

How is it that sewage effluvia can cause dysentery? Is it because the "specific" microbe of dysentery is always present in sewage? Is it because one or more of the varieties of micro-organisms which are known to be constantly present in sewage, such as *B. coli*, *B. enteritidis sporogenes*, or *B. proteus vulgaris*, acquire in stagnant sewage an increased virulence and are inhaled in concentrated effluvia in very large numbers? Or is it that the inhaling of these noxious gases so lowers the resistance of persons, possibly in other ways predisposed, that some normally harmless micro-organisms which inhabit the colon become pathogenic?

We know that persons living in an atmosphere polluted by the emanations from a drain or an improperly kept cesspool are more liable than others to be affected by tonsillitis and ulcerated sore throats, the most probable reason being that

their resistance is so lowered that the pyogenic microbes which are present in everyone's throat can, in them, produce an acute inflammation. And it seems to me that the probable explanation of dysentery following the inhalation of sewage effluvia is that the resistance of the individual is so lowered that such organisms as *B. coli* or *B. sporogenes*, associated with the ordinary pyogenic organisms, can produce an acute inflammation of the colon.

Now, how does this influence the incidence of dysentery in a modern asylum, where the sewage passes into well trapped and ventilated drains, provided with automatic flushing tanks, and where sewage effluvia never exists? The answer is to be found in the existence of what McClean calls a "privy atmosphere"—that is, an atmosphere permeated with a fæcal odour.

It has been proved that the breathing of an atmosphere impregnated with the odour from excreta markedly lowers the resisting power of some animals to infection. Alessi "confined rats, rabbits, and guinea-pigs in cages, some of which were placed over the opening of a privy, while in others the excreta of the animals were allowed to accumulate in a receptacle below. The inhalation of the vapours from the excreta caused so marked a difference in the resisting powers of the animals that, although control animals resisted it successfully, rats succumbed to an injection of the typhoid fever bacillus in from twelve to thirty-six hours after from five to seventy-two days' exposure to the vapours; guinea-pigs after seven to fifty-eight days', and rabbits after three to eighteen days' exposure" (McFarland¹⁴).

Now, this "privy atmosphere" unfortunately exists, and to a great extent must exist, in asylums where so many of the patients are defective in their habits. If there are a number of patients in a dormitory or day-room who pass their motions or flatus at all times and in all places, especially if some are suffering from relaxed and offensive motions, no matter how good the nursing, how efficient the ventilation, that dormitory or day-room will be pervaded temporarily, or permanently, with a very distinct fæcal odour. And the same applies, even more so, to single rooms when occupied by dirty patients.

I consider that the existence of this fæcal odour in wards is a potent factor in predisposing patients to dysentery, and accounts to a great extent for the fact that dysentery is, as a

rule, much more evenly distributed throughout the wards on the female side of an asylum than it is on the male.

For it is well known that amongst male lunatics dirty habits are almost confined to the general paralytics and cases of organic brain disease and a certain number of imbeciles and epileptics, whereas patients with defective habits are found amongst most classes of female lunatics, especially the acute, the continued acute, and the excited chronic cases.

Mental Disease in Relation to Dysentery.

As I have already shown, dysentery in this country is almost confined to asylums. And in asylums there is no doubt that certain patients are more likely to be attacked than others. The disease only prevails to a very limited extent in imbecile asylums; it has not occurred within the recollections of the Medical Superintendents at Earlswood or the Royal Abert Asylum. At the large metropolitan imbecile asylums the disease, when it occurs, chiefly attacks patients suffering from acquired insanity.

At Bexley Asylum a very large proportion of the cases of dysentery occurred amongst the male general paralytics, the female patients suffering from katatonia, and patients suffering from dementia due to coarse brain lesions and old age—that is, amongst patients who were suffering from profound cerebral deterioration. And while admitting that dysentery occurs amongst all classes of lunatics, it is this cerebral degeneration and nerve-cell deterioration, present to a large extent in the above types, to a less extent in the chronic insanities, and absent in the congenital cases, which, as the evidence given later shows, results in an impairment of the trophic function of nerves, and a consequent reduction of the natural immunity of tissues to infection.

Now, it has been thought by some that dysentery in the insane is essentially a trophic lesion of the intestine, that the ulceration of the mucous membrane of the colon is due primarily to death of the tissue consequent upon a degeneration of the nerve supply to the part, with a secondary infection by pyogenic microbes.

This view on the origin of asylum dysentery was put forward in 1895 by Dr. T. P. Cowan (¹⁵) and later by Dr

Clay Shaw before the British Medical Association in 1901⁽¹⁶⁾. It was dismissed by Dr. Mott in his first report on the disease with the few words: "There do not appear to be any proofs of such an etiology" (17), and in his article on the "Prevention of Dysentery" (18) he says: "Probably nothing did so much to retard the prevention of this disease as the theory" that it was "due to a hypothetical nerve lesion, and therefore not preventable." Without agreeing with either Dr. Cowan's or Dr. Clay Shaw's conclusion, I venture to think that the entire repudiation of this theory has resulted in the overlooking of one of the most important factors in the etiology of asylum dysentery.

It is an accepted fact, for which there is plenty of evidence in the occurrence of trophic lesions as the result of injuries or disease of nerves, that both sensory and motor nerves possess an influence over the nutrition of the tissues they supply, and the existence of this function possessed by, for instance, a motor nerve is dependent upon the integrity of the cells of the anterior horn with which it is connected and by which its nutrition is governed.

Upon what does the nutrition of the cells of the anterior horn depend? It depends upon their connection with and the integrity of other nerve-cells; and it is known that the direction of the trophic influence of one nerve-cell over another is the same as that of normal nerve-conduction. Thus the nutrition of the cells of the anterior horn is governed by nerve-cells higher up the cord, and these again by other nerve-cells nearer the brain, and we find that the first and highest influence over the nutrition of the motor nerve-cells in the brain and cord and over the motor nerves is exerted by the cells of the cerebral cortex. Thus it follows that disease involving the cerebral cortex may be followed by an impairment of the trophic function possessed by the nerve-cells in the cord, and may result in a lowered vitality of the part supplied by the nerves connected with those cells and a reduction of their natural immunity and resisting power to infection.

The following extract is taken from a report in the *Journal of Mental Science*, 1903, on a paper by Lorraine Smith and Tennant, "On the Growth of Bacteria in the Intestine":

"But we consider that there is nothing improbable in the view that the normal control exercised over bacterial growth

by the intestinal wall (in what manner is obscure) is impaired in states of insanity with their attendant lowering of trophic power as evidenced in other ways. Such disturbances of the regulation of bacterial growth would manifest itself earliest in the region of the ileo-cæcal valve and then in the large intestine."

In asylum dysentery the region of the cæcum is frequently the seat of the greatest inflammation.

They further state that "an organism would, under such conditions, have greater licence, and would conceivably be aided in its morbid activity by the unchecked proliferation of normal, and usually harmless, bacteria of the intestine. In this way mental disorder might be instrumental in promoting the morbid action of the organism causing the disease."

And there is evidence in favour of the theory that this impairment of the trophic function of nerve-cells exists temporarily or permanently, not only in those cases of gross brain disease where there is considerable and obvious cell-degeneration, but also in cases of profound mental disturbance associated with few or no demonstrable pathological changes in the nervous system, such as the acute insanities and, to a less extent, in the chronic mental diseases.

And, moreover, this impairment of the nutritional function of nerve-cells affects all the tissues of the body, and probably accounts largely for many of the clinical and pathological phenomena which are associated with mental diseases.

Burzio, in an article "On the Alterations in the Nerve-Fibres of the Spinal Cord and the Spinal Ganglia in some Forms of Chronic Insanity," an epitome of which is given in the *Journal of Mental Science*, 1903, states that out of fifteen cases examined twelve showed alterations in the tracts of the cord, the most common being a degeneration of Goll's tract; also degeneration of the nerve-cells of the spinal ganglia was frequently met with. "These alterations were sometimes associated with atrophy of the cerebral convolutions and of the cells of the grey substance of the cord, and were often accompanied by a diseased condition of the liver, kidneys, and spleen."

The following cases are cited to show that an acute inflammation of the colon may be associated with a severe lesion of the cord.

A man, æt. 30, who fell, sustaining injuries that resulted in complete paraplegia of abdomen and lower limbs. Severe

diarrhœa on third day, died on the fifth day. *Post-mortem*: Inflammation of the colon, with yellow sloughs and ulceration (C. Ogle) ⁽¹⁹⁾.

A man, æt. 50, crushed on the railway, admitted to hospital with complete paralysis of both legs but no loss of sensation. Persistent diarrhœa began on second day and lasted until death, fifth day. *Post-mortem*: Colon ulcerated throughout (J. H. Targett) ⁽²⁰⁾.

The case of a woman, æt. 40, in whom cystitis, pyelitis, and intense colitis were associated with atrophy of brain and descending lateral sclerosis; mentioned by Hale White in *Guy's Hospital Reports* for 1888 ⁽²¹⁾.

The following are briefly some of the conditions which are probably largely due to the impairment of the neurotrophic influences in the insane:

The extreme wasting, not only in the later stages of general paralysis, but in the acute insanities.

The tendency to bed-sores and cystitis in general paralysis.

The impaired circulation, as evidenced by the cold and blue extremities in stupors.

Possibly, also, the large number of fatty and pigmentary degenerated hearts and granular kidneys that are revealed *post mortem* in the bodies of insane persons.

That there is some impairment of the function of nerves in all forms of insanity is shown by the dulling or absence of the sensation of pain, a condition which is by no means confined to the paralytic insanities.

It is very rare for an insane patient to complain of tenesmus, a symptom so prominent in dysentery amongst the sane, and many of them, in an attack of dysentery, do not seem to experience anything more than some general discomfort.

It is well known that insane women can go through parturition without experiencing any pain at all.

Probably, also, a similar reason accounts for the frequent absence of cough and pain in acute and chronic diseases of the lungs in the insane.

So that there is evidence to show that the trophic function of nerves is impaired in many cases of insanity, to a greater or lesser extent, according to the type of mental disease.

That disease of, or injury to, the cord may be followed by an inflammation of the colon.

That degeneration of the tracts of cord and cells of the spinal ganglia have been found in cases of chronic insanity, associated with disease of other organs.

That dysentery is more apt to occur in lunatics suffering from those mental diseases which cause a considerable nerve-cell degeneration, and is comparatively uncommon in congenital cases of insanity.

And therefore there are good grounds for the supposition that one of the most important factors in the causation of asylum dysentery is the alteration in the normal control exercised by the intestine over the growth of colon bacteria and a reduction of the natural power possessed by the intestine to resist infection by outside organisms.

Contagion.

Is asylum dysentery a contagious disease, communicable directly from patient to patient? Can it be spread by a third person? Is its incidence in an asylum influenced by the transfer of recovered cases of dysentery from ward to ward?

These are questions of vital importance to those in charge of an asylum; but I do not think that even now they can be answered as dogmatically as Dr. Mott did a few years ago, when he stated that "much asylum dysentery is due to communication of the disease from one patient to another, probably by the ignorance, carelessness, or deficient precaution on the part of the attendants" (¹⁸).

Therefore without dealing further with the bacteriology of this disease, I will review some facts on this question of contagion and will endeavour to draw some conclusions from them.

Since the publication of Drs. Mott and Durham's Report to the London County Council on "Colitis" in 1900, and the issuing of a circular on the disease to all asylums by the Commissioners in Lunacy, not only have all cases of diarrhoea and dysentery been registered, but much attention has been given to the subject by asylum authorities, and many precautions taken, such as isolation of the sick and more careful disinfection, with the hope of stamping out this disease. And one might reasonably expect in the case of a communicable disease that these increased precautions, while perhaps not eradicating the disease entirely, would have resulted in a material diminution in the

number of cases of and deaths from this disease in succeeding years.

Moreover, the one asylum above all others where one would have expected to see a great result from the precautions and preventive measures recommended by Dr. Mott is Claybury Asylum.

Has there been any diminution in the prevalence of dysentery in asylums during the last few years? The number of deaths from colitis and dysentery in all asylums were in 1899, 204; 1900, 275; 1901, 202; 1902, 267; 1903, 257; 1904, 224.

The number of cases of dysentery reported from all the London County Asylums were in 1901, 303; 1902, 389; 1903, 232; 1904, 231.

The number of cases of dysentery reported from Claybury Asylum alone were 1901, 102; 1902, 96; 1903, 91; 1904, 67.

At Bexley Asylum during the two years ending March 31st, 1903, on the male side, all cases of diarrhœa and dysentery were treated in K 1, the paralytic infirmary ward, during forty weeks, and were isolated at the East Villa during sixty-four weeks; during the former period 17 new cases of dysentery arose in K 1, giving an average of .42 cases per week; and during the latter period of sixty-four weeks, when the East Villa was employed as an isolation hospital, 28 new cases of dysentery occurred in K 1, giving an average of .43 cases per week.

Also in these two years 45 cases of dysentery occurred in K 1 out of a total of 109 cases that arose on the male side.

On the female side dysentery cases have always been treated in G 1 Infirmary Ward, but in two years ending March, 1903, only 16 new cases occurred in G 1 out of a total of 110 that arose on the female side.

Thus, at any rate during that period, isolation of male cases of dysentery or diarrhœa had no effect on the incidence of the disease in K 1, while on the female side the number of cases of dysentery that arose *de novo* in G 1 was very small compared with the total number, although the dysentery and diarrhœa cases were treated in this ward.

With regard to isolation a similar experience has, apparently, been shared by Colney Hatch Asylum, with the conditions on the male and female sides reversed.

In his Annual Report for 1903 the Medical Superintendent says: "Since August, 1901, isolation has been rigorously carried out on the female side, every case of diarrhoea being immediately removed to the detached villa." . . . "It is of interest to note that on the male side the disease has been much less prevalent, although isolation could only be carried out very imperfectly . . . and the patients were placed in single rooms in the infirmary for paralysed cases."

The number of dysentery cases at Colney Hatch for three years, 1901, 1902, and 1903, are 149 females and 35 males.

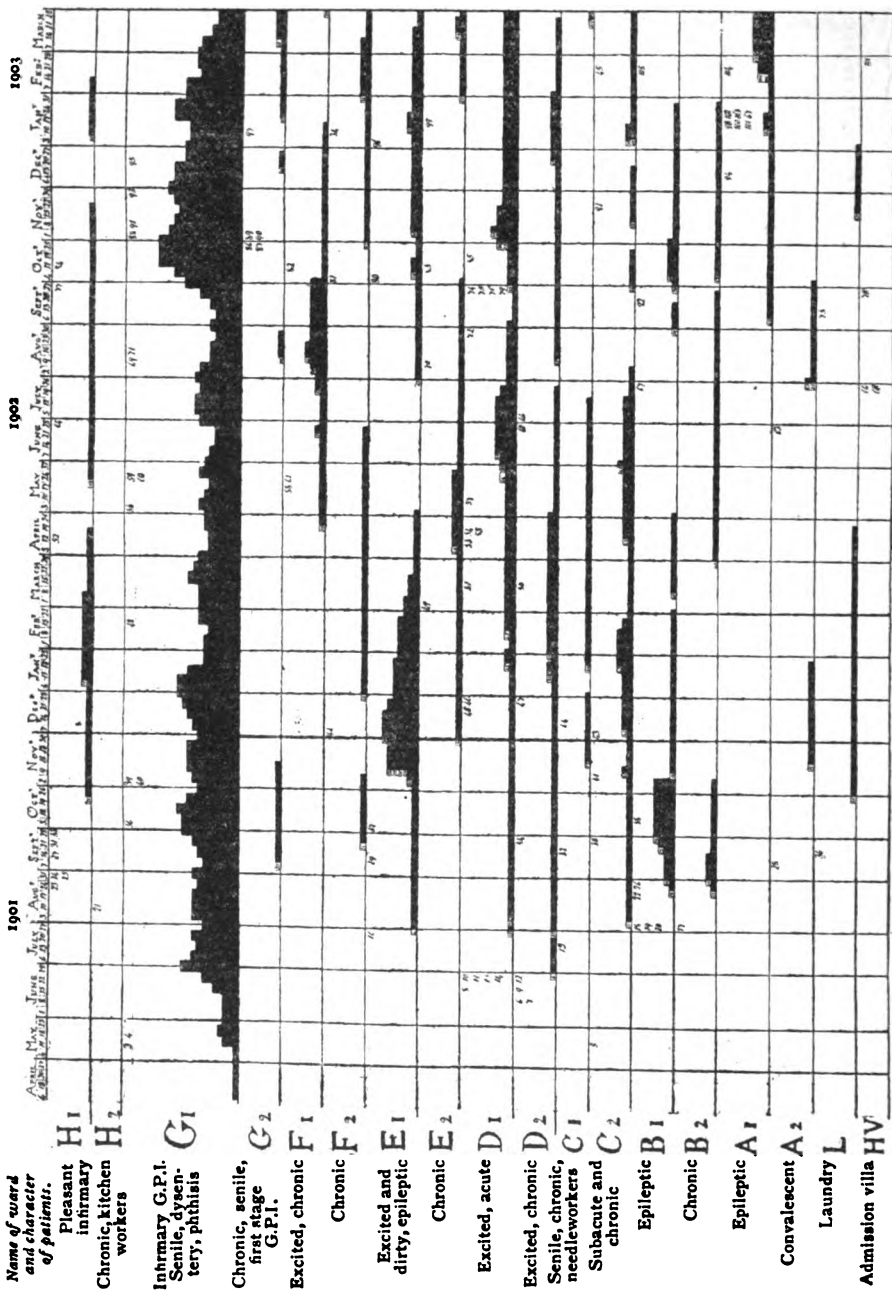
The comparatively small incidence of dysentery in G 1 Ward at Bexley Asylum is remarkable from another point of view. The infirmary dormitory consists of twenty-eight beds, the beds containing the diarrhoea and dysentery cases being separated from the others, occupied by seniles, paralytics, phthisis patients, etc., by about 12 feet. At night one nurse is in charge of this dormitory. It is easy to see that with a number of dysentrics, many of them restless and requiring constant changing of clothes, etc., and at the same time some restless paralytic or senile cases requiring attention, infection from one to the other would be extremely probable, in spite of all the care and knowledge in the use of antiseptics which the nurses might exercise. But that this did not occur is shown by the small number of cases occurring *de novo* in this ward, 26 in four years out of a total of 150, and by the fact that the majority of these 26 cases were patients who slept in another dormitory far removed from the dysentery cases and under a separate nurse.

The wards K 2 and G 2, situated above K 1 and G 1, supplied about twelve patients daily to work in the infirmary wards, and who were consequently in close contact with the recovering dysentery cases; in spite of this the incidence of dysentery in these wards has been very small—K 2 six cases, and in G 2 five cases in four years.

Dr. Mott regards as certain evidence of the communicability of this disease the occurrence of cases of dysentery in contiguous beds.

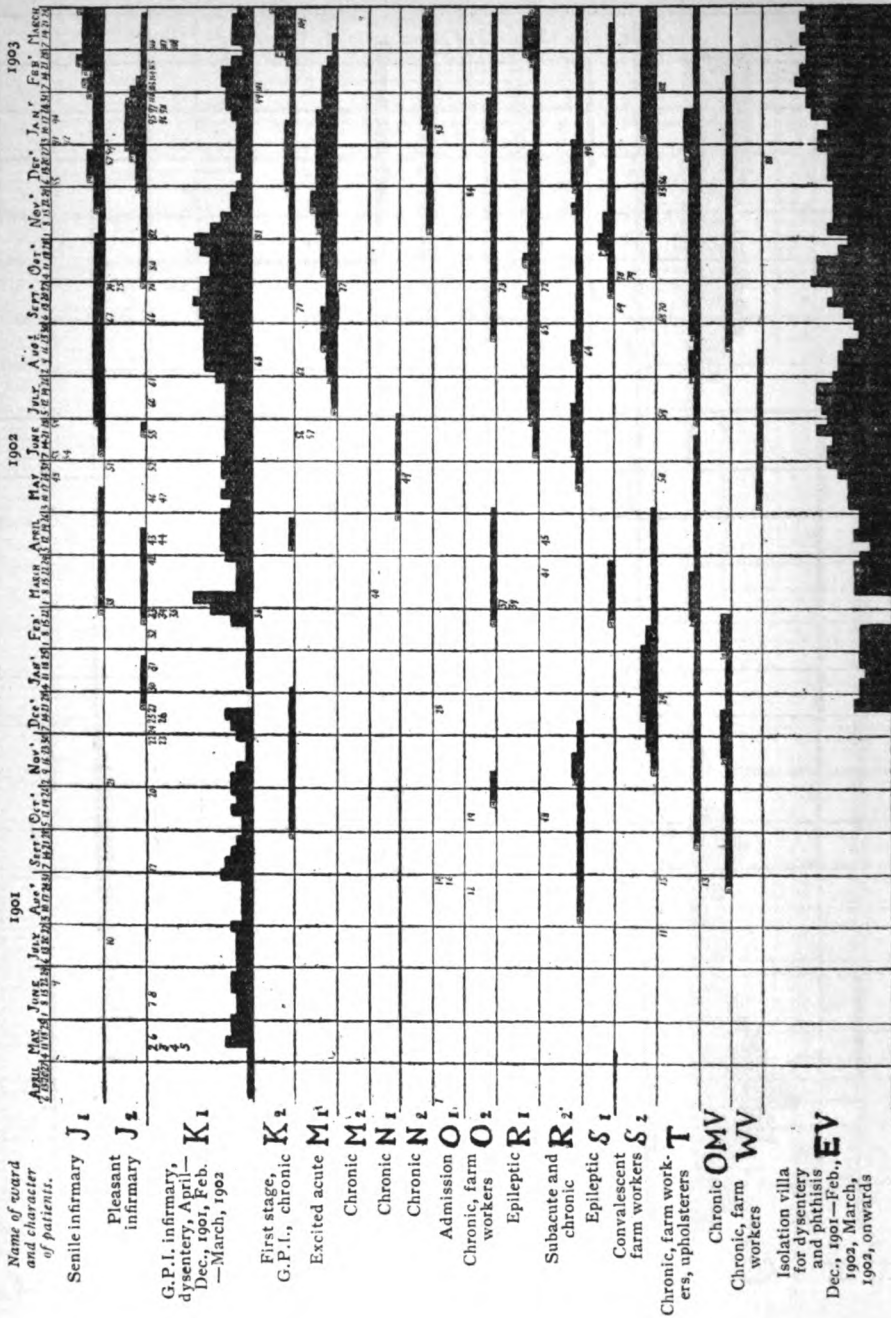
At Bexley Asylum this only occurred in a few isolated instances. It did not occur in G 1, as the above evidence testifies. There have been a few instances in other wards where a patient occupying a certain bed in that ward has been

CHART A.—A Chart showing the Weekly Incidence of Dysentery in the Female Wards at Bexley Asylum and the Montis after Recovery from an Attack of Dysentery. (Patients are regarded as Infective for Six Months after Recovery from an Attack of Dysentery.)



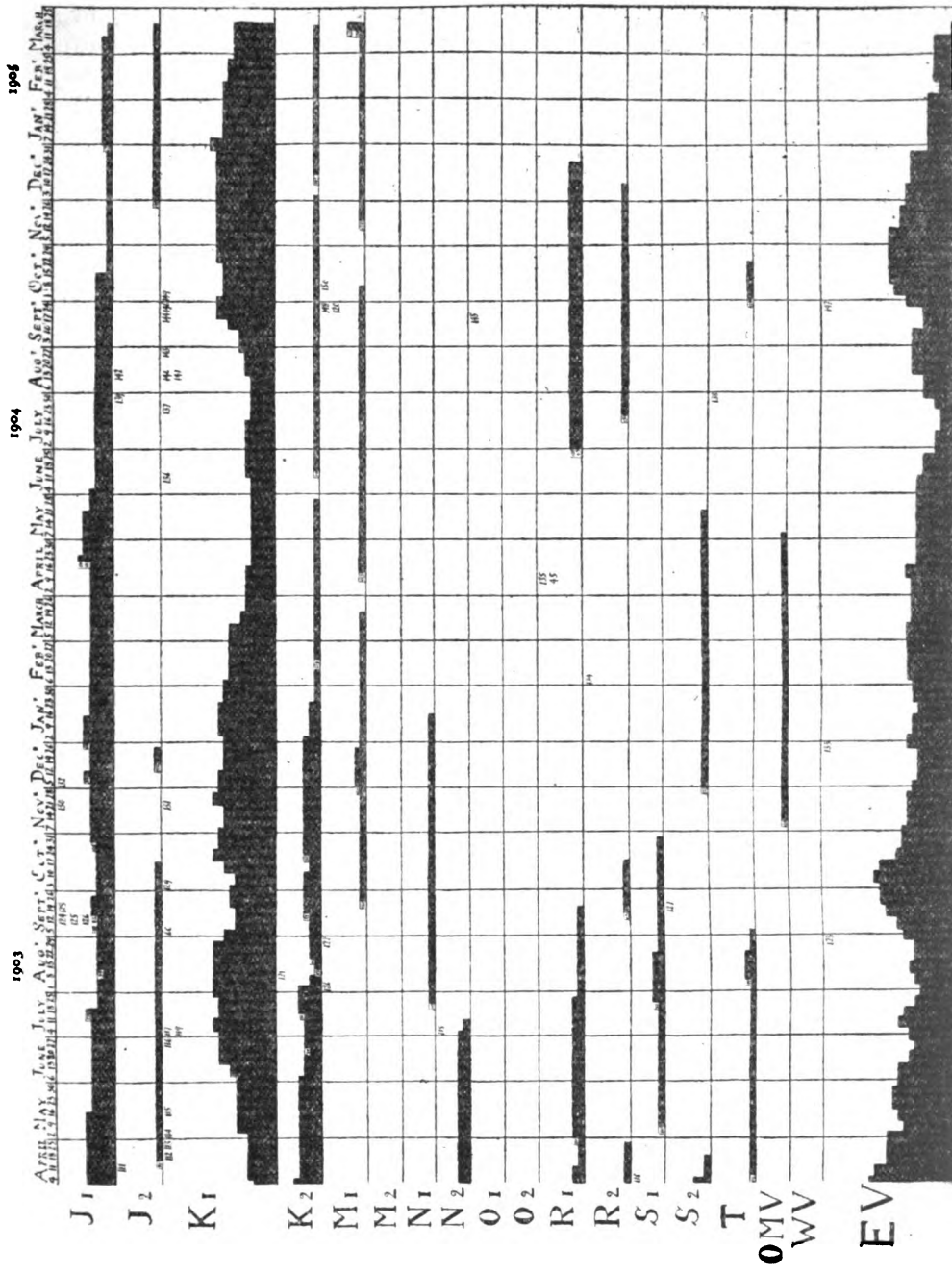
The cases of dysentery are numbered and marked in large figures. All cases of dysentery are sent to and treated in G1. On transfer to other wards the number of the case is marked in small figures. Transfers to G1 are not indicated by numbers. Second attacks are shown by the number of the case again appearing in large figures. The black portion represents the infectivity of the ward. The number of cases of dysentery recorded exceed the number of patients who have been included.

CHART C.—A Chart showing the Weekly Incidence of Dysentery in the Male Wards at Bexley Asylum and the Infectivity of each Ward produced by the Transfer of Infective Cases. (Patients are regarded as Infective for Six Months after Recovery from an Attack of Dysentery.)



The cases of dysentery are numbered and marked in large figures. All cases of dysentery were isolated in K1 before December, 1901, and from February to...

CHART D.—Continued from Chart C.



attacked by dysentery and been removed to the infirmary at once, and a few days later another patient in that ward, and who had been sleeping in an adjacent bed to the first, has contracted dysentery. But these instances have been very scarce, and the duration between the outbreak and the second case most variable. In the groups of cases of dysentery that have at different times occurred at Bexley Asylum, such as those in D 1, D 2, A 1, and other wards, I was unable to trace any connection between the patients attacked and the beds they occupied.

The question of the transference of patients after an attack of dysentery from the infirmary or isolation hospital to other wards is one upon which Dr. Mott has laid great stress, believing that many supposed recovered cases are still infective, and, therefore, a fruitful source of infection.

I have endeavoured, by means of Charts A, B, C, and D, to show the relation between the transference of supposed infective patients from ward to ward, the infectivity of a ward, as estimated by the number of supposed infective patients in that ward at any time, and the weekly ward incidence of dysentery at Bexley Asylum from March, 1901, to April, 1905.

In order not to exclude any possible source of infection I have regarded patients as infective for six months after apparent recovery from dysentery, and I have included in my list of dysentery cases all cases of diarrhœa of doubtful origin.

A few words are necessary on the *régime* adopted in cases of diarrhœa and dysentery at Bexley Asylum. On the occurrence of a case in any ward the patient was at once removed on the female side to G 1, and on the male side to the East Villa. The patient was kept in bed until all symptoms had subsided, was then allowed to get up and sit by the bed but not to mix with other patients; after a clear fourteen days had elapsed since the cessation of the diarrhœa the patient was given an antiseptic bath, allowed afterwards to mix with the non-diarrhœal patients, and to sleep in a different bed away from the diarrhœa cases, and after one or two days was transferred back to the original ward.

I need not consider in detail the evidence shown on the charts on this question, but there is one point that requires an explanation. There are a certain number of instances where a new case of dysentery has arisen in a ward in the same week

as a transfer to that ward, and the charts do not show which event took place first. Out of all the instances where this occurs, in only five was the transfer prior to the onset of the fresh case of dysentery, and in three out of the five the transfer was made the day before.

Although, on the one hand, one can find a case of dysentery here and there that has occurred in a ward a short time after the transfer of an infected patient to the same ward, on the other hand, there are numerous instances where no fresh cases of dysentery have arisen in a ward to which a supposed infective patient has been transferred, and many instances where dysentery has broken out in a ward which has been quite free from infected cases for many months previously.

The evidence contained in those charts points conclusively to the absence of any relation between the transference of patients, after an attack of dysentery, from ward to ward and the occurrence of fresh cases. Moreover, they show that there is no relation between the number of patients who have had dysentery in a ward—that is, the supposed infectivity of that ward—and the incidence or increase of dysentery in that ward.

I will now briefly consider a few points on the social and external conditions which have some bearing on the etiology of dysentery in asylums.

Age.—This has little influence on the incidence of dysentery in lunatic asylums. The average age of cases of dysentery corresponds with the average age of the inmates—*viz.*, males 50 and females 51–53.

At Darenth Imbecile Asylum, out of 1942 inmates, 217 are between the ages of five and ten years and 361 between ten and fifteen years, and although there have been many cases of dysentery amongst the older patients, Dr. Fuller, the Senior Assistant Medical Officer, tells me he has never known a case of dysentery occur amongst the children. This is no doubt due to the fact that cases of congenital insanity are much less predisposed to dysentery owing to the absence of any active nerve-deterioration, and many of the older inmates in these imbecile asylums are cases of acquired insanity with dementia.

Sex.—Males and females are equally liable to be affected by asylum dysentery.

Occupation.—There was no relation between the nature of the work done by patients at Bexley Asylum or its situation

and the occurrence of dysentery. One might have expected, when the disease was prevalent in the asylum, that cases would have appeared amongst the workers in the upholsterer's shop, where the mattresses are re-made, or in the foul or general laundry, but beyond a few isolated cases this did not occur.

Filth-eating.—It has been stated by many writers that the eating of filth and garbage were fruitful causes of dysentery in asylums. The statement, I venture to think, is drawn from the imagination of the writers and not from facts. It is well known that the patients who are most prone to pick up and eat anything, such as leaves, sticks, stones, earth, or refuse, are the idiots and low-grade imbeciles. Now, at Earlswood Asylum, where there are a large number of such patients, dysentery has not occurred during the residence of the present Medical Superintendent, Dr. Caldecott, and the same can be said of the Royal Albert Asylum for the Feeble-Minded. Also, the disease is rarely seen amongst the younger patients in the large metropolitan imbecile asylums. At Bexley Asylum the worst form of female imbeciles and epileptics, and a few idiots, were collected in E 1 Ward, yet in four years only eight sporadic cases of dysentery occurred in this ward, and in the corresponding ward on the male side (R 1) only five cases have arisen in the four years.

Meteorological conditions.—There does not appear to be any definite meteorological condition that is constantly associated with the occurrence of asylum dysentery. It prevails extensively in summer and winter, in wet or dry, in windy or calm weather, but, like many other diseases, it occurred to a somewhat less extent during the exceptionally wet year of 1903. There have been a certain number of instances at Bexley Asylum when two or three cases of dysentery have arisen on the day following an abnormally cold night, and it seems probable that, just as with dysentery in the Tropics, a wide range of temperature between the day and the night by inducing a chill predisposes patients in asylums to dysentery. This is more likely to happen with insane patients, owing to their restlessness and the difficulty, especially in single rooms, of keeping them covered up at night.

Season.—Dysentery prevails in asylums at all seasons, but is generally more prevalent in the late summer and early autumn than at other times. But it varies each year, sometimes occurring largely in January, in other years in March

or May. It appears to a certain extent to die down in June and July. When it prevails extensively in one asylum there is nearly always a corresponding rise in the incidence of the disease in other asylums, pointing possibly to the existence of some climatic conditions influencing the causation of this disease. Moreover, the relation between one asylum and another is not seen in a chart showing the monthly incidence of simple diarrhœa.

The Occurrence of Dysentery in Members of the Staff in Asylums.

A few words are necessary to show the probable causes of dysentery occurring amongst the nurses, attendants, and occasionally the medical officers in asylums.

It has been proved that a bacillus may increase in virulence by being passed through a series of animals. And it is reasonable to suppose that the organism of asylum dysentery, either by passing through a number of or by growing on such suitable soils as are provided in the intestines of lunatics, may acquire a virulence sufficient to produce dysentery in a sane person whose power of resistance has been temporarily lowered either by some slight indisposition or by the breathing of an atmosphere permeated by a fæcal odour.

Summary of the Post-mortem Conditions found in One Hundred Cases dying at Bexley Asylum at variable times from or after an Attack of Dysentery.

	Dying within 1 month of attack.		Dying within 2 to 12 months of attack.	
	Female.	Male.	Female.	Male.
Atrophy of brain and softenings	25	9	14	4
General paralysis and syphilitic brain disease	1	15	2	17
Active tuberculous disease of lungs	3	4	2	5
Fatty degeneration of heart	8	7	2	6
Pigmentary degeneration of heart	3	6	6	4
Recent endocarditis	6	—	1	2
Marked atheroma	9	13	4	8
Slight atheroma	18	12	6	10
Marked granular kidneys	11	6	7	2
Slight granular kidneys	7	6	3	3
Fatty degeneration of the liver	12	4	1	3
Tuberculous ulceration of intestines associated with dysentery	—	2	1	2

		Dying within 1 month of attack.		Dying within 2 to 12 months of attack.	
		Female.	Male.	Female.	Male.
Small Intestine	Acute ulceration of small intestine . . .	12	3	1	1
	Acute inflammation <i>sine</i> ulceration . . .	8	9	4	4
	Evidence of old inflammation . . .	1	2	1	2
Large Intestine	Acute ulceration of large intestine . . .	29	17	5	2
	Acute inflammation <i>sine</i> ulceration . . .	2	5	2	2
	Evidence of old inflammation . . .	2	7	7	5
No intestinal lesion found . . .		—	3	5	7
Total cases dying within period . . .		33	28	17	22

Summary.

That dysentery in this country is mainly confined to lunatic asylums.

That it does not occur, except rarely, in other large institutions, such as prisons and workhouses.

That the increased precautions, etc., that have been taken during the last few years have made no appreciable difference to the incidence of or the mortality from this disease.

That there is strong evidence in favour of the view that not one but many micro-organisms, either singly or as a mixed infection, can give rise to dysentery.

That disturbance of the subsoil in the neighbourhood of an asylum is very liable to be followed by an outbreak of dysentery in that asylum.

That the evidence, deduced from the relation between the inhalation of sewage effluvia and dysentery, supports strongly the theory that asylum dysentery can be caused by some micro-organism which normally inhabits the colon and becomes pathogenic when the resisting power of the tissue is sufficiently reduced.

That the occurrence of dysentery in members of the staff of an asylum is probably due either to infection by a virulent form of some universal organism, or to some normal colon organism becoming pathogenic, owing to the reduction of immunity caused by the frequent breathing of an atmosphere permeated by a fæcal odour.

That there is strong evidence to support the theory that, in lunatics, the vitality and resisting power of all tissues to infection is reduced, owing to the impairment of their trophic nerve supply.

That dysentery is particularly apt to occur in lunatics, owing to the deterioration of nerve-cells affecting the trophic nerve-supply to the colon.

That it is far less apt to occur in congenital cases of insanity or those in whom the mental disease is stationary.

That the statistical evidence is entirely against the view that dysentery is spread by the transfer of recovered cases from ward to ward.

In conclusion, I wish to acknowledge my indebtedness to Dr. Stansfield, Medical Superintendent of Bexley Asylum, for his kindness in affording me every facility in my investigation of the disease at this Asylum.

(¹) Manson, *Tropical Diseases*.—(²) Clifford Allbutt, *System of Medicine*.—(³) *Fifty-Sixth Report of the Commissioners in Lunacy*.—(⁴) R. J. Legge, *Journal of Mental Science*, July, 1899.—(⁵) Dr. Barwise, Report on Colitis.—(⁶) *Archives of Neurology*, vol. i.—(⁷) Gemmel, *Idiopathic Ulcerative Colitis*.—(⁸) J. W. H. Eyre, *Brit. Med. Journ.*, April, 1904.—(⁹) *Brit. Med. Journ.*, April, 1905.—(¹⁰) Stevenson and Murphy, *Hygiene and Public Health*.—(¹¹) McClean, *Diseases of Tropical Climates*.—(¹²) Clouston, *Med. Times and Gazette*, June, 1865.—(¹³) *Fifty-Seventh Report of the Commissioners in Lunacy*.—(¹⁴) McFarland, *Text-Book of Pathogenic Bacteria*.—(¹⁵) Cowan, *Brit. Med. Journ.*, March, 1895.—(¹⁶) Clave Shaw, *Brit. Med. Journ.*, October, 1901.—(¹⁷) Drs. Mott and Durham, Report on Colitis or Asylum Dysentery, 1900.—(¹⁸) *Archives of Neurology*, vol. ii, 1903.—(¹⁹) C. Ogle, *Path. Soc. Trans.*, 1897.—(²⁰) J. H. Targett, *Path. Soc. Trans.*, 1892.—(²¹) Hale White, *Guy's Hospital Reports*, 1888.

Recent Medico-Legal Cases.

REPORTED BY DR. MERCIER.

[The Editors request that members will oblige by sending full newspaper reports of all cases of interest as published by the local press at the time of the assizes.]

Re Thos. Gill, deceased.

For the account of this case we are indebted to the kindness of Dr. Percy Smith, who was engaged in it as an expert witness.

The deceased made, in January, 1904, a will leaving, as he had agreed with his late wife he would, one half of his property to his adopted daughter and his late wife's niece, Mrs. Ducksbury.

After his wife's death (? at the end of 1903) he drank heavily. In July, 1904, he stayed with Mrs. Ducksbury, and during that

time drank a great deal and ate very little. About July 19th the Ducksburys became alarmed at his condition, and called in medical advice. On July 23rd he began to have delusions. He declared that the Ducksburys were trying to poison him, and that he was not the Thomas Gill who was wanted by the police. He declared that people were after him from Skipton (his home), and that he saw a man up a tree.

On July 26th he left the Ducksburys' house early in the morning and went off to Skipton alone. He refused to take food, and said to Mrs. Ducksbury, "Teresa, you know you are trying to poison me. I will not take anything." He also thought Dr. Stevens was trying to poison him.

During his stay with the Ducksburys, and before he had the delusions, he talked to Mr. Ducksbury about his affairs, spoke of appointing his executor, and had a will drafted to that effect. The day after leaving the Ducksburys he made a new will, leaving all his property to his brothers and sisters, and to Mrs. Ducksbury nothing. This will was made by a solicitor whom he had never employed before. Deceased called on the solicitor at half past five in the afternoon, and pulled out of his pocket an unsigned will, in which he had made pencil alterations depriving Mr. Ducksbury of his executorship and Mrs. Ducksbury of her legacy. He said the Ducksburys had offended him while he had stayed with them, that he wished to have his will altered, and that he did not want to go to bed again until it was done. He was in a hurry, and the will was there and then engrossed and signed. Meantime he audited some accounts and did them correctly. On August 4th he called at the solicitor's office, burnt his will of January, 1904, went through the new will, and said it was as he wished. He died August 12th, 1904.

It was proved that on the evening of July 25th he said to Mrs. Ducksbury, "Oh, Teresa, you are a wicked young woman. What would your aunt have thought if she had known this, that it is your intention to poison me to-night? You can't deny it, because I have heard everything that has been said between you and John. What have I ever done to you? You have sent your husband out for poison—he has gone for it now." He walked about all night, refused breakfast, and left in the morning, saying, "I dare not stay in the house any longer because you are going to poison me. I have heard all."

In the result the new will was quashed, and the copy of the

will of January, 1904, was proved, although the deceased had destroyed the original.

It is notoriously difficult to upset a will, even when the testator was indisputably insane at the time it was made; but in this case the evidence was very clear, not only that the testator suffered from delusions at the time of making the will of July 27th, but that the delusions were of a character that was likely to, and did in fact, influence him to make such a disposition of his property as he would not have made but for the delusions. These are in practice the only circumstances under which a will can be upset, and it is satisfactory to find that, when they are proved to exist, a will is upset in spite of the great reluctance of the Courts to interfere with testamentary dispositions.

Rex v. Hother.

Helen Hother, 69, was indicted for the manslaughter of a lunatic named Fanny Osborne at Hove on November 30th last.

The case for the prosecution was, shortly, that Osborne, who had been a certified lunatic since 1885, had been first placed under the charge of Dr. George Hother, the prisoner's husband, and after his death in 1889 the lunatic was placed in the prisoner's charge, she being paid £60 per annum. Mr. Jowers, physician and surgeon, had from time to time seen Osborne every six months until July, 1903, when he ceased to act. In February Mr. Rigby, another physician, also saw her, but he was not called in again until after the death. On November 30th the prisoner informed a neighbour that her "patient" was dead, and requested her to assist in laying out the body and tidying up the place. The body was then in a front room in a deplorable condition of filth and dirt, and there was a serious bruise corresponding to an internal injury of two broken ribs. The prisoner requested her to move the body into a back room and to say, if questioned, that Osborne had died there. The bedding was soaked through to the floor, and was in a filthy state. The ceiling was also in a state of dilapidation, and the only covering on the body was a nightdress and counterpane. Such was the state of everything in the room, that the neighbours (another woman had also been called in) were overcome

with sickness, and every article had to be burnt. The prisoner then requested Mr. Rigby to come in and certify the death, but he declined to do so, and notified the coroner. When the coroner's officer called and questioned the prisoner, she told him that Osborne had died in the back room, and asked whether he suspected her of neglecting the deceased so as to get her into trouble, as if so she should pack up her things and get out of the way.

The medical evidence showed that the cause of death was starvation and neglect of at least four weeks' standing, and, although the prisoner had stated that Osborne had eaten heartily on November 29th, there was no sign of food in the intestines. The independent medical witnesses expressed the opinion that the lunatic should have been sent to an asylum years ago, as the prisoner was quite unfitted to have charge of her, the lunatic being at times violent.

In answer to the Court, Dr. Coupland, Commissioner in Lunacy, said that a lunacy patient ought not to have passed eighteen months without seeing a doctor, especially when, in July, 1903, she was reported in the Journal to be violent. The prisoner had told him that Mr. Rigby had visited the lunatic in July, 1904. He had reported the case to the Board, but the matter had not gone further, as the prisoner had been cautioned. It had not occurred to him that the prisoner was an improper person to have care of the lunatic, in spite of her advanced age, as the patient had been so long in her charge that their relationship was almost that of mother and daughter. It also appeared that Osborne had not been out of doors for two years, and that she was suffering from grave bed-sores and was in a state of great emaciation.

Mr. Justice Kennedy, in charging the jury, directed them that, if the prisoner chose to undertake the care of a person for profit she was bound to perform her duty, and that, if she felt incapable of performing it, she ought to have called in a doctor. She had only herself to thank for the position she found herself in having misrepresented facts to the Commissioner in Lunacy and to the coroner's officer and having asked the neighbours to make similar misrepresentations. Osborne's condition pointed clearly to her having been for weeks neglected and uncared for, and that this course of conduct had directly caused her death.

The jury convicted the prisoner, recommending her to mercy on account of her age.

Mr. Justice Kennedy said he had no doubt that this poor lunatic creature had suffered considerably for some time before her death. His only difficulty was in dealing with the prisoner. Gross and criminal as her neglect had been, he must take her age and the recommendation of the jury into consideration, and he would therefore sentence her two months' imprisonment in the second division, she having already been in custody for some time. The grand jury had at the end of their duties made a presentment to the effect that this case ought to be brought to the notice of the lunacy authorities, and he (the learned Judge) regretted that more care had not been taken with regard to this poor demented creature. He trusted, however, that the Commissioners would be more strict in the future. (Lewes Assizes, February 13th, 1906, Mr. Justice Kennedy. *Times*, February 14th.)

The case is a commentary upon the prejudice that still exists against institutions for the insane. There can be little doubt that the motive on which the unfortunate patient was originally placed in private care, rather than in an institution, was this same prejudice. The case also furnishes a grim commentary upon the neglect of the Government to pay regard to the repeated appeals of the Commissioners for an increase in their number. It is manifest, if we read between the lines, that the guardianship of the prisoner would never have been allowed to continue if the Commissioners had been aware of the circumstances, and had had their full attention directed to the case. When the number of Commissioners was fixed, it was fixed in proportion to the work they had to do. This work is now increased fifteen times, and the number of Commissioners remains the same!

Rex v. Watt.

Hugh Watt was indicted for unlawfully proposing to, and endeavouring to persuade, Thomas Worley, James Shuttle, and Herbert Marshall to kill and murder Julia Watt, his wife. Another indictment charged the defendant with unlawfully

proposing to Thomas Worley to kill and murder Sir Reginald Beauchamp.

The defendant, a man of ample means, and a former Member of Parliament, was married in 1880. In November, 1896, Mrs. Watt presented a petition for a divorce, and obtained a decree of judicial separation. Then there was a reconciliation. In 1900, Mrs. Watt presented a second petition for a judicial separation on account of the adultery of her husband with Lady Violet Beauchamp, wife of Sir Reginald Beauchamp. That petition was followed by a petition by Sir Reginald for divorce from his wife on account of her misconduct with Mr. Watt. In January, 1901, even after these petitions, there was a reconciliation between Mr. and Mrs. Watt, and at this time an important deed of settlement was executed, in which each party brought considerable property into the trust, and by which, if Mrs. Watt predeceased her husband, he would inherit the property she had brought into the trust, and release to his own benefit the property he had himself brought in, while if he predeceased her, she would benefit. Mr. Watt seems to have repented the execution of the deed, and had made many efforts to induce his wife to consent to have it set aside, for this could not be done without her consent. Mrs. Watt had persistently refused to do so, and the settlement still existed at the time of the trial of Mr. Watt. The second reconciliation was not of long duration. Mrs. Watt presented a third petition in the Divorce Court, and a *decree nisi* was granted to her. Sir Reginald Beauchamp obtained a *decree nisi* in his suit against his wife and Mr. Watt, and his decree was made absolute, so that Lady Violet Beauchamp was free to marry Mr. Watt, and did, in fact, live with him as his wife, taking by deed poll the name of Lady Violet Watt. But Mrs. Watt never proceeded to have her *decree nisi* made absolute, so that Mr. Watt was not free to marry Lady Violet, and the marriage could not take place. In 1901 Lady Violet and Mrs. Watt came to such loggerheads that a writ of libel was issued by Mrs. Watt, and she obtained damages from Lady Violet to the tune of £5000. Under these circumstances the prosecution alleged that Mr. Watt had strong reason to desire the death of Mrs. Watt.

Then followed a series of most extraordinary actions, which were proved to the satisfaction of the jury to have been done by Mr. Watt; and, although the plea of insanity was not raised, it

was alleged repeatedly by the defence that no one but a madman could possibly have been guilty of the acts charged against the defendant, the inference implied being that, as he was not mad he could not be guilty. Guilty, however, the jury found him, and the current opinion of the day was very much in agreement with his counsel. At any rate, I have been asked by so many people whether he must not have been mad, that it is worth while to examine the problem.

Watt employed a private inquiry agent, named Marshall, to watch Mrs. Watt, and to try to get her to have the *decreo nisi* made absolute. Marshall's evidence was that Watt said he had given a man named Bernard Abrahams £2000 to murder Mrs. Watt, and that Bernard Abrahams and two other men went round, but at the last moment showed the white feather and stuck to the £2000. Watt then said he would do for her, and produced a bottle which he said contained chloroform. He then said to witness: "You get Mrs. Watt to come here and get her downstairs, where I have a room prepared; I will give her a push and chloroform her, and when it is all over you must go to Dr. Blake, of Putney, and he will certify death from heart disease." Witness told him he must be mad, and left the house. A week afterwards Watt called at Marshall's office and repeated the proposal, offering Marshall £5000. Marshall had concealed two men, Drummond and McKenna, in such a position that they could hear the conversation, and they corroborated Marshall's evidence.

Thomas Worley, a man who had a newspaper stall, at which Watt used to purchase papers, said that Watt had offered him £10 to give a woman a blow in the stomach, or run into her with a bicycle and knock her down; that Watt raised his terms to £50 if she was seriously hurt, and £100 "if anything else happened," and, finally, to £1 a week for life if he killed her. Watt spoke to him about chloroforming her, and asked him if he could get him a man who had done manslaughter, or something like that. He introduced Shuttle to Watt.

James Shuttle, a man who had been several times in prison for robbery and assault, said he had been taken by Worley to Watt, who asked him if he had done any time. He replied, "Yes, I have just come out from doing three years for killing a woman." Watt then told him there was a woman staying at the Howard Hotel, Norfolk Street, and that he wanted him to

“do her in.” He said, “Here is £5. Get some chloroform, buy a jemmy, go to the hotel and stay there; square the chambermaid, and get the number of the woman’s room.” He repeatedly met Watt, who gave him money from time to time and repeatedly urged him to murder Mrs. Watt, mentioning chloroform, and explaining how it was to be done. Shuttle went to Mrs. Watt and warned her.

The negotiations with Shuttle began in 1902, and went on until Watt discovered that Shuttle was merely playing with him and doing nothing for his money. In 1904, Worley again introduced Shuttle to Watt, who failed to recognise him as the man who had cheated him before, and re-employed him on the same job, suggesting chloroform and other details as before.

A very extraordinary incident in this extraordinary case was the evidence of a man named Lightfoot. He was brought up from prison, to which he had been sentenced for perjury in evidence given in this case in the police court. He had there stated that he had heard Marshall conspiring with another man to bring this charge against Watt. He now admitted that that evidence was false, and that he had been suborned to give it by the offer of £5000 from Watt.

The prisoner gave evidence at great length on his own behalf, and his counsel, Mr. Avory, put to the jury that unless they were convinced that Watt was a lunatic who was not safe to be at large, they must acquit him. The jury, however, found him guilty, and he was sentenced to five years penal servitude.

Central Criminal Court, December 14th and following days, Mr. Justice Phillimore. (*Times*, December 15th, etc.)

Astounding and *primâ facie* incredible as the acts alleged against the defendant were, and tainted as was the evidence of several of the witnesses, the corroboration of their evidence was so strong as to convince the jury, in spite of the efforts of very able counsel, that the prisoner was guilty; and a careful examination of the evidence must, I think, convince an impartial bystander that their verdict was right. Undoubtedly the defendant did do the acts with which he was charged, and the question now to be considered is whether these acts are compatible with sanity on the part of the actor.

That the defendant had ample reason to desire the death of his wife appears from the evidence. Not only would he benefit

pecuniarily, but by her death he would be set free to marry Lady Violet Watt, between whom and himself there was the gulf of his first marriage, still impassable, in spite of the half-bridge of the *decree nisi*. There was nothing unaccountable in the mere desire that his wife might die, though it is a desire that a right-minded man would not allow himself to entertain. Nor can we say that the determination to take steps to satisfy the desire is in any way characteristic of insanity, unless we are prepared to subscribe to the doctrine, which I regard as preposterous, that all crime is *per se* a proof of the insanity of the criminal. I think that persons who hold this doctrine misconceive the nature of insanity. Nor would the hypothesis of insanity need to be invoked if the man had actually gone about to compass the death of his wife by means less crude and stupid than those he actually employed. We need not search far in the annals of crime to find instances of murder and attempted murder by persons of good education, good social position, and ample means; but an attempt at murder to be compassed by methods so fatuous and doltish as those employed by Watt is altogether beyond the realm of experience. First he goes to a man of whom he knows nothing, except that he sells newspapers in the street, and, with no preliminary precaution, or inquiry, or acquaintance with the man, with no knowledge or probability that the man is the kind of man to answer his purpose, with no assurance that the man is scoundrel enough, or clever enough, or fool enough, to undertake the job, he coolly proposes to this gutter-snipe the murder of Mrs. Watt; and, when the newspaper seller declines, Watt asks him to find two or three rough chaps, and give them five shillings each to do the job! Worley did, in fact, find Shuttle, and introduced him to Watt as the kind of man required, and Shuttle, to humour Watt and get money from him, posed as a convict for manslaughter! By pretending, with every transparent pretence, to fall in with his plans, Shuttle kept Watt on the string, and repeatedly got money out of him. Failing to accomplish his purpose through Worley and Shuttle, Watt next made the same proposal to Marshall, a private inquiry agent, whom he had employed to watch Mrs. Watt. In this proposal, as in those to Worley and Shuttle, chloroform figured as a practicable means.

Perhaps the most extraordinary incident in this extraordinary

case was that in which Lightfoot was concerned. Lightfoot, a Yorkshireman visiting London, was sitting on a seat in the park, when two strangers came up to him and asked him for a match. One of them, whom he afterwards knew to be Watt, offered him a cigar. They got into conversation, the upshot of which was that, in consideration of a promise of £5000 from Watt, Lightfoot was to volunteer a concocted story in the police court. He saw Watt repeatedly, dined with him, was introduced by him to "Lord Kinloch," whose identity was not disclosed, and to "Mr. Rufus Isaacs, K.C.," who subsequently turned out to be Mr. Bernard Abrahams. Lightfoot was told a cock-and-bull story about the King being mixed up in the case, and desiring to have it hushed up, was taken to a public-house, where Watt dictated to "Lord Kinloch" a letter to be posted by Lightfoot when he returned to Yorkshire. The letter was produced in court, and in it Lightfoot said that he had overheard a plot against Watt. Lightfoot appeared in the police court, testified as had been arranged with Watt, was prosecuted for perjury, pleaded guilty, and was sentenced to twelve months' hard labour.

Such a revelation of clumsy and stupid malignity on the part of Watt has influenced very many people to say, "Oh, he must have been mad!" His own counsel declared that, if the prisoner was guilty, he must be a lunatic who was not safe to be at large; but then counsel appealed to the sound intelligence and business capacity that the prisoner had shown in the witness box, as evidence that he was no lunatic, and therefore not guilty. Even the judge in his summing up alluded to the hypothesis, but warned the jury that they must not entertain it, since no evidence had been offered that Watt was other than sane. Again, in pronouncing sentence, Mr. Justice Phillimore treated the sanity of the prisoner as an open question. "Whether that [overmastering passion] has really upset the balance of your judgment, so that you ought to be treated as mad, I do not know: I am afraid not." My own opinion is that the judge was right. What I see in the history, that has been here repeated, is evidence, not of insanity, but of the warping of the judgment, and distortion and degradation of the moral sense, that are produced by perpetual brooding over a grievance, real or fancied, and by allowing the attention to be continually occupied about the misdeeds of any person, and

the injuries suffered from that person. Watt had treated his wife badly, and she had taken her revenge in the most effectual way by obtaining a *decree nisi*, and refraining from having it made absolute. He was aggrieved, too, at her pertinacity in clinging, as she had every right to do, to the settlement which he so ardently desired to set aside. His association with Lady Violet Beauchamp, or Watt, was a perpetual reminder to him of these grievances. It was a seton which kept the sore constantly open. When arrested, he exclaimed to the policeman, "She has ruined my life, and been a curse to me for years, and has cost me thousands of pounds." His mind thus boiling with indignation and resentment, in contemplating the desirability of the end, he lost sight of the inadequacy and inappropriateness of the means, while to their nefariousness he was indifferent. His acts seem to me the acts, not of an insane man, but of an unprincipled man, carried away, as the judge said, by overmastering passion.

Purves v. Carswell and Gilchrist.

This was an action for damages laid at £10,000, by a person who had been certified as a lunatic, against the certifying doctors. The defence was that the certificates were granted in good faith, in the ordinary course of professional duty, without negligence, and that they were justified by the pursuer's mental condition at the time. The trial was a very long one, lasting for many days, and in the result verdict and judgment were given for the defenders. A perusal of the evidence points very directly to the conclusion that the action ought never to have been brought; that not only was the pursuer insane and unfit to be at large when certified, but also that the course taken by the defenders led directly to his recovery. If the case had been tried in England, the proceedings would have been very much abbreviated, and possibly it would never have been allowed to come into court at all. But in the Scotch law there are no safeguards against vindictive litigation by ex-lunatics, such as are provided by the English Lunacy Act, 1890, Sect. 330. That section provides that "a person who . . . signs . . . any report or certificate purporting to be a report or certificate under this Act . . . shall not be liable to any

civil or criminal proceedings, whether on the ground of want of jurisdiction or on any other ground, if such person has acted in good faith and with reasonable care." A further provision in another sub-section is: "If any proceedings are taken against any person for signing or carrying out or doing any act with a view to sign or carry out any such order, report, or certificate, or . . . doing anything in pursuance of this Act, such proceedings may, upon summary application to the High Court or to a Judge thereof, be stayed upon such terms as to costs and otherwise as the Court or Judge may think fit, if the Court or Judge is satisfied that there is no reasonable ground for alleging want of good faith or reasonable care."

There seems no reason in the nature of things why a protection which is freely granted to dwellers in England and Wales should be withheld from the unfortunate inhabitants of the more northern section of this island. They have been lulled into security by the fact that no such action has been brought for a period of something like forty years; and they presumed, I suppose, that the good sense and good feeling of their compatriots would shield them for ever from such actions. The case above reported shows that this presumption was carried too far, and the safeguard was never very secure; for there was always, and still remains, the possibility that some denizen of the southern country might stray across the Tweed, and find himself, as would not be unnatural in the circumstances, committed to a lunatic asylum in the country of his adoption. Such a wanderer would not be bound by the custom of the country, and there would be nothing to deter him from bringing an action on his release, beyond the inherent improbability of an Englishman getting anything out of a Scotchman. It is clear that the protection conferred by the sections of the Lunacy Act, 1890, that I have quoted, ought to be extended to Scotland.

For an account of the following case I am indebted to Dr. Thomson of Thorpe.

Rex v. Trollope.

Harry Trollope, æt. 34, labourer, was indicted at the Norwich Assizes for attempting to murder Millicent Trollope, his wife,

and James Littleproud, on December 26th, also for wounding with intent to do grievous bodily harm. Prisoner pleaded guilty to the second count. Prisoner had led, up to the time of the occurrence, a blameless life. He served with credit in the army for fourteen years, attained the rank of sergeant, and went through the South African War. While in South Africa he became afflicted with a disease of the bladder, which gave him terrible pain, and "so affected his mental balance that he was almost unaccountable for what he did." He returned to his native village, married, and lived on affectionate terms with his wife. Before he married, he lived for some months with his mother, who noticed that when spasms of pain seized him he behaved very strangely, "gave vent to reasonless laughter and staring, and apparently would not know what he was doing." At Christmas, he went to his mother's house, and asked for some dinner. His wife followed him, and brought him a piece of pudding. After eating this, he went up stairs and cried in an hysterical manner. Then he burst out laughing. To his mother's question he replied, "Oh, it is only thoughts." They spent the rest of the day together on the most amicable terms, but after going to bed he behaved in an extraordinary manner, and seemed to imagine there was someone in the house. He evidently thought that Kaffirs were attacking him, and he attacked his wife and father-in-law under the impression that they were Kaffirs.

Counsel for the defence, after giving the account of the affair epitomised above, concluded by saying he did not think the evidence was strong enough to justify a plea of insanity being set up; besides which, he knew the serious consequences that would follow such a verdict. The judge said nobody could know the details of this case without surprise that a man of the prisoner's character should make so violent an attack on his wife and father-in-law. So far as he knew, nothing had been discovered to lead anybody to suspect that the prisoner's mind was affected in the slightest degree. The question was, what was the best thing to be done with the prisoner in the interests of justice? This was a very serious offence, meriting very severe punishment, and he was anxious to come to some conclusion that would be most in the interest of the prisoner. He would have to pass a very severe sentence, but he would take pains that the case should be represented to the proper quarter.

The prisoner would be carefully watched and put in a position to have the best medical attention possible. The prisoner might rely on it that everything that ought to be done for him would be done by the proper authorities, who would be backed up by him (the judge), and it might be that the sentence would be reduced. The prisoner would be sentenced to five years' penal servitude. Mr. Justice Lawrence. (*Eastern Daily Press*, n. d.)

This case is a very extraordinary one. According to the account given, the crime bears upon the face of it the stamp of unmistakable insanity. If it was proved that the prisoner attacked his wife and father-in-law under the belief that they were Kaffirs who were attacking him, his act came completely within the terms of the law, that he did not know the nature or quality of his act or that it was wrong. Nay more, it came completely under the almost prohibitive terms of the law laid down, in the case next reported, by Mr. Justice Cooper in New Zealand: "If a person suffering under an insane delusion believed that another person was going to kill him, and, therefore, to protect his own life, killed that other person, that was not murder." It is quite rare for the Courts to try a case which so completely satisfies in every respect the time-honoured test. Yet counsel for the defence "did not think the evidence was strong enough to justify the plea of insanity being set up," and the judge declared that "nothing had been discovered to lead anybody to suspect that the prisoner's mind was affected in the slightest degree"! The motive of counsel in refusing to set up the plea of insanity is clear enough. "He knew the serious consequences that would follow such a verdict" as guilty but insane. In other words, he thought he was doing his client better service by leaving him to be sentenced to a severe but determinate punishment, than by getting him committed to Broadmoor for the remainder of his life. But the dictum of the judge rests on no such foundation, and appears to be inconsistent with his subsequent assurance to the prisoner that the case should be represented in the proper quarter, and that everything that ought to be done for him would be done. It seems clear that the judge as well as counsel shrank from sending the prisoner to Broadmoor, yet it is very questionable whether it is not the proper place for him. He is by no means to be trusted not to repeat the act,

supposing—as on the evidence before us we must—that it was the outcome of temporary mental unsoundness, and that this unsoundness is recurrent.

For the following case I am indebted to the kindness of Dr. Alexander, of Dunedin, N.Z.

Rex v. Swan.

Daniel Swan, labourer, was indicted for the murder of his wife, at Invercargill, New Zealand, on June 28th.

Two years before the murder, the wife had obtained a separation order against the prisoner, and for some time they lived apart; but after eighteen months' separation he returned to his wife's house as a boarder, the separation order remaining in force. They had a large family, some of the children being grown up and married. Lodging in the same house was a man named Clark, a married man, separated from his wife, and the prisoner had been jealous of Clark, had threatened him, and remonstrated with him for domineering over the deceased. On June 28th the whole family had tea together. The deceased, after tea, took a seat at the end of the table, near the fire, her back towards the prisoner, who sat by the fire. A daughter, æt. 13, was ironing at the other end of the table, while prisoner was reading and smoking and chatting in a friendly manner with his wife. The little girl put her iron on the fire to heat, and was folding up some clothes, when her father suddenly took the iron from the fire and struck her mother on the head with it. The child rushed to interfere, and the prisoner struck his wife a second time, knocking her down. When she was on the floor he repeated the blows, crying, "Would you! Would you!" The child struggled with her father, others came into the room, the father ran out into the street, and then the child stooped down and kissed her mother. She found blood on her lips. The woman's face was covered with blood, and she had a gaping wound in her neck. On a bracket under which the prisoner had been sitting was kept a razor; the razor was afterwards found on the bracket covered with blood. Prisoner ran out of the house, followed by one of his sons, who raised the alarm. Neighbours interfered and secured the prisoner, who

resisted, saying, "You don't know what trouble I have had. A man has been tampering with my wife for months or years, and he's brought it to a finish." When arrested by the police he was quite cool, and said, "God knows I did not intend to kill my wife. It was Clark I wanted. The dirty sneak let me kill her and then cleared. Constable, you don't know my troubles. That dirty dog, Clark, pretended to court my daughter, and all the time he is meddling with my wife. She was a good woman, and I loved her. It was all that Jim Clark's fault." When charged, he repeated his accusation against Clark, and his protestations of affection for his wife.

For the defence the plea of insanity was raised, and the following evidence was given in support of the plea: The children proved that their father was very violent when drunk; that he was an extremely fervent Baptist, and used to read the Bible a great deal and argue about it; that he had several times threatened to kill deceased; and that he had been struck on the head years before by a stone, and at times would say the stone was still there; that he was very fond of his wife, except when the bad fits were on him; and that he had sudden fits of temper, which came without provocation. The medical witnesses were urged by the defence to admit that the prisoner was insane at the time of the act, but they were very cautious, and would not commit themselves to this opinion.

In the course of the case Mr. Barclay, counsel for the defence, quoted the answers of the judges, and various English cases, but the Judge reminded him that these authorities were not binding in New Zealand, where they have their own criminal code. "The propositions as to lunacy in our code," said his Honour, "are extremely simple."—Mr. Barclay: "Yes, and extremely dangerous."—His Honour: "I grant you that." It would seem, therefore, that even a criminal code is not a complete and perfect remedy for defects in the Common Law, and that the treatment of the plea of insanity may still be unsatisfactory, in spite of statutory definitions. His Honour told the jury that to sustain a plea of insanity the accused person must establish that he did not know what he was about, and that his mind was in such a condition that he was incapable of knowing that what he was doing was wrong. If a person suffering under an insane delusion believed that another person was going to kill him, and therefore, to protect his own life,

killed that other person, that was not murder; but if a person had an insane delusion that another person had been slandering him, or had done some other act which would cause a feeling of revenge, even in the mind of a sane person, and if, acting on the feeling of revenge induced by that insane delusion, the man killed that person, he was liable to be convicted of murder, because that delusion, if a fact, would not in law justify the act committed. Such a man would not be entitled to acquittal on the plea of insanity. The jury found the prisoner guilty, and he was sentenced to death. Mr. Justice Cooper. (*Otago Daily Times*, August 31st, and following days.)

The only justification for the plea of insanity was the impulsive character of the crime. The prisoner was sitting quietly chatting with his wife, when he suddenly seized the iron off the fire, battered her head, and cut her throat. After completing the murder he gave a "frightful yell," "as if he was satisfied." This was practically all the evidence of insanity, and it is manifest that it was insufficient. When a man broods over a rankling sense of injury, as the prisoner was shown to have done; when he allows himself to become dominated by the feeling that he is suffering under an unprovoked and unrequited grievance; experience shows that he is very apt to break out in impulsive acts of revenge; and there is no doubt that this murder was an act of that character. The innocent act of the child, in putting the iron within his reach, no doubt suggested to him an opportunity and afforded a temptation. Prone to violence, and of ungoverned temper, he yielded at once, with the result recorded. The act was the act of a man who had all his life yielded to his impulses to fury. He had thrashed one of his children for a trifling offence till the lad could not dress himself, and had to be fed with a spoon. The only excuse for a plea of insanity was the prisoner's unfounded jealousy of his wife; but if every man who cherishes an unfounded jealousy is to be regarded as insane, our concept of insanity will need to be altered. The morbid condition that prompts to acts most resembling that of the prisoner is epileptic furor, or *epilepsie larvée*; but his repeated confession of the deed, and of his reasons for it, are quite sufficient to negative such an hypothesis. There is no doubt he was rightly convicted.

The summing up of the judge was the strictest interpretation

of the judges' answers of 1843, and was such as is rarely heard in an English court, unless the judge has made up his mind that the case he is trying is one in which the plea of insanity ought not to be admitted, and he therefore wishes to strengthen the hands of the jury, and render it easy for them to refuse to give effect to the plea. Whether the criminal code of New Zealand would allow, as our law does, greater latitude to the judge, in cases which it seems to him right to assume it, I do not know; but it seems that, with a free hand to draw up such a code as it pleased, and with all the experience of many countries to guide them, the Legislature of New Zealand has been content to adopt, without modification, the strict letter of the judges' answers as the rule in cases of alleged insanity. The fact is worth the consideration of would-be reformers and codifiers of our own law.

Rex v. Macgregor.

For the account of this case also I am indebted to Dr. Alexander, of Dunedin, N.Z.

The accused had for some years been manager of Sargood's factory. On July 27th Mr. Sargood found the accused in an office in the factory, in which he had been locked by the clerks. Mr. Sargood thought accused had been drinking, told him to leave the office and report himself next morning. There was a conversation, in the course of which accused spoke sensibly on matters of business, and also expressed the intention of taking his own life. He spoke of troubles he had had with his wife. Accused did not appear to resent Mr. Sargood's action in virtually dismissing him from the service. Between five and six o'clock the same evening, accused bought a revolver and fifty cartridges, and then engaged a cab to Mr. Sargood's private house. Mr. Sargood was at dinner, but accused had him called out, and without any words, fired at him at very short distance, hitting him in the face, but not killing him. The other diners ran out on hearing the shot, threw the accused down, and asked if he had killed Mr. Sargood. He said, "I hope so." When first seized, he said, "Yes, I have done it," and hoped he had not hurt anyone else. To all the

spectators, the diners, the gardener who ran in on hearing the shot, the police who were called in to arrest the accused, he appeared calm, rational, and sober, though he smelt of drink. To the shopman who sold him the revolver, the cabman who drove him to the house, and the maid who opened the door he appeared the same. To the police he spoke of his child and wife, and hoped the ordeal he had now to go through would bring the latter to her senses. On the following morning, however, he said, "I don't even know where I got the revolver; I have no 'down' on Mr. Sargood; why should I? I shall have to admit it. What could a lawyer do?"

The fact of the shooting was admitted. The defence was that there was no intention; and the desperate straits to which counsel was put, in advocating this view, may be judged from his contention that the fall of the accused on the floor, when he was first apprehended, so disordered his mind that no importance was to be attached to what he said at the time. Counsel contended, in short, that the act was the act of a broken-hearted, reckless, drunken madman, and that there was no intention to murder. It was the familiar defence that though drunkenness is no excuse for crime, yet it may, by depriving the accused of intention, excuse him from punishment. The plea of insanity was not raised.

In summing up, the judge said that if a man by reason of drunkenness did not know what he was doing, or was incapable of forming an intention, he would not be guilty; but the judge pointed out that the buying of a revolver and cartridges, loading the weapon, going to another man's house with it, and shooting that other man, were inconsistent with absence of intention. The jury must devote their attention mainly to this question of intention. If the accused had a delusion that Mr. Sargood had done him a wrong, and did the act to avenge that wrong, then, even if the delusion existed, that was not sufficient to justify a verdict of not guilty on the ground of insanity.

The jury acquitted the prisoner, on the ground that he was insane at the time the offence was committed. (Mr. Justice Williams, *Otago Evening News*, n.d.)

The verdict gave rise to a good deal of unfavourable comment in the colony. The jury found the prisoner insane, although the plea of insanity was not raised by the defence, and in spite of the clear instructions of the judge, which

indicated very strongly that such a verdict was inapplicable to the case ; and there is no doubt that the verdict is indefensible, alike in logic and in law. The facts seem to be, however, that a great deal of sympathy was felt for the prisoner. It was known that the conduct of his wife had given him very great distress, and to this were attributed his intemperate habits. Mr. Sargood, the person chiefly aggrieved, had spoken in the witness-box most charitably and generously of the prisoner, had looked after the prisoner's child, and had disclaimed any resentment against him. The act itself was undoubtedly an irrational one, not traceable to any reasonable motive. The attitude of the jury seems to have been to consider, not under what technical legal description the crime could most logically be classified, but how the prisoner ought to be dealt with, admitting that he had done the act, but making allowance for the desperate trouble in which he was ; and they concluded that, while they must mark their reprobation of the crime, they would yet let the criminal down as lightly as possible. The verdict was against the strict letter of the evidence, and in the teeth of the judge's ruling, but it seems to have fitted pretty fairly the merits of the case.

Occasional Notes.

Benedikt : aus Meinem Leben.

Our distinguished and venerable colleague, Professor Moriz Benedikt, of Vienna, has given the world a most interesting account of his life, in a substantial volume of some 400 pages. He is a born traveller, has known distinguished men and many cities, and his interests are of the widest. For a quarter of a century he has been an honorary member of the Medico-Psychological Association and a kind friend to those of us who venture as far as his home in the Austrian capital.

Professor Benedikt begins with a clear account of his childhood, in well-remembered detail. At the time of his birth, July 4th, 1835, Austria was a feudal and autocratic state, yet his education was fortunate in the era of a new development of

liberal ideas. His earlier years were passed in Eisenstadt, whence he removed with his father to Vienna in 1845. Professor Benedikt records his interest in music from his childhood. That form of fine art has always deeply impressed him. As a youth, he was excited to physical pain by a performance of Beethoven's "Ninth Symphony," and he was so roused by the music of Don Giovanni that he rushed through the streets for hours in a snowstorm until he was sufficiently calmed to seek his bed. The fine arts generally have always affected him deeply, and much of his book is occupied with reminiscences of architecture, paintings, sculptures, etc., for he enters on the details of *wanderjahre*, campaigning, journeyings to Italy, Turkey, Russia, Northern Europe, and so on. Thus the experiences and opinions of Professor Benedikt are not merely referable to affairs of medicine, but elucidate the laws, the customs, the ideals of a great variety of nations in an intensely personal and critical spirit, which is continually illumined by the kindly humour which is characteristic of the man. Evidently strong opinions dominated him from youth onwards. He says that he was a fanatical deist of the Jacobi materialist school, and just as fanatical in his morality, so that adverse opinions were most painful to him. Having early arrived at the decision that he could not be a creative mathematician, he made up his mind to study medicine, with the mental reservation that he would devote himself to experimental work. Professor Benedikt's decision has proved fruitful and happy. While yet a student he read politics with avidity, finding sustenance in *The Times*, *Journal des Debats*, *Independance Belgique*, *Angsburger Allgemeine*, especially in the supplements—a fair selection of representative *weltpolitik* for a medical student.

Professor Benedikt refers to his first journey and his troubles with his outfit. Besides well-nailed shoes, a pair of tweed trousers and a smock frock, he carried a heavy cloak and an umbrella. His slight reserve of underwear went in his pockets with the faithful *Baedeker*. One day he was reading *The Times* in an inn, when two ladies whispered to one another something about "the mad Englishman," so he exclaimed in Wiener jargon "Zoolen!" which no doubt completed the little surprise.

Professor Benedikt records his early appreciation of Rembrandt and the masters of the old German school, and he recalls an æsthetic ecstasy in London when he first entered the

chapel of Henry VII. He was so moved that he incontinently expressed his admiration to a young Englishwoman, who recoiled from him with trepidation.

These brief extracts from his travel pictures may have one more illustration. When he was retracing Rokitansky's footsteps in Paris, Professor Benedikt overheard a conversation between two pathologists. "Who is the successor of Rokitansky?" "A certain Heschel." "And who is Heschel?" "The successor of Rokitansky." So have we heard the mere man described as Mrs. Blank's husband.

On his attaining his degree in surgery, three days before the Battle of Solferino, Professor Benedikt desired to enter the army and was posted as surgeon. This part of his career gave him a large experience in campaigning, before he returned to Vienna to resume civil life. Griesinger visited him, to have a course of electro-therapy before his removal from Zurich to Berlin, at a time when Griesinger was combating the opinion of Remak that the seat of the soul is in the base of the brain, and when he was instructing Hitzig and Eulenberg and many others. A remark on specialists might be quoted, although there is so much of interest that we can only present a very few opinions within these narrow limits. Professor Benedikt has no fear of the specialist. When he believes that a patient should consult a physician or a surgeon with exceptional qualifications he so advises him, on the ground that although the patient may have full confidence in his adviser's competency he must further have confidence in his recommendation of another.

Passing over many chapters on foreign countries, we may refer to his first arrival in London in the early seventies. London specially attracted him, with its wealth of historical monuments which had been familiar to him in description since his early childhood. It is characteristic that Professor Benedikt made short stay in the Terminus Hotel, where he was precluded from smoking his cigar in his bedroom, and hurried to the National Gallery to study Turner's pictures. At a later date, 1884, Professor Benedikt became more intimate with the medical profession of this country. He refers to his studies of criminology, and his declaration against the existence of an absolutely free will, and the stupid remark of a Viennese dignitary to the effect that "Benedikt wanted to save all crimi-

nals from punishment." The sum and substance of his opinions in this respect are to be found in the *Journal of Mental Science* for 1884, p. 592.

Professor Benedikt declares that one of the happiest times in his life was spent in Glasgow in 1888, when he was promoted to the degree of LL.D., and replied for the guests at the subsequent banquet, referring to the ladies as exquisite poems, and concluding with the expression of his surprise that we islanders remain so clear-sighted in the midst of so much fog.

No doubt these long and varied memoirs will find many readers among those whose motto is *quidquid agunt homines*; and we congratulate Professor Benedikt upon his latest achievement, wishing him long life and happiness in all his journeyings and studies which are not yet ended.

The Cost of Providing Asylums.

The County Councils Association has had under consideration the cost of providing asylums and isolation hospitals, and we publish in "Notes and News" a reprint of the information given in reference to asylums by *The County Council Times* of February last. The important letters of the English Commissioners and Mr. Hine will be read with sustained interest, for the questions at issue are of special importance. The latest developments in asylum architecture at Aberdeen (Kingsseat) and at Edinburgh (Bangour) are widely different from the plans of the last century. Perhaps the earliest indication of these new ideas is to be found at Chester, where Dr. T. N. Brushfield erected a separate building for chronic patients. Of late years separate hospitals served to show that good results would be obtained by proceeding further on the same lines, and the success of Alt-Scherbitz has encouraged the new system at home and abroad. It would appear that the time has come when the Association might profitably engage in a discussion on asylum planning. Mr. Hine's letter directs attention to many important points, and his great experience and authoritative opinions cannot fail to awaken renewed interest in this practical subject, which intimately affects the insane and those directly responsible for their welfare.

Prosecution in Lunacy, Scotland.

Nearly fifty years have elapsed since any legal case has been brought into the Scottish Law Courts in connection with certificates of insanity. A feeling of fancied security naturally evolved in consequence of this record of successful administration has now been rudely shaken. In fact, it has become necessary to amend the Scottish Lunacy Acts on the lines adopted in England, while somewhat strengthening the position of the medical profession where the English law undoubtedly requires strengthening.

The circumstances are briefly given in a circular letter which we transcribe. It is signed by Dr. W. L. Reid as chairman, Dr. Reid being the President of the Faculty of Physicians and Surgeons of Glasgow, and by Dr. Crawford Renton, acting as secretary :

“Two members of our profession in Glasgow, Dr. John Carswell and Dr. Marion Gilchrist, have recently been subjected to an unjustifiable and vexatious prosecution for granting the certificates necessary for placing a patient in an asylum.

“The patient was undoubtedly insane when admitted, and required asylum care; but insanity was denied, and alleged irregularities in the signing of the certificates were made the ground for an action at law and a demand for ten thousand pounds damages from each of the certifying doctors.

“After a prolonged trial in the Court of Session, the verdict given was entirely in favour of the Defendants, with expenses. The prosecutor is, unfortunately, quite unable to pay, and the expenses must be defrayed by the defenders themselves. The result is that although declared blameless they are jointly mulcted in fully £900.

“Such a hardship demands not only sympathy but practical help. It will appeal to every member of the profession, and we as a committee ask your kind assistance in raising a suitable fund.

“The Treasurer is Dr. W. G. Dun, 15, Royal Crescent, Glasgow.”

We are glad to observe that the subscription has had the active support of members of the Medico-Psychological Association, as well as the general body of medical practitioners; but it is a great wrong that the profession should be mulcted

in damages in this way. Dr. Carswell and Dr. Gilchrist were engaged in the execution of a statutory duty, which they performed with due care on sufficient grounds. Dr. Carswell has been distinguished by his work in avoiding certification during the many years of his large experience in Glasgow, and it is the very irony of fate that this action should have been raised against him of all men. However, the wrong has been inflicted, and it is for us to secure a real and lasting redress. No doubt the General Board of Lunacy, the Scottish universities and colleges, and the various medical associations of the kingdom will unite in prompt and energetic action. The times are not propitious for parliamentary interference, but the medical profession can hardly afford to make that an excuse for delay. While we commend the kindly and generous movement which will no doubt relieve these unfortunate doctors of the heavy financial strain imposed upon them thus needlessly, we are bound to proceed still further in seeking a remedy and urging it on Parliament without delay.

Part II.—Reviews.

The Fifty-fourth Report of the Inspectors of Lunatics (Ireland), for the Year ending December 31st, 1904.

The most notable fact recorded in the inspectors' Report is the great reduction in the annual increase of insane persons, which only amounted to 202 during the year 1904, the corresponding increment for the previous year having been 656 and the average increase for the past ten years 534. This is a big jump in the right direction, but it would be only venturesome to build much on the figures for a single year; nor will it be warrantable to infer any reduction in the rate of increase of insanity until such has been maintained for a number of years in succession.

From the summary given in the Report we learn that the total number of insane under care increased from 22,794 to 22,926 during the year 1904; the increase in district asylums being 521, in private asylums 21, in the criminal asylum, Dundrum, 6, while the number located in workhouses decreased by 340. This latter figure, however, cannot be regarded as a normal average, as out of the above total 220 were sent from workhouses to the Youghal Asylum, an incident which is not likely to be repeated within the limits of a single year. In 1880 the proportion of the total number of insane under care was in district asylums 67 *per cent.*, and in workhouses 27 *per cent.* In 1904 the corresponding

ratios were 81 and 14 *per cent.* respectively, showing that there has been a gradual depletion of workhouse patients by transference to district asylums. This process is bound to continue, and ought to do so, until there is not a single insane patient left in any workhouse. The reports on individual workhouses at the close of the Blue Book show that while there has been a decided improvement in the condition of the insane accommodated there, which undoubtedly dates from the entrance into office of the present inspectors, yet in almost all the standard of care is still far, very far, below what it ought to be, and in many the state of the insane poor is utterly discreditable to the local authorities—some of whom seem to be quite incapable of realising their duty towards their helpless charge; and as their attention has been repeatedly called by the inspectors to more or less glaring defects of management, it is to be feared persistence in old and long since condemned methods of dealing with the insane is quite as much due to want of will on their part as of knowledge or ability to carry out such salutary changes as are indicated. The admissions from workhouses in the year 1890 were 396, or 12·79 *per cent.* of the total admissions; in 1904 they numbered 1010, a percentage of 25·83 of the total. The proportion of these patients is thus seen to have doubled in the course of fifteen years. There are still over 3000 insane confined in workhouses, and even if the rate of transference from these institutions to asylums should continue to increase at its present ratio, a very long time must elapse before the process can be completed. In 1901, the last census year, of the total number of insane in workhouses, 2651 were stated to be lunatics and 1181 idiots. District asylums are not suitable places for such as belong to this latter category, and it is a blot upon State administration that no special institutions are as yet provided by Government for the care, and the training where possible, of this most hapless class of the insane. For the lunatic section proper the local authorities do not show much inclination, so far, for making any special provision for the harmless insane in the shape of auxiliary asylums constructed in a less expensive style, and capable of being maintained on a cheaper scale than is possible in district asylums, as has been so frequently urged upon them. Youghal Asylum is the only experiment of this kind as yet initiated; and, while the methods of management which have been thought fit to be adopted there are objectionable and reactionary, some economy in cost of maintenance as compared with that of other asylums appears to have been effected, as from Table XIX we learn that the net average cost per head of maintenance in district asylums was £23 12s. 10d. and that of Youghal Asylum £19 5s. 3d., or 18·5 *per cent.* lower.

The total admissions decreased by 40, the first admissions by 22, and re-admissions by 18—facts which the Inspectors hold go to refute the opinion so generally entertained that insanity is rapidly increasing in this country.

The recovery-rate was 36·3 *per cent.* on the admissions. In the ten years 1893–1902 the average recovery rate during the first quinquennium was 38·4, and in the second 36·4. This lower ratio is thus seen to be maintained, and is no doubt largely due to the increase in the admissions of senile and incurable cases.

The death-rate was 7·8 on the daily average, being slightly higher than the average for the past ten years—7·47. This is about four times as high as the average death-rate of the general population of Ireland. In England the proportion is 6 to 1; but the English death-rate in asylums averages about 10 *per cent.* This lower death-rate, as has been previously noted, goes far to explain the greater amount of accumulation in Irish asylums, and the consequent apparently greater amount of insanity in proportion to population.

Consumption, as usual, heads the list of mortality with 418 deaths out of a total of 1449, a percentage of 28·8 on the total mortality, the average for the past fifteen years being 27·6. It is regrettable that statistics show no improvement in this respect, rather the contrary. In England the relative mortality from phthisis in county and borough asylums is 17·5 (1904), so that it is evident that the disease is much more fatal in Irish than in English asylums. Two points, however, should be noted here: First, that a large number of general paralytics in English asylums develop phthisis (according to Dr. Crookshank at least 25 *per cent.* die with advanced phthisis), and these deaths are probably in the vast majority of instances assigned to the paralysis and not to the phthisis; and, secondly, consumption is far more prevalent amongst the sane population of Ireland than in England, the mortality in the former country being 56 *per cent.* if we take the ratio of deaths per million of population, and 63 *per cent.* if we take the percentage of all causes, higher than it is in England. The lowest mortality from phthisis was in Belfast Asylum, where it was only 9 *per cent.* of the total mortality, and the highest in Kilkenny with a percentage of 47·8. The mere fact of such very wide discrepancies in the death-rate from this cause in different asylums goes far to prove that there is an intimate connection, not between phthisis and insanity generally, but between phthisis and asylum life, the conditions in one institution being more favourable than those in another for the development of the disease. How else is the fact to be explained? It might be thought that a high asylum death-rate prevails where there is a similar high rate amongst the general population. This is far from being the case. As regards phthisis among the general population Dublin heads the list, and no doubt there is a correspondingly high rate in its district asylums, over 30 *per cent.* But Antrim comes second in its general phthisical mortality, whereas Belfast asylum can show the lowest rate of all Irish asylums, being only 9 *per cent.* Down comes next to Antrim, third highest in general phthisical mortality, while in Downpatrick Asylum the death-rate from consumption is fifth lowest. These facts are difficult to explain, and a hard nut to crack for those who support the theory of an essentially intimate connection between phthisis and insanity apart from the effects of asylum life.

Fifty-six deaths were due to general paralysis, a ratio of 3·8 *per cent.* of the total mortality; 43 of these occurred in the Dublin and Belfast asylums; the remaining 13 were distributed over nine asylums, while in twelve no deaths from this cause were recorded. This is only an additional proof, if such were needed, that general paralysis is a disease of towns and cities, with probably in nine-tenths of the cases antecedent syphilis, a disease from which the rural districts of Ireland

are comparatively free. In 1890 the deaths from this disease were 26, in 1904 they numbered 56, apparently a large increase, but even so, as the inspectors remark, the proportion of cases is much below that recorded in other civilised countries. The backward condition of Ireland, in fact, as regards industries and trade which are generally correlated with an aggregation of population in large towns, is one of the chief causes of the rarity of general paralysis in this country—some small compensation for being behind the times!

In only 286 cases out of 1449 deaths were *post-mortems* held, a proportion of 19·7 *per cent.*, an unfavourable contrast with what is done in English asylums, where one reads of autopsies being made in 90 and even 95 *per cent.*

In sixteen out of the twenty-four asylums enteric fever occurred, but with the exception of Cork Asylum there was no serious outbreak. In Cork 100 patients were attacked, and 21 of the staff, with a fatal result in 18 cases. While the drainage was found to be in good order, “some of the sources of water supply were far from being pure.” The practice of boiling the water before use was then adopted, after which the outbreak steadily subsided.

As to the causes of insanity in the cases admitted, hereditary influence is recorded in 901 cases, or 23 *per cent.* of the total; and drink in 310 cases, or barely 8 *per cent.* These figures almost certainly largely understate the extent to which both these causes operated in the causation of insanity, but, as pointed out on previous occasions, the table of causation at present in use is necessarily so inaccurate as to be practically worthless. As long as only one cause is allowed to be given the return is only misleading, and it is a question whether it would not be better to omit it altogether. In the amended tables drafted by the Statistical Committee of the Association a very carefully compiled table of causation, perhaps rather too elaborate in the opinion of some, has been prepared, which, if adopted, will help more than anything else to give a true idea of the actual extent of the influence of any one factor in the causation of insanity.

In practically half (49·2 *per cent.*) of all the admissions mania was the form of mental disease, melancholia in 31·8 *per cent.*, dementia in 9·5 *per cent.*, congenital insanity in 4·2 *per cent.*, acquired epilepsy in 3·3 *per cent.*, general paralysis in 1·3 *per cent.*, and insanity doubtful in 0·4 *per cent.* In recent times it has been stated that melancholia is a more prevalent form of insanity than mania. This does not appear to be the case in Ireland, although the number of acute cases (826) slightly preponderates over those of acute mania (802). But the chronic and recurrent cases of mania outnumber those of the same varieties of melancholia by almost three to one (960 to 334).

Twelve and a half *per cent.* of the admissions were over sixty years of age and 7 *per cent.* over sixty-five years of age. Twenty years ago these ratios were 8·4 and 4 *per cent.* respectively.

To sum up, the chief points brought out by this Report are: A considerable reduction in the amount of the annual increase of insane persons. The increase of patients in district asylums was 521, or 7 over that of the previous year. A large decrease in the number of insane in workhouses. The admissions decreased by

41—first admissions by 22, re-admissions by 18. There are, therefore, no grounds for believing that there is any rapid increase of insanity in Ireland. The recovery-rate has been falling during the past ten years. The death-rate remains practically stationary. Deaths from phthisis constitute 28·8 *per cent.* of the total mortality, those from general paralysis 3·8 *per cent.* Cases of mania (except acute cases) largely preponderate over those of melancholia. The proportion of senile cases continues to increase.

In the course of the past year a special Report on the increase of insanity during the ten years ending December 31st, 1903, was called for from the medical superintendents of all the district asylums. A general report on the subject based on these individual Reports will shortly be issued by the inspectors. We await its publication with interest.

Tics. By Dr. HENRY MEIGE. Paris : Masson, 1905. Pp. 39, large 8vo. Price fr. 1. 25.

In this little volume of the *Monographies Cliniques sur les Questions Nouvelles en Médecine, en Chirurgie, en Biologie*, Dr. Meige presents a clear and methodical statement of a subject with various aspects of which he has often dealt before. What in France is called the "tic" is in England frequently called the "habit spasm." The author insists that it is important to distinguish it from other conditions to which it has a superficial resemblance. He wishes to reserve the name "spasm" for the result of the irritation of one end of a reflex arc, a simple reflex in which the cortical centres take no part. On the other hand, it is necessary to exclude those habitual stereotyped gestures like wrinkling the forehead or twisting the moustache. The tic as thus bounded may be defined as an act, originally directed by an external cause or by an idea and co-ordinated to an end, which by repetition becomes habitual, and is finally reproduced involuntarily, without cause and without aim, with exaggeration of form, intensity, and frequency.

The intimate connection between the tic and abnormal mental states has long been recognised. Charcot stated this very emphatically, and Brissaud declares that every person with a tic presents a special mental condition of eccentricity. Meige considers that while imitation, mental work, (mental laziness also), and especially bad education, may all have a considerable influence, the part played by neuropathic and psychopathic heredity is capital. But the tic is accompanied by no uniform mental state. A lack of harmony in the working of the mental faculties seems most prominent, and there is a certain versatility and instability, a notable imperfection of will. Meige (whose studies of infantilism are well known) considers that persons thus affected show numerous stigmata of mental infantilism. The resemblance of the tic to the obsession is obvious, and there is a real relationship between the two phenomena, which may be found co-existing in members of the same family and sometimes in the same individual.

All the leading varieties of tic are considered in succession, those affecting the muscles of the eyelid taking precedence. As regards

treatment, the author finds that drugs, electricity, and massage are all alike unable to confer any real or permanent benefit, the only methods of treatment likely to prove efficacious being those founded on the methodical regularisation of psychomotor acts, such as rational systems of gymnastics. The little monograph will be found a compact and useful summary of the subject.

HAVELOCK ELLIS.

Christianity and Sex Problems. By HUGH NORTHCOTE, M.A.
Philadelphia : F. A. Davis Co. (London : Medical Supply Association), 1906, pp. 257.

Although many books have been published during recent years on the problems of sex, both from the scientific and the popular side, there was certainly room for the book which Mr. Northcote here presents to us. The author writes as a clergyman, not as a scientific man (though his book is issued from a well-known medical publishing house), but he succeeds in avoiding altogether the narrow and dogmatic tone which is usually thought necessary by those who discuss these problems from the standpoint of religion and morality. His work thus stands on quite a different level from the ignorant and foolish pamphlets on sex questions which are nowadays scattered broadcast over the land. But though not himself a physician, Mr. Northcote is in touch with the most recent scientific literature of his subject ; he not only has the scientific temper, but during a long residence in distant lands, especially New Zealand, he has made many useful observations ; his book may thus be read with interest and instruction even by the scientific student of sex.

It is, however, the reasonable, temperate, and humane tone of this book which leaves the most abiding impression on the reader. The author has no fads to air. His conclusions on most points seem to be fairly orthodox and conservative. But he always recognises the difficulties, and discusses them fairly and squarely. In dealing, for instance, with the question of chastity outside marriage he protests against the attitude of those religious writers who profess to ignore the sufferings and risks that are frequently entailed. He never adopts the tone of authority, but while occupying a broadly Christian standpoint, he believes, with Aquinas, whom he frequently quotes, that the conclusions of theology cannot be at variance with those of reason.

The author discusses, in order, most of the sexual questions which the average individual encounters in the course of life. A wise chapter is devoted to sexuality in childhood. With most writers on the subject, he believes that the growing boy ought to receive a certain amount of instruction and warning as regards the facts of the sexual life ; in view of the frequent diffidence of parents in speaking to their children on these matters, he considers that the task can be most fittingly entrusted to the family physician. If a headmaster or chaplain speaks separately to boys at school on these points, the lecture soon becomes a mere matter of routine and of joking to the boys, who compare notes. On the ground of his own experience and observation, the author attaches little value to the co-education of the sexes, and thinks that, as usually

carried out, it has no special influence on the sexual life. As regards masturbation, he takes the reasonable and temperate standpoint now generally adopted by expert opinion. In discussing the evil done by quack literature on this subject, he states his belief that the influence of quackery in this field has been largely gained by a tendency on the part of the medical profession to treat with indifference the minor but still real troubles of the sexual life. The author's position in regard to prostitution is that, as a moral question, Government is not entitled to interfere; the general question of prostitution must be left to education and to moral and religious influence. But in so far as prostitution is an agent for spreading venereal disease, Government is bound to interfere, and Mr. Northcote argues forcibly against those who suppose that Government regulation implies approval of prostitution. He recognises that all cases of venereal disease should be reported to a central medical authority, and dealt with as they arise, with all possible privacy and consideration. Sexual perversion is not discussed in detail, but the author touches, with due tact and reticence, on homosexuality and algolagnia as the two perversions most apt to arise. In the same spirit Mr. Northcote proceeds to deal with the questions of marriage, frigidity, neo-Malthusianism (the modern tendency in this direction being, under some conditions, approved), adultery, divorce, etc. It is not possible always to accept the author's conclusions, but he usually sets forth fairly the two sides of a question, and his opinion is always entitled to consideration and respect.

Religion and sex, and the region in which the two meet, furnish, as we know, a field into which the unbalanced mind is irresistibly attracted, and eagerly seeks for food which usually proves unwholesome. It is satisfactory to find a book in this field which is likely to be beneficial rather than injurious even to the most sensitively morbid soul—a book in which the claims of morality and religion are set forth with full recognition of the not less imperative claims of science and common sense.

HAVELOCK ELLIS.

Die Sexuelle Frage [The Sexual Question]. By AUGUST FOREL, Munich. : Reinhardt, 1906, 5th edition. Pp. 623. Large 8vo. Price 8 mks.

Professor Forel has always taken a catholic view of the alienist's functions. Throughout his career he has occupied himself with the most various psychic phenomena, from the aptitudes of ants to the mysterious workings of the subliminal consciousness. Nor has he at any time shirked the responsibility of the physician to declare fearlessly the claim of medicine to be heard in the reasonable ordering of social institutions. Now, in old age, having come to the conclusion that every man ought to set forth his beliefs in regard to so vitally important a problem as that of sex, he has written this book, which he describes on the title-page as "a biological, psychological, hygienic, and sociological study for cultured people," and dedicated it to his wife. It is without doubt the most comprehensive, and, taking into account its many-

sidedness, perhaps the ablest work which has yet appeared on the sex question. This seems to have been understood in Germany, for, although the book can scarcely appeal to any but very serious readers, 25,000 copies have already been sold, and this fifth edition appears within a few months of the original issue.

The author is undoubtedly well equipped for the gigantic task which he has set himself. A doctor of philosophy and of law, as well as of medicine, he is able to take a very wide view of the problem he approaches, while even on the medical side his interest in human life generally saves him from approaching questions of sex too exclusively from the basis of his asylum experience; and his sound and able discussion of pathological sexuality occupies a duly subordinated place. There are certainly serious disadvantages in Professor Forel's ambitious scheme, and it cannot be said that he has escaped the defects of his method. The various aspects of the sex problem are now highly specialised, and it is impossible even for the most versatile person to be at home in all these specialties. Thus the author disclaims all competence in the field of ethnology, and in the chapter devoted to the evolution of the forms of marriage he avowedly follows Westermarck. He could not choose a better guide; but, as Dr. Westermarck would be the first to admit, the *History of Marriage* was written some years ago, and needs to be considerably re-written in the light of many important contributions to knowledge which have appeared since. In any case, a mere summary of another man's work is somewhat out of place in a book like *Die Sexuelle Frage*, which relies so much on its author's vigorous intellectual independence. Dr. Forel shows his independence in his attitude towards other writers on the same subject. He explains at the outset that he makes no reference to the work of others in this field, but is only concerned to set forth his own results. This attitude, however, he is unable to maintain, and it thus happens that while some authors receive an exaggerated amount of attention in his pages, others of at least equal importance are not so much as mentioned.

It is certainly in the independent personality of the author, and in his wide and mature outlook on life, that the value and interest of the book mainly lie. While it is scientific in tone and temper, it can scarcely be said to bring forward any really novel contribution to scientific knowledge. The sociological section seems the most fundamental part of the book, and the author puts forward many striking and courageous suggestions in matters of social reform, more especially with reference to the influence which the growing sense of the importance of heredity and of the future of the race should exert on actual practice. Thus he does not hesitate to suggest that when a wife is sterile it should be possible for the husband, without the dissolution of the marriage, to form another recognised relationship; and he likewise argues that a healthy woman should be free to become a mother, even outside marriage, should she so desire. He wishes to confer on women many rights and privileges which they do not now possess; the wife should be recognised as supreme in the home, her right to the children should always be regarded as stronger than the father's, and the children should take the mother's name. The author is an uncompromising champion of neo-Malthusian methods, though by no means opposed to large families

when the parents are able to breed and bring up healthy children. He is a fierce antagonist of alcohol, from its influence on heredity, and he denounces the money basis of sexual relationships, not only in prostitution but in marriage, as a potent cause of the deterioration of the race. Many of his proposals, it will be seen, are likely to arouse not merely doubt, but very decided dissent. It is, however, impossible not to recognise that the book is the work of a vigorously intellectual, courageous, and practical physician who desires reforms which are by no means always so rash and hasty as a bald statement of them may suggest. He looks forward to no Utopia, and expects that in the future, as in the present, human passion and human meanness will still continue to be manifested. He believes, nevertheless, that a day will come when much that now flourishes almost unquestioned will be looked back upon in the same spirit as we look back on the burning of witches, the doings of the Inquisition, and the instruments of torture preserved in our museums. In so far as we have aided to bring about that time our children's children will weave a wreath in our honour, "though they will wonder how it is they sprang from such a barbarous stock, and have to count so many drunkards, criminals, and blockheads among their ancestors."

HAVELOCK ELLIS.

The Principles of Heredity, with some Applications. By G. ARCHDALL REID, M.B. London: Chapman and Hall, 1905. Pp. 860, demy 8vo. Price 12s. 6d.

Dr. Reid is already known as a bold and original thinker through his works on *Alcoholism* and *The Present Evolution of Man*.

He begins by laying down that there are three well-known doctrines of evolution—the Lamarckian, which attributes evolution to the transmission of acquirements; the Darwinian, which attributes it to natural selection; and the Bathmic which attributes it to an inherent adaptive growth force. Dr. Reid adopts the Darwinian doctrine, and dismisses the last one as savouring of the miraculous, without affording any explanations of the primal origin of life, with all its wonderful potentialities. Although the author tells us that there is "no third alternative," we are not logically bound to accept any one of these hypotheses. Epicurus used the science of his day to frame a theory that the world was a self-acting machine. Since then mankind has had to wait twenty-two centuries for a new theory sufficiently plausible. Nevertheless, considering that this modern theory is exposed to some insoluble objections, one has a right to suspend his judgment and await further discoveries. Our author makes light of objections. "We are told," he writes, "that the electrical organ of the torpedo cannot have been created by natural selection, since in its feeble beginnings the organ cannot have been so useful as to influence the survival rate." To this Dr. Reid is content to reply that "whenever this objection is raised we may be sure it refers to some case concerning which our knowledge, especially our historical knowledge, is defective. Almost always it refers to some soft structure which has left no fossilised remains." In a similar way Dr. Reid can see

no difficulty in what staggered the veteran evolutionist Mr. A. R. Wallace, how the higher mathematical faculty could be evolved in the mere struggle for existence. The mathematical faculty, our author observes, "is merely a particular manifestation of the general faculty of making acquirements." Dr. Reid presents his hypothesis of natural selection as if it stood on as sure a foundation as the law of gravitation or combining proportion; yet one cannot well overlook that Professor Yves Delage⁽¹⁾, in his work on heredity, begins a carefully reasoned chapter with the axiom that the weak individual variation never leads to the formation of new species.

This distinguished zoologist, who is a neo-Lamarckian, says that Darwin committed a double blunder when he assigned to natural selection a power which it does not possess and when he supported his argument by appealing to methodical selection—that is, the artificial propagation of varieties by breeders of animals.

But though natural selection, the survival of the fittest, will not explain everything, there is no question that Dr. Reid applies it successfully and with great ability to many social events in the history of mankind. His chapters upon acquired immunity from diseases show much power of thought. He points out how diseases being prevalent leave the surviving population less liable to be infected, and how, coming upon new people, they cause greatly increased mortality, as measles did in Samoa, and whooping-cough in New Guinea. This is also exemplified in malarious fever. He observes that acclimatisation is but another name for natural selection. In a work covering so much ground it cannot be expected that the author should be able to verify all his statements, and so he has missed a good opportunity for illustrating his views by the spread of syphilis. Dr. Reid has allowed himself to be persuaded by an authority whom he trusted that this disease was well known to the Roman physicians and was common in the Middle Ages. The passages cited to support these assertions are vague and shadowy. Whether syphilis came from America or not, there is no doubt that an outburst of it appeared in the last decade of the fifteenth century, recognised as a new disease by Villalobos, the physician of Charles V, who gave the first real description of it, and that it spread through Europe with astonishing rapidity. Since then it has occupied the attention of medical men and others in a way and measure never before noted. Though now much milder, it seems to attack the nervous system more severely than it formerly did.

In the chapter on narcotics Dr. Reid shows the utter failure of the attempts to suppress drunkenness by prohibitive legislation, and explains his original theory that immunity from the craving for intoxicants has been obtained for the peoples of southern Europe by the slow elimination of the drunkard going on for centuries. Yet we can do without such tardy processes and long periods. Looking back across the last fifty years, I recognise a very marked decrease in the too convivial habits of the middle classes in Scotland, due, not to the passing away of the drunken and their offspring, but to improvements in knowledge, manners, and morals. A notable decrease in the drink bill in England has recently been shown by Dr. Dawson Burns. We lack precise knowledge about the relative prevalence of drunkenness in ancient times,

but it is worthy of notice that the nations who drink wine or beer seldom go to such excess as those who use distilled spirits—brandy, whisky, gin, rum, schnapps, absinthe. The distillation of spirits, lighted upon in the twelfth century, affording a rapid and cheap means of intoxication, is one of the worst abused inventions ever made.

Dr Reid has thoughtful chapters on instinct, automatic action, reason, mental evolution, and methods of religious teaching. We particularly relish his acute remarks on methods of scholastic teaching, in which he attacks the waste of mental power in the enforced learning of the dead languages and the heavy tolls which the examiners compel our youth to pay ere admitted to the real study of medicine.

Our author, who adopts the views of Weismann on the non-transmissibility of acquired characters, has to make nice distinctions between natural variations, inborn acquirements, and constitutional predispositions. He holds that racial differences are principally acquired. He is alarmed at the increase of insanity in civilised countries, and predicts that if means be not adopted to check the output of the mentally unsound they will multiply until the State is no longer able to bear the expense of their maintenance.

Dr. Reid deals with the subject of insanity principally by quoting other authors. He is not satisfied that either the alcoholic excess or the strain of life is the cause of the increase in the number of lunatics, though partial repression may account for it. Here we come to a problem which Dr. Reid scarcely touches. Is hereditary insanity the result of variation in the germ, favoured by some unlucky chances, or is it an acquired character, perhaps gradually gaining strength through generations, till it becomes innate? This is, we apprehend, the view favoured by most physicians conversant with insanity. It is supported by the experiments of Brown-Sequard, who showed that, through certain lesions of the nervous system, guinea-pigs could be rendered subject to epileptic attacks and the epilepsy passed to their progeny. Other instances of acquired diseases becoming hereditary are furnished by Delage, p. 230, and unless these statements can be disproved it can scarcely be denied that some acquired diseases may be continued by inheritance.

In conclusion, though I have freely expressed dissent from some of Dr. Reid's opinions, I can recommend his book as containing many important observations and good material for thought, expressed in an able and entertaining style.

WILLIAM W. IRELAND.

(1) *L'Hérédité et les grands Problèmes de la Biologie Générale*, par YVES DELAGE. Deuxième édition, Paris, 1903. Pp. 912, royal 8vo.

Quelques Résultats de l'Examen des Preuves Historiques employées par les Auteurs traitant de l'Hérédité. Par le Dr. NÆGELI-ÆKERBLOM. Geneva, 1905. Pp. 81.

The author, a physician practising in Geneva, has for several years back devoted his leisure to historical researches connected with the problems of heredity. His inquiries on the occurrence of twins follow

ing certain families have already been noticed in the Journal for April, 1903. In the present pamphlet Dr. Naegeli-Aekerblom severely criticises Jacoby, Ribot, Déjerine, Galippe, and others who have not been sufficiently careful of the facts which they have presented to support their theories. The worst offender is Dr. Jacoby, whose *Études de la Selection chez l'Homme*, come to a second edition, have been crowned by the Academy of Medicine of Madrid. One cannot wonder that a Swiss author is provoked by Jacoby's assertion that in Switzerland, although every one can read and write, the mass of the people are stupid and coarse. Literature and art scarcely exist, and science with few exceptions is represented by strangers. Jacoby allows a little merit to the Canton of Geneva, but observes that the few great men of Switzerland were born when that people, "thanks to the contact of French emigrants, rose above the endemic goitrisism." Most of these great men he claims to be of French or Italian origin. With relentless diligence Dr. Naegeli-Aekerblom follows the errors of the Frenchman, entering into details which we cannot here reproduce. Coming to English history, we note that Jacoby calls the sons and daughters of Henry IV the children of their brother Henry V; but Naegeli-Aekerblom calls them his uncles and aunts. We are willing to believe this to be a misprint of Henry V for Henry VI. The Swiss author asks what is the source of Jacoby's assertion that Queen Elizabeth had atresia vulvæ. Probably it comes from Isaac Disraeli, who, in his *Curiosities of Literature*, has adduced some evidence tending to support this view. In blaming Jacoby, who observes that James II of England had a very bounded intellectual capacity, his critic rejects the authority of Macaulay, who says "all the evil possible of the Stuarts because they were inclined to Catholicism." That historian's dislike of the Stuarts was owing to their incorrigible strivings to obtain absolute power, not to their tendencies to the Catholic faith.

Dr. Naegeli-Aekerblom, in a trenchant passage, tells us that the genealogies of princely families which are quoted in current medical publications are made up of impossible dates—women married when three years old, dying without children at ten, or credited with having been mothers before they were born or after they died. Some stated to have died without posterity in the fifteenth century have descendants still living; others reputed to have passed away at an early age through want of vitality were really assassinated or killed in battle. He gives well-deserved praise to the laborious work of Brachet on *The Mental Pathology of the Kings of France, Louis XI and his Ascendants*, which covers a period of six hundred years.

We shall look anxiously for the publication of Dr. Naegeli-Aekerblom's own historical researches in heredity, which, as he informs us, have now been pursued for twelve years.

WILLIAM W. IRELAND.

Part III.—Epitome.

Progress of Psychiatry in 1905.

AMERICA.

By Dr. WILLIAM McDONALD, JUN.

The annual letter to the *Journal of Mental Science* might, perhaps, acquire an added interest for British readers if the writer should begin with a reference to psychiatric affairs in Canada.

At the sixty-first annual meeting of the American Medico-Psychological Association, held at San Antonio, Texas, April 18th, 1905, Dr. T. J. W. Burgess⁽¹⁾ chose as the subject of his presidential address "The Insane in Canada." The address was of such exceptional value and so full of interest that the present writer will be pardoned, he is sure, if he draws rather heavily in quotation and reference from the remarks of Dr. Burgess.

Having given a *résumé* of the evolution of the Canadian asylum system, Dr. Burgess called attention to the fact that Quebec is the only province of the Dominion in which there is no State institution for the care of the insane. He protests against the "farming out of human beings by the provinces," and the contracting "with private parties . . . for the maintenance of lunatics."

"The Province of Nova Scotia, though possessed of as well managed State asylums as could be desired, is yet behindhand in that it has since 1866 sanctioned the erection of county asylums, and in many cases combined county asylums and poor-houses. . . . At the present time there are eighteen of these structures which, according to the *Report of Public Charities* for 1904, house sane adults, children, insane patients, imbeciles, and epileptics."

"In the Province of New Brunswick it is much to be regretted that the Government, on account of the overcrowded condition of the provincial hospital, is contemplating a resort to the Nova Scotia system." A commission has been appointed which is to report to the Government with a view to the selection of those patients who, being supposed to be harmless, can be sent back to their friends or to county almshouses. "To carry out such retrograde legislation will be to sully the record of a province which has heretofore always steadfastly declared against the incarceration of lunatics, even temporarily, in prisons or poor-houses."

"At present in New Brunswick perhaps the greatest existing defect in connection with the insane is the method, or rather lack of method, of commitment to the provincial hospital. . . . A patient can be conveyed to it with only a line from a doctor." Hospital authorities are not advised beforehand that a patient is coming, and often no history whatsoever is furnished.

Ontario, the wealthiest province, has always endeavoured to keep up

with the advance of science. Its asylums are State institutions in the fullest sense of the word.

In Prince Edward Island idiots and imbeciles are sheltered in the poor-house.

In Manitoba and British Columbia the asylums are State institutions and well conducted, though at present sadly hampered by the constant and pressing necessity of providing sufficient room, owing to the mass of immigrants that have been flowing into these provinces during the last two or three years.

Dr. Burgess calls attention to the great increase of insanity in Canada, an increase which he attributes partly to the greater stress of modern life, but also very largely to the lax immigration laws. With Dr. G. F. Blandford (2) he agrees that the only remedy which can greatly alleviate this condition is by "so educating public opinion that those who have been insane, or are threatened with insanity, shall . . . abstain from bringing into the world children who must certainly contain in them the potentiality of insanity, and so will hand on the heritage from generation to generation till the race dies out." As a further means of prevention of the increase of insanity, Dr. Burgess is in accord with Dr. G. Alder Blumer (3), who has pleaded so earnestly for the exclusion of defective immigrants from the United States. Dr. R. M. Bucke is quoted by Dr. Burgess as follows: "There are associations formed in England for bringing out to Canada what are called 'gutter children' from the slums of England, Scotland, and Ireland; thousands are brought out by these organisations. 'He has continued his wild and restless conduct, and has now been shipped off to the Colonies' is a phrase made use of in the *Journal of Mental Science* in a description of a case of the kind now in question."

Dr. Burgess says that the most pressing Canadian requirements at present are separate accommodations for idiots, epileptics, inebriates, and for the criminal insane; proper means for the segregation of tubercular patients; some arrangement for the temporary relief of friendless convalescents; abolition of political patronage in asylum affairs. He gives the surprising information that there is not a single separate institution conducted on modern lines for the care of imbeciles in the whole Dominion, and that Canada is even worse off as to epileptics, though Ontario has recently taken steps to right this wrong by founding an epileptic asylum at Woodstock. In Canada, there is no provision for the segregation of criminal insane. There are accommodations for the segregation of tubercular patients only at Rockwood. For the relief of friendless convalescents, he recommends the organisation of "After-Care Associations." Lastly, he calls for the abolition of the spoils doctrine, saying that merit has little weight, especially in Ontario, as against "political pull."

In conclusion, he says that "while with respect to custodial care and ordinary treatment, moral and medical, Canada, generally speaking, is well up to the times, she is, however, doing little toward the solution of the many problems connected with the psychiatric aspects of insanity. In this respect she presents but a sorry picture compared with the work being done in hospitals elsewhere."

It hardly seems fair for a physician of the United States to use in

criticism of the psychiatry of Canada the words of a Canadian psychiatrist, but to Canada's credit be it said that the very fact that she has such psychiatrists as Dr. Burgess, not only awake to the crying needs, but working bravely to satisfy them, is a star of promise and an indication of progress already begun.

As to the United States, unquestionably truth must force us to admit that in many States conditions are not superior to those of Canada. In other districts, however, strenuous work is being carried on toward a betterment of existing evils. One could scarce read the address of Dr. John B. Chapin⁽⁴⁾, at a dinner given in honour of the completion of the fiftieth year of his connection with psychiatry, without feeling some comfort in what has already been accomplished in the United States toward the alleviation of the sufferings of the mentally ill. The retrospect presented by him of the changes which have taken place within his own memory is most startling. He says that in 1854 there were but twenty-seven State and incorporated hospitals for the insane in the United States; that at that time physicians must go abroad for training in psychiatry. In that year, there was but one State hospital in New York, and patients, for the most part, were herded in the county poor-houses. "It is no matter of surprise that in 1854, and for ten years succeeding, the betterment of the care of the insane poor in New York State was a dominant problem in the minds of physicians and persons benevolently inclined when the public conscience was once fairly awakened, for there were as many then in chains in the poor-houses of that State as when Pinel removed the iron restraints at the Salpêtrière in 1792."

Among the striking changes noted by Dr. Chapin in his fifty years' experience may be mentioned the almost complete abolishment of mechanical restraint, the establishment of numerous training schools for nurses in hospitals for the insane, the development of the plan for hospital structure so that a much more scientific classification and a better segregation is obtained. Moreover, the treatment of patients with mental disease is vastly improved. The scientific use of various methods of diversion, of occupation, of amusement and labour has been of enormous value in improving the condition of these patients. The substitution of the term "hospital" in place of "asylum," and the constantly increasing tendency to regard the patient with mental disease as a subject for scientific medical care rather than for forced restraint, indicate the elevation of the science of psychiatry.

Of late, the clinical study of mental diseases has received in America its greatest impetus from the teachings of Kraepelin, whilst, at the same time, the last year has seen something of a reaction from the blind and uncritical eagerness with which his classification was at first adopted, so that at present it is not true, as a recent French writer has hinted, that in America all cases of mental disease are called *dementia præcox*, but that, on the contrary, the close observation of patients and exact record of symptoms are taking the place of the former apparent desire to class the patients at any cost according to some artificial nosological system.

As we have touched the matter of classification, it may be well to mention in passing that in America Kraepelin's term *das manisch-depressive irresein* has been taken over literally into English, and as *manic-depressive insanity* is coming more and more into general usage. The

term *melancholia* is the subject of much discussion, and it has been hinted from many sides that we might even well dispense with the name entirely, in that those cases which have been so designated could more suitably be classed with other psychoses, and in particular with the depressed phase of maniac-depression troubles. Janet's *psychasthenia* has attracted widespread attention, and the name has been quite favourably received as an appropriate appellation for a large portion of patients heretofore included in other psychoses, particularly for certain patients formerly classed as neurasthenics.

In the line of psychiatric writing and publication, the past year has seen, as has every year in every country, much that is worthless and of the character which "subtracts from the sum-total of human knowledge"; on the other hand, all that has appeared in print may not be so classed. Within the year, an American psychiatrist, Stewart Paton⁽⁶⁾, has published a book of most excellent quality, by many reviewers acknowledged to be the best American text-book; also many valuable articles have appeared in the journals, and there is prospect of some excellent studies in the future.

In the different hospitals, conditions vary so that it is difficult to give in a few words any adequate estimate of the type of American psychiatric work as a whole; but, in general, it may be said that the tendency is toward the establishment of all that is modern and best approved in the psychiatric world. The work in the New York State hospitals is particularly advanced. Certain of the larger New England hospitals, and here and there western and southern institutions, are giving promise of strenuous effort toward the advance of our struggling science, while many of the private incorporated hospitals are in the front ranks of progress both as to the care and the study of the insane.

The *observation wards* for the study of patients with mental disturbance will soon be a feature of many of the large general hospitals. Establishment of the *psychiatric clinic* is specially significant of the forward march. In these clinics, patients can be studied for a time without the necessity of committing them to an asylum, and only later, when distinct mental disease of sufficient importance has been diagnosed, are they transferred to institutions for mental diseases. Several of the larger universities have already established, or are about to establish, such clinics entirely separate from the pre-existent *department of nervous diseases*. In connection with at least two universities, these clinics are provided with a number of beds and with all modern arrangements for the comfort and welfare of the patient, who may be kept under observation until sufficient study shall have determined the wisest course to pursue as to future disposition.

At one time, it was not unusual to hear the statement that the only hope of solution of psychiatric problems lay in the study of pathological anatomy, and there were feverish expectations of finding suddenly in these studies the explanation of the psychoses. This dream of earlier pathology has been largely dissipated, and, after a short period of discouragement, in which was commonly heard the complaint that the value of pathology in mental diseases had been widely exaggerated, there has at last appeared a more rational attitude toward this invaluable work, and now systematic, consistent, and faithful pathological routine

is more common. Regular *post-mortem* examinations are held whenever possible. Moreover, the enormous value of the study of the cerebro-spinal fluid has been appreciated on all sides, and the employment of lumbar puncture for diagnostic purposes is becoming quite common. Many workers are busy with examinations of the blood, the urine, and the stomach contents, while the most delicate chemical examinations are being prosecuted at several places, notably at McLean Hospital. The chemical examination of the cerebro-spinal fluid as carried out by Dr. Isador Coriat at Worcester Hospital, is a work of particular value. A number of the younger men, by prolonged study in Europe, have gained an up-to-date knowledge of microscopic technique, but, unfortunately, few hospitals, and these for the most part only the larger State institutions, can afford, or think they can afford, to employ the services of a competent pathologist.

In the matter of medical jurisprudence, the psychiatry of America is far to the rear. The laws governing commitments and judgments as to the mental condition of the individual are in many States of the crudest variety.

One who reads the French and German psychiatric journals must note with admiration the space given to discussion of medico-legal problems. The interpretation of laws regarding the commitment of the insane, their treatment, testamentary capacity, legal and criminal responsibility, and the guardianship of their property are, in France and Germany, questions calling for most careful consideration and most conscientious study, while it is the psychiatrist who points the way to the jurist in the framing of new laws and the amending of old. In those countries, a criminal whose sanity is in question is turned over to the psychiatrist, who may keep him under close observation until he is able to reach a just decision, which he thereupon certifies to the court, which acts accordingly. There it is the psychiatrist who lectures to the young jurist, enabling the latter to enter upon his profession with such knowledge at his disposal as may forward the cause of justice toward the unfortunate insane.

How widely different, on the other hand, stands the matter in America! Only occasionally does one find the psychiatrist writing upon medico-legal matters. It is thus primarily the sin of omission of the psychiatrist which leads to the long train of shameful occurrences which in America pass under the name of "medico-judiciary proceedings." The alienist does not receive the trust of the judge, the jury, or the jurist. His opinions are frequently thrown out of court in contempt, and it is even hinted broadly in courts of justice that medical testimony can be bought for either side of a case or trial, its conclusiveness being in direct ratio to the amount of money expended. Shame on the legal profession, and shame on the medical profession which allows such a state of affairs to exist! Again and again one reads in the daily papers of miserable, though perhaps curable, insane victims who have perished on the scaffold or in the electric chair in punishment for some act for which they would never before their Creator be held responsible, and in every such case so-called mental experts have sworn away the prisoner's life or have had, on the contrary, their testimony in favour of the accused thrown out of court by an obstinate or uncomprehending jury.

In a condition of affairs where many of those who end their days upon the scaffold are manifestly insane and irresponsible, and where in certain States it is the boast that no jury has ever acquitted a so-called murderer on the plea of insanity, it is high time that outraged humanity should find champions in the psychiatric profession who will demand as the primary step toward the righting of these wrongs the *absolute and universal abolishment of capital punishment*, a practice which at best is but a horrible and degenerated relic of savagery.

As to the matter of procuring the discharge from hospitals for the insane of individuals who are no longer thought to be insane, the laws at present in many States are such as not to promote the welfare either of the community or of the patient. It is well, of course, that laws should be so framed as to prevent incarceration, but they should also safeguard the community by keeping a stringent observation on the dangerously insane. In New York, of late, a judge has trespassed, in at least two instances, on the territory of the hospital physicians, and has summarily ordered the discharge of patients manifestly insane and unfit to live without restriction in society.

We are still suffering from the traditions of bygone centuries, when certain individuals had the power of life and liberty over others, and of later times, when, perhaps too often for private reasons, individuals were wrongly accused of insanity and were "put away" by friends for the rest of their lives. In the United States at least, one can frequently see relics of a belief that hospital authorities are willing to take and to hold anyone committed to their care regardless of their state of mind. It is a more or less general opinion that once within these walls it is a difficult thing for a patient to regain his liberty. These same absurd concepts are quite in keeping with the widespread and erroneous conception as to insanity itself. It is looked upon as a stigma, as something to be hidden from the public gaze. The average citizen thinks of a hospital for the insane as a place where raving lunatics howl and fight. So strongly have these conceptions of mental disturbance connected themselves with the word "insanity," that Dr. G. Alder Blumer, in the last Report of Butler Hospital, recommends the absolute abandonment of this term. At the bottom, however, the prevalent misconceptions as to insanity and the insane depend largely on a lack of knowledge of and want of confidence in the character of the alienist. There has been good reason for this lack of confidence. The work in insane asylums has been so unattractive that the asylum staff has often been composed of the most incompetent men, physicians who would find it difficult to earn their living in any other branch of medicine, but who have remained in the hospital simply because of a lack of sufficient initiative to abandon a work in which they have found no interest. The conflicting evidence of so-called medical experts on the witness stand is also not of a variety to establish public confidence. It rests with the alienist himself to dispel this distrust by taking, on the one hand, a more altruistic interest in medico-legal affairs and, on the other, preserving an honest and unselfish attitude in courts of justice.

Dr. F. E. Daniels⁽⁹⁾ in the Address of Welcome given to the members of the Medico-Psychological Association at its sixty-first meeting in San Antonio, Texas, speaking of the medical jurisprudence of Texas, calls

attention to the fact that forty-two to forty-four distinct forms of insanity are known to science, while but two forms, the natural and acquired, are mentioned in the laws of Texas. In New Hampshire, New Jersey, and Texas, the knowledge of right and wrong determines responsibility, and, in the latter State, is the test dividing the sane from the insane. Dr. Daniels also points out the absurdity of a situation in which, where experts disagree as to the mental state of an individual, "twelve farmers, mechanics, tinkers, and tailors, and candlestick makers, day labourers, and what not," are called in to give the final decision.

In America, the work of the alienist and psychiatrist has but just begun, and enormous fields of labour remain scarcely touched. A fair estimate of the work here would grant, however, that there has been marked progress in the year that is past, and that there will be progress in the future as well. The same estimate, however, must admit that the advance is none too rapid, and that there is much to be accomplished. It is unquestionably true, as Dr. Farrar (¹) says, that in multitudes of hospitals and asylums psychiatry is a dead letter, and that "the number of staff physicians is small and composed perhaps largely of men who have no aptitude nor liking for laborious research. A meagre routine examination recorded, possibly on a stereotyped printed sheet, together with the subsequent treatment of symptoms which arise, may constitute the entire history of the case. Under such circumstances it is useless to expect illuminating psychiatric investigations to be carried through. We have thus to do with the lamentable situation of *the most difficult problems which science has to present being left in the hands of men the least able to solve them.*" But the picture is not so black as might seem to be indicated in this quotation. The writer quoted is not one of the men least able to solve such problems, and, fortunately, our American psychiatry in the last few years has been able to raise up a number of similar workers whose heart is in their labour and who *have* both an aptitude and a liking for laborious research.

(¹) "The Insane in Canada," *American Journal of Insanity*, July, 1905.—(²) Dr. G. F. Blandford, Presidential Address at meeting of the Psychological Section of the British Medical Association in 1894.—(³) Dr. G. Alder Blumer, Presidential Address at Washington, 1903.—(⁴) Remarks at a dinner given to Dr. John B. Chapin, Philadelphia, December 1st, 1904, to celebrate the completion of half a century in hospitals for the insane.—*American Journal of Insanity*.—(⁵) *Psychiatry: A Text-Book for Students and Physicians*. STEWART PATON, M.D. Philadelphia and London: J. P. LIPPINCOTT Co. 1905.—(⁶) Address of Welcome, *American Journal of Insanity*, July, 1905.—(⁷) "The Methods of Late Psychiatry," *American Journal of Insanity*, January, 1905.

DENMARK.

By Dr. A. FRIIS.

The progress of psychiatry has not been marked by any event of great note during the past year.

The asylum at Viborg has been enlarged, and has now accommoda-

tion for 700 patients, 320 males and 380 females—all chronic cases. The new part of the asylum consists of six buildings, two larger ones for 100 patients each, and four smaller ones accommodating 40 patients in each.

The total accommodation in Denmark is now about 4,200 beds, almost the total number of insane according to the census of 1901.

FRANCE.

By Dr. RENÉ SEMELAIGNE.

Dr. Regis, of Bordeaux, recently published a third edition of his *Précis de Psychiatrie*, which, revised, corrected and augmented, is quite a new work.

After an historical sketch, the first part is devoted to general pathology. The author studies predisposing causes, general or individual; occasional causes, psychical, physiological, and pathologic; and he successively reviews evolution, duration, terminations, complications, and prognosis. Before undertaking a full description of every variety of psychopathics, he makes a study of the morbid elements of which they are constituted and divides such elements in two categories: (1) elements contributing to form the *psychopathies maladies* or psychoses, which are functional; (2) elements contributing to form the *psychopathies infirmités*. In the first class are psychical and somatic disorders. The psychical are disorders of ideation, perception, affectivity, consciousness, and personality-activity. (A) Disorders of ideation include: (1) delirious ideas and delusions, acute or chronic, absurd or possible, coherent or incoherent, generalised and diffuse or circumscribed and systematised; (2) affections of memory and attention. (B) Disorders of perception include every kind of hallucination and illusion. (C) Amongst the disorders of affectivity are morbid emotionalism, anxiety, and obsessions. There are three groups: (1) disorders of general activity, such as excitement, depression, etc.; (2) disorders of language, either spoken or written; (3) disorders of action, such as impulsiveness. The somatic disorders concern: (1) the functions of the nervous system; (2) sleep; (3) the organic functions. The disorders of the nervous system affect: (1) sensibility (external sensibility, either general or especial, and internal or organic sensibility); (2) motivity; (3) trophic and vaso-motor functions.

The *psychopathies infirmités*, or psychical infirmities, include all defects of organisation or stigmata of degeneracy, either physical or psychical.

The second part is devoted to special pathology. Psychoses are generalised or essential. Generalised psychoses are mania, melancholia, lypemania, *folie à double forme*, mental confusion. Essential psychoses or systematised insanities include insanity of persecution, ambitious insanity, religious insanity, erotic insanity, etc. Psychical infirmities show two varieties: (1) psychical infirmities of evolution or degeneracy which arrest and impair the body in its organisation and its develop-

ment ; (2) psychical infirmities of involution, which disintegrate and debilitate the body subsequently to its development. Psychical infirmities of evolution or degeneracy might be subdivided into : (1) discordancy, including instability, originality, eccentricity ; (2) degeneracy, including mere degeneracy and degeneracy with psychoses or psychoses of the degenerate ; (3) monstrosities, including imbecility and idiocy. Psychical infirmities of involution, or *déchéances*, constitute primary dementia, either simple or with a psychosis.

Mania might be subdivided into acute, chronic and cyclical. Acute mania has two varieties—genuine acute mania and subacute mania or maniacal excitement. Genuine acute mania is a psychosis characterised by a severe and extravagant psychical excitement, with an adequate reaction of general activity and of all the organical functions. Subacute mania or maniacal excitement exhibits a variety of degrees, from a mere superactivity of mind to the extravagant excitement of acute mania. There is usually present a morbid heredity. Chronic mania, seldom primary, is usually secondary to acute mania, being one of its terminations. Sometimes chronic mania is simple, sometimes with secondary systematised delusions. Cyclical mania offers two varieties : (1) remittent mania, an uninterrupted insanity with exacerbations ; (2) intermittent mania, an insanity which is alternately succeeded by a normal state. Heredity or degeneracy is usually present.

Melancholia or lypemania likewise presents three varieties—acute, chronic, and cyclical. Acute melancholia might be divided into (1) genuine acute melancholia with delusions, an anxious and a stuporose form ; (2) subacute melancholia, or melancholic depression, or melancholia with consciousness. Genuine acute melancholia is a generalised psychosis characterised by a painful psychical concentration, with an adequate reaction of general activity and of all the organic functions. Melancholia with consciousness is more frequent among women, and is often hereditary. Chronic melancholia is either simple or united to secondary systematised delusions, such as delusions of negation. Cyclical melancholia is either remittent or intermittent. The intermittent form presents two varieties : (1) genuine or periodical intermittent melancholia, with sudden onsets ; (2) remittent melancholia which only appears two or three times in a life. The mania-melancholia, or *folie à double forme*, is a generalised insanity characterised by a regular succession of melancholico-maniacal attacks—*i. e.*, attacks constituted by a melancholic period followed by a maniacal one, or *vice versa*. *Folie à double forme* is either circular or intermittent.

Mental confusion exhibits three varieties : (1) general mental confusion ; (2) acute mental confusion ; (3) chronic mental confusion, or *démence précoce*. Genuine mental confusion is a generalised psychosis characterised by a torpidity, a toxic numbness of psychic activity, sometimes going as far as its suspension, with or without a delirious oneiric automatism, and with an adequate reaction of general activity and of the various organic functions. The principal causes are intoxications and infections. The symptoms are psychical and somatic. There are essentially two psychical varieties—a simple or asthenic, and a delirious. In the simple or asthenic mental confusion might be observed, cerebral torpidity, obtuseness, disorientation, confusion of

mind, amnesia, and disorders of perception, affectivity, consciousness, personality, and of activity. Delirious mental confusion, or oneiric delirium, appears in the infectious or toxic diseases; it is as a delirium of morbid dreams, of somnambulism, and of *état second*. Patients affected with such deliria are active dreamers, and, like somnambulists, when they awake they may have either an imperfect recollection of the attack or none at all. Acute mental confusion has three varieties: (1) a form with stupor, or *stupidité*; (2) a variety with excitement, or acute hallucinatory confusion; (3) a meningitic confusion, or *délire aigu*. The acute mental confusion with stupor, or *stupidité*, is an asthenic mental confusion which has reached its height, and the patient presents an appearance of health. In the acute hallucinatory confusion, instead of prostration, there is more or less violent excitement; this form is essentially curable, notwithstanding it might be followed by another form of mental confusion or become chronic. The meningitic mental confusion, or *délire aigu*, has an infectious origin, and is generally fatal. Chronic mental confusion, or *démence précoce*, previously drawn attention to by Willis, described by Morel in his *Études cliniques*, was afterwards studied in Germany by Kraepelin, Kahlbaum, and Hecker. Dr. Regis does homage to the work of these distinguished German authors, but does not accept their description without reserve, observing that *démence précoce* is not essentially a disease of adolescence, and that it does not offer one peculiar symptom of its own; a katatonic state might be observed in various neuroses and psychoses, and further, that, as the disease does not always lead to dementia, recovery may occur. According to him, *démence précoce*, and especially its katatonic variety, is a psychosis of the higher psychical functions and of their organs, which, having a toxic or infectious origin, might, as all the toxic lesions of nervous cells, lead to repair as well as to partial or total disintegration. Thus could be explained the recoveries, remissions, and incurability.

The progressive systematised psychosis is a chronic form of insanity, essential, without any disorder of general activity and of the various organic functions, and characterised by an hallucinatory systematised delirium which shows a progressive evolution and ends in a transformation of the personality (delirium of persecution of Lasègue and Falret, chronic delirium of Magnan, chronic primary dementia of German authors). There are three periods: (1) a period of disquietude or subjective analysis (hypochondriacal insanity); (2) a period of delusional interpretation (delusions of persecution, religion, erotism, politics, jealousy, etc.); (3) a period of transformation of personality (ambitious delusions).

The degenerated might be divided into three varieties. (1) The unstable, or *dégénérés supérieurs*, who might be subdivided into discordants, originals, and eccentrics. Among such patients, the constitutional taint is indicated by some characteristic psychical signs, such as instability, excitability, obsessions, morbid impulses. (2) The genuine degenerate, or *dégénérés moyens*. Among them we find a mere degeneration (feeble mind, or mental debility) and a degeneration with psychosis, also called hereditary insanity, or insanity of the degenerate, or *folie morale*. They exhibit obsessions, morbid impulses, or complete

psychoses, such as delusions of self-accusation and persecution, and melancholic persecution, delirium of primary systematised auto-accusation and hypochondriacal systematised delusions, acute systematised delusions, systematised delusions of interpretation, "reasoning" delusions, or delusions of *pésecutés-pésecuteurs*. (3) The *dégénérés inférieurs*, such as imbeciles and idiots. Psychical infirmities of involution, or *déchéances*, are essentially characterised by a *dissolution* of the psychic being; there is not, as in degeneracy, a defect of organisation, but an acquired disorganisation of the mental faculties. The clinical forms are dementia, primary or secondary.

A large part of the work is devoted to a study of symptomatic or associated psychopathies of exo-intoxication, auto-intoxication, infectious and nervous diseases. Among psychopathies of intoxication from an external origin, alcoholism is the genuine type; also saturnism, morphinism, cocaine-poisoning, pellagra, *paludisme*, etc. Among the psychopathies of auto-intoxications there are (1) special auto-intoxications, such as gastric intestinal, hepatic, renal, cutaneous, genital, thyroid, etc.; (2) general auto-intoxications, such as diatheses, over-exertion, inanition, traumatism, surgical causes, insolation. Psychopathies of infections are either acute, such as in enteric fever, influenza, pneumonia, eruptive fevers, diphtheria, etc., or chronic, such as in syphilis, tuberculosis, cancer. Psychopathies of nervous diseases might be the outcome of abscess of brain, encephalic tumours, cerebral arteriosclerosis, apoplexies and softening of the brain, tabes, insular sclerosis, syringomyelia, Parkinson's disease. An important chapter is devoted to general paralysis. Psychopathies might also appear in neuroses such as epilepsy, hysteria, chorea.

The third part of the book deals especially with the practice of psychiatry—diagnosis, treatment, and care. In the last chapter, are successively studied legislation for the insane in France, public and private asylums, admission, management and discharge of lunatics, and various questions concerning medico-legal practice.

All those who take any interest in mental diseases must read the work of Dr. Régis; here they will find a complete account of the actual state of psychiatry.

GERMANY.

By Dr. JOH. BRESLER.

The annual meeting of German alienists at Dresden, April, 1905, discussed largely the question of the housing, care, and treatment of idiots and feeble-minded. It was regretted that the direction of many institutions for idiots and epileptics was still in the hands of clergymen and teachers. The members of the Association agreed to send a resolution to the Boards, wherein a protest was expressed against laymen having the direction of these institutions. A long report on the actual state of the question was given at the meeting by Professor Dr. Weygandt at Würzburg (*vide* "*Ueber Idiotie*," Halle a. S., 1906).

At the same meeting it was urged that in the institutions for compulsory education (*Zwangserziehung* or *Fürsorgcerziehung*) psychiatry should have more influence, because many of the pupils are psychopaths.

In the treatment of excitement the use of permanent and prolonged baths becomes more prominent. At the same time, our knowledge of the conditions where these baths are not advisable becomes more exact, and there is no doubt that this form of treatment is by no means a panacea for all forms of insanity. In the private asylums, too, the use of prolonged baths has now been introduced in spite of all the administrative difficulties and the objections of the relatives (*vide* Erlenmeyer at Bendorf, *Psychiatr. Neurolog. Wochenschrift*, vii, 1905, No. 37).

The family care of the insane (*familienpflege*) becomes with us more and more extensively practised.

The efforts made by the Prussian military boards to avoid the levy of psychopaths by making inquiries into the antecedents of the recruits and giving instruction to the officers on the symptoms of abnormal psychic states, and by early observation of incipient insanity in soldiers, etc., have been described in a little book by Strieker and Ziehen, Berlin (*Feststellung regelwidriger Geisteszustände bei Heerespflichtigen*, etc.), which merits the interest of alienists.

Latterly much attention is given to the employment of female nurses in the male wards, and we follow with the greatest interest the experiments made in England in this direction (*vide* the articles of Hoppe and Engelken in the *Psychiatr. Neurolog. Wochenschrift*, vii, 1905, Nos. 30, 42.)

The dearth of physicians in the asylums, a consequence of insufficient pay and social position, has reached such a degree that the progress of psychiatric science and practice is in great danger. The salaries of physicians have now been raised in nearly all public asylums, and we hope that the inclinations of the medical world for asylum work will be stimulated and progress maintained.

HOLLAND.

By Dr. F. M. COWAN.

Professor Jelgersma, in a lecture delivered before the Medico-Psychological Society, discussed the several theories of hallucinations, and, after giving a review of the doctrines of various authors, old and new, put forward a theory of his own. He criticised Wernicke's theory of "sejunction," which he considers insufficient to explain facts: (1) because it is well known that the contents of hallucinations are closely connected with the contents of consciousness—*i. e.*, with the sensations, thoughts, and the will (both present and past). In fact, we may see disturbances echoed in hallucinations. (2) According to Wernicke, only what is observed after the process of separation can form the substratum of hallucinations. This is decidedly incorrect; clinical observation teaches us that the entire bygone life may furnish material for hallucinations. Taking into account the importance of our

senses, Jelgersma divides them into three classes, *viz.*, (1) sight; (2) hearing; (3) the remaining three senses—taste, smell, and common sensation. Though we do not think in visual images, still our recollection of the outer world lies chiefly in them. As soon as these visual images grow more complicated and intricate we substitute a word for the complex; the word then forms, as it were, an algebraic sign or formula; when we hear the word, it evokes all the component parts.

Sensation, smell, and taste form only simple combinations, and they, too, when they grow complicated, must have recourse to the word to express what is felt. Besides, they are what we may call sentries to guard against danger threatening the organism.

This division corresponds to Wernicke's classification of our psychical life into an "allopsyche, autopsyche, and somatopsyche."

Jelgersma does not agree with Wernicke's assertion that an observation attentively and systematically made must always be a genuine one for him who made the observation. When, for instance, we go through a lane our careful and thorough observation tells us that the lane narrows; still, we do not believe our observation, we know it to be false. Jelgersma proposes to make a separate class of hallucinations of representation or recollection. It is a characteristic point that these hallucinations are mainly hallucinations of sight; they are repetitions of bygone events which unexpectedly rise to consciousness. Hysterical hallucinations are very good instances.

In the other group a patient may hear a voice telling him he is a king, for instance. The consequences, however, are widely different; the patient not only implicitly believes the message the moment he receives it, but ever afterwards. He acts up to it and behaves accordingly; he subordinates all his observations and thoughts to it, thus developing a new system of delusions in order to explain and justify his hallucination, and to subject the intact part of his mind to it.

Jelgersma remarks that a word represents an immense amount of simpler psychical processes—that, in fact, it is a condensation of sensations, thoughts, and volitions, and when the word sounds it is a compendium of all that preceded. Consequently, when a lunatic hears the words "Thou art king," this is not the commencement of the disease; much must have been going on in his mind. There must have been an idea of grandeur, there has been a sensation corresponding to it, there have been delusions justifying the idea, and as a result the hallucination appeared. The hallucination "Thou art king" is the objective auditory image projected outward.

Professor Winkler, of Amsterdam, as the result of a number of *post mortems*, gives it as his decided opinion that the most characteristic symptoms of shaking palsy are accounted for by constant structural changes. Perivascular gliosis is met with in the basal ganglia, especially in the lateral nucleus of the thalamus opticus, the tegmentum of the pedunculi, the pons, and in certain parts of the spinal cord.

The symptoms which characterise this disease—slowness of intended movements, hypertonicity of the muscular system, tremors—are only met with when these structural changes are present in the brain.

Whenever the organ of association is diseased its discharges can only be set free by a higher tension, and the expression is found to be slow-

ness of motion. Inhibition still is possible, but a sudden inhibition, so as to give free play to the automatic centres, cannot take place, consequently movements are delayed and slow. Inhibition by the organ of association is mainly weakened in parts innervated bilaterally, hence the peculiar mimical expression and the semi-flexed rigid attitude.

Another expression of the disease may be tremor, a tremor which is far from being simple; it has the character of automatism, it mimics spinning, making pills, etc. Its rhythm (allorhythm) is determined by a number of mechanical movements. It can only be explained as a conflict between the mechanism of inhibition and of automatism, while it ceases as soon as the automatic centres are masters of the field and no longer controlled by higher centres.

Considering the symptoms from this standpoint, it may be urged that they may appear in very different lesions—tumour, focus of softening, etc., not so, however, from a clinical point of view; clinically we make a difference between "Parkinsonism" and "Morbus Parkinsonii."

Parkinsonism may be entirely or partly developed; we may meet it in cases of tumour in the stratum intermedium, in the basal ganglia, or in the cerebellum, in cases of softening in these parts, and last, but not least, in insular sclerosis. Nor can we wonder to see it described by French authors as forming part of the symptoms of arterio-sclerotic dementia. At first sight, it would seem strange that it is not met with in cases of general paralysis. This led Winkler to carefully examine the spinal cord. In fact, the careful observer cannot fail to be struck by the numerous symptoms, which can only be referred to an affection of the cord, especially if he meets with a case in which apparently locomotor ataxy is combined with shaking palsy; the combination will prove to be only apparent, and Wertheim Salomonson clearly grasped the fact and proposed to give this seeming combination the name of "Tremoparalysis tabioformis."

Winkler has always found perivascular gliosis in the cords of patients suffering from paralysis agitans.

Dr. Muskens published a case of paralysis agitans, with its *post mortem*, which he observed whilst assistant to Professor Danor at New York, and describes the changes found, especially those in the cervical part of the cord.

Dr. Scholtens, Medical Superintendent to the lunatic asylum at Paramaribe (Guiana), gives an account of the results of abuse of *gânjâh* (hemp). There were 159 admissions; of these 59 were sufferers from this disease (27 *per cent.*), 46 being acute cases of the latter; there were sixteen recoveries (27 *per cent.*), 11 (19 *per cent.*) were discharged improved, 4 (8 *per cent.*) died, 15 cases (25 *per cent.*) became chronic. Legal measures taken to repress abuse of the drug had only poor results.

Dr. van der Kolk, of the Leiden Asylum, gave his results of a series of examinations of cerebro-spinal fluid obtained by means of puncture. He performed the operation seventy-nine times in fifty-four different cases. Van der Kolk comes to the conclusion that the operation is not a dangerous one, that, in fact, it may be ranked as any other puncture made for diagnostic purposes; he does not agree with Nissl, who considered it in the light of a surgical operation which required the consent

of relatives or, where these failed, of authorities. When performed in a properly fitted hospital or clinic the operation is only a trifling one.

He also concludes that the cytological examination of the cerebro-spinal fluid may give valuable information in doubtful cases of general paralysis, but van der Kolk cannot share the enthusiasm of Joffroy and Nageotte.

A royal decree has been issued regulating the care of lunatics who are boarded out in private dwellings. The inspectors in lunacy shall previously examine and approve of the dwelling before lunatics, inmates of an asylum, shall be received. These dwellings shall not be at too great a distance from the asylum. Inspectors in lunacy shall decide how many inmates shall be boarded in one house. No changes are to be made in the arrangements in the rooms unless such changes be approved of by these inspectors. The inspectors, judicial authorities, and the burgomaster shall have access at all times. Clause 6 orders that the Board of Governors shall regulate the boarding out, and shall decide whether boarders shall return to the asylum or not, etc., unless they delegate this power to the physician. This is a very weak point in these regulations. Experience has repeatedly shown that when a person becomes a member of a Board of Governors he, as a rule, develops delusions of grandeur, and within a very short time he is firmly convinced that he is a first-rate alienist and has nothing more to learn of mental science. I remember being once asked whether the governors of a certain asylum were elected from among the inmates. Now, as neither governors nor lunatics can be reasoned out of a delusion, a clause has been inserted giving the physician right of appeal to the inspectors; this will prove an endless source of quarrel and dissent, and might have been avoided by placing this purely medical matter in the hands of the medical man.

ITALY.

By Dr. G. C. FERRARI.

Italian psychiatry has made noteworthy progress during the year 1905, if not in the scientific field—and this for reasons which will be appreciated before long—in the practical field, which is no less interesting.

Of the practical questions the most interesting has been the publication, on March 5th, 1905, of the regulations for the application of the Law on Asylums and the Insane, mentioned in a previous letter to the *Journal of Mental Science*. These regulations have a special interest in that they define the law and bring it into force in all its parts.

It may be of interest to know the more general provisions made for governing the asylums, giving a *résumé* of the different sections in order.

The law first establishes that all asylums, public or private—it matters not what their size is, or under what name they exist—are considered as asylums, and are under this law.

It orders that all asylums, public or private, shall have a place, absolutely independent of the rest of the asylum, with a separate staff of attendants, for the reception of new cases. They are to have work-rooms, and, if possible, a farm for those patients who will employ themselves, also places for the isolation of the dangerous cases, those suffering from infectious diseases, and for those charged with some offence at law the investigation of which is proceeding. Water is to be of good quality and in sufficient quantity and the sanitation rational. There is to be a laboratory for clinical research, microscopic and photographic rooms, etc. There is also to be a separate section for criminals pardoned by reason of their mental state and those who become insane during their term of imprisonment.

The regulations, however, permit a patient to be cared for in a private house, but the medical director of the public asylum is made responsible for the treatment adopted. In all cases these houses are under the supervision of the provincial commission of vigilance, nominated by the Minister of the Interior, and constituted by the Prefect of the department, the provincial medical officer, and an alienist who has nothing to do with the asylums in that department.

All directors of asylums are requested to establish a school for the teaching of attendants and those who aspire to these posts. After two years no one can become an attendant who is not in possession of a certificate of efficiency after an examination by a commission of medical men not attached to the asylum. The course of instruction must be of at least six months' duration.

Among the rules for the care of the insane it is commanded that no person is allowed to resort to any means of restraint without an express order written and signed by a medical officer of the asylum. The penalty for contravention of this is a fine of 100 lire at least. A notice stating the penalties under the penal code relative to the responsibilities of those in charge of the insane is to be posted in common rooms of the attendants.

The regulations do not define exactly the ratio of doctors and attendants to the number of patients, which is supervised by the commission of vigilance.

There are a large number of precautionary measures against the possibility of arbitrary sequestration. The provisional admission of a patient to any asylum is authorised by a special order of the "pretore" or the local authority of public surety, or at the request of the parents, and after the declaration of a doctor who has no connection with the family nor the asylum to which the patient is going.

Those cases who have recovered are to remain under observation in the special part of the asylum for one month. As soon as the director of the asylum is satisfied that the individual, after a period of observation of not more than fifteen days' duration, is insane, he has to demand of the tribunal a definite order for the detention of the patient in the asylum proper. The penalty for infringement of this regulation is a fine of from 300 to 1000 lire.

In those cases where the patient has recovered and is not claimed by any friends, the medical director obtains an order for the discharge of the patient from the tribunal. If, on the other hand, the patient is

only improved and is able to rejoin his family, the medical director on his own responsibility can discharge the patient to their care, but he has to notify the tribunal and the authority for public safety. The mayors of the localities where the ameliorated insane reside have to send every four months a medical certificate regarding the mental and physical condition of the patient to the medical director of the asylum until recovery occurs.

The public would object to sequestration as arbitrary if left to the directors of asylums or to the authority of public safety. They are obliged to transmit without delay the demand to the tribunal or make pecuniary sacrifice in case of omission or delay.

The cost of maintenance of the lunatics, including idiots, imbeciles, chronic demented, etc., is charged to the department in which they live.

The supervision of all the asylums, both public and private, is placed with the Minister of the Interior, who exercises his control through a commission, of which we have already spoken, and by means of inspectors, who are required to visit the asylums at least once every two years.

The regulations have had, and will have still more, a beneficial effect on the asylums of Italy, because the absolute lack of a regular supervision on the part of the State has led to a sacrifice of the interest of the patients. The asylums have been overcrowded, there has been a want of provision for employing the patients, and an insufficient number of attendants and doctors.

The asylums will either have to be increased in size or new ones built, also working colonies, workshops, etc.

The absolute abolition decreed by the law of all means of mechanical restraint will necessitate a personal supervision more thorough and more efficient on the part of the doctors, who will have less time to give to scientific work in the laboratories, which up to the present has occupied the greater part of their leisure, as is shown by the high standard of Italian scientific psychiatry.

During the year 1905 scientific work has not been less than that of preceding years. The International Congress of Psychology, which met in Rome in April, had a section for pathological psychology, which was attended by a large body of alienists. Their work relating to abnormal infancy proved of great interest to the Congress.

The greater part of the scientific work which is being carried on at present is destined for the two International Congresses now being organised here. The Congress of Criminal Anthropology, which opens in April, 1906, at Turin, will do homage to Lombroso, who celebrates this year his scientific jubilee, and the Congress for "the Care of the Insane" will be held at Milan in September on the occasion of the International Exhibition. The latter Congress has a special importance for alienists (following the celebrated Congress at Anvers in 1902), because it will be organised after a plan giving a clear and complete idea of the state of the different questions relative to the more modern aspects of the care of the insane. The foundation of an International Institute for the prevention of insanity will be proposed, and the plans of the best asylums will be exhibited. It is hoped that the Government will grant facilities for the members of the Congress to visit the

more interesting of the asylums for the insane, criminal and otherwise, in Italy.

Two events especially have interested alienists in 1905—the transformation of the ancient society “*Società Freniattrica Italiana*,” and the nomination of Professor Bianchi, professor of psychiatry at the University of Naples and director of the asylum at Naples, to the post of Minister of Public Instruction. Professor Bianchi has, during the short time he has been minister, complained of the want of the scientific spirit in the world of education. He has endeavoured to enlarge the teaching of experimental psychology at the universities, but the Commission of Concours has limited as much as possible the efforts of Professor Bianchi, although his idea had the support on the Commission of psychologists of such eminence as Professors Morselli and Tanzi.

The saddest event has been the death of Professor Ezio Sciamanna, of Rome, which occurred in May last, a few days after the Congress of Psychology. He was a neurologist of great merit and a conscientious worker. At the Congress he fought against the doctrines of Flechsig and Bianchi relative to the functions of the prefrontal lobes. His place at the University of Rome has been taken by Professor A. Tamburini, professor of psychiatry at the University of Modena and director of the asylum of Reggio Emilia, an asylum which has the reputation of being the premier institute of psychiatry in Italy. The work done at this asylum was published in the *Rivista sperimentale di Freniatria*, which was founded by Professor Tamburini.

To the asylum of Reggio Emilia, the departure of Professor Tamburini will be a great shock, and will be felt throughout the psychiatric world of Italy, for Reggio Emilia has been latterly, so to speak, the nursery of the directors of asylums and professors of psychiatry at the Universities. Professor Tamburini is sure to vastly improve the psychiatric clinic of Rome, the work of which up to now has been performed under unenviable conditions, and it should be a matter for rejoicing that he goes to establish a more perfect system, which will be fruitful for the progress of science and the wellbeing of the insane.

SPAIN.

By Dr. W. COROLEU.

No year has been so poor in phrenopathic work in Spain as 1905. The Vasco-Navarro Asylum in the Nordish Provinces, at Pamplona, was opened in January. There is also a question of building one at Majorca, in Palma, for the Balearic inhabitants. The want of more suitable institutions for transitory and incipient cases continues to be felt.

The *Don Quixote* centenary—whether Cervantes wrote it or not in 1605—has deluged us with a flood of publications on mental pathology. A curious and widely-read article of Dr. Rz. Morini on the subject in the *Phrenopathical Review* has created the greatest interest. The Torrey-Alexander Mission has created a certain amount of interest in the medical world, and resulted in an article in the *Review* above referred to.

Our Universities do not encourage psychiatry, but a distinguished savant and teacher, Dr. Maestre, has alluded to the subject in his *Positive Psychology Essay*. In Barcelona, the forensic medicine students have had classes in the St. Baudilius Lunatic Asylum. Dr. Mata's great work on that science has been reproduced by Lozano Caparros, with valuable additions in the parts appertaining to insanity. It is much to be deplored that neither lawyers nor physicians encourage regular instruction in mental disorders by courses of lectures.

It is pleasing to record that in St. Baudilius a modern installation for radio- and photo-electrotherapy has been provided. Dr. Cueto has had some brilliant results in the surgical treatment of nervous diseases.

Phrenopathic statistics for all Spain have not yet been published, although the material required has been collected.

In a prosecution of anarchists in Barcelona a most entertaining case of so-called simulation occurred. The experts disagreed as to the mental state of the subject, a certain Picoret. The murder of Cardinal Casañas was not the outcome of insanity, and the murderer poisoned himself to escape the law, as did Mr. Whitaker Wright.

No new journal devoted to our specialty has appeared this year. The few that exist in Spain come from Barcelona. There is no psychiatric or neurological association; this is the more grievous as all other specialties have their own associations, some of them being very prosperous. It is to be hoped that better years are in store for psychiatry in this country.

Epitome of Current Literature.

1. Anthropology.

Materials for the Physical Anthropology of the Eastern European Jews.
(*Annals New York Acad. Sci.*, May, 1905.) *Fishberg, Maurice.*

Dr. Fishberg has already published important studies of the cephalic index and the pigmentation of the Jews. The more elaborate monograph which he now presents is probably the most valuable contribution yet made to the elucidation of an interesting but extremely difficult subject. The Jews of one country differ from the Jews of another country; to what is the difference due? Is it to be accounted for by an original diversity, or by the influence of environment, or by mixture with the peoples among whom they live? Dr. Fishberg is admirably placed for such an investigation. In New York he is able to study the immigrant Jews of many countries and to compare them with non-Jewish immigrants from the same country as well as with Jews long settled in America. In this way he has measured over 1500 Jews, while he also takes into consideration all previous measurements. The results are set forth in accordance with modern statistical methods. His study covers stature, girth of chest, head measurements and nose measurements, the facial index, and pigmentation. The average stature of Jews is

164.5 cm. (5 feet 4 $\frac{1}{4}$ inches), the range of variation extending over 52 cm., which is not large; not a single individual over 190 cm. was found. In girth of chest Jews show a deficiency, not indicating a racial trait but due to social conditions and tardy development. In stature consumptive Jews are taller than healthy Jews, but in girth of chest they are both absolutely and relatively below healthy Jews. Length of head Fishberg finds to be a more stable racial trait than breadth of head. The Jewish head form has a very small range of variability, it is mesocephalic, 50 *per cent.* of the individuals measured having a cephalic index between the limits of the four units 80 to 83 inclusive. It is curious to observe that the immigrant Jews (but not the Jewesses) in New York are more long-headed than the people of their race whom they leave behind; this seems to agree with Ammon's conclusions as to the long-headedness of people who are attracted to cities. The variability of the facial angle was considerable. The nose is the most variable of all the features studied. The straight nose is the most frequent, and is found in 57 *per cent.* Jews and 59 *per cent.* Jewesses. The hook nose, which is commonly supposed to be specifically Jewish, was not found to be specially characteristic. As regards pigmentation 80 *per cent.* Jews had dark hair; the Jewesses were somewhat fairer, a result which contradicts that reached by many observers. More Jewesses than Jews, however, have dark eyes (62 *per cent.* against 55 *per cent.*)

At every point in the course of this investigation Fishberg carefully compares the Jewish measurements with those of the non-Jewish population in the same region. This is the most valuable and instructive part of his investigation. Formerly he believed that the homogeneity of Jewish measurements constituted a decisive proof of Jewish purity. He now brings forward weighty arguments against that view, and, taking into account the remarkable approximation in most (though not all) respects of Jews to the non-Jewish populations of the regions in which they live, he considers that it is impossible to avoid the conclusions that there has been a considerable infusion of European blood.

HAVELOCK ELLIS.

Observations on the Senses of the Todas (Journ. of Psychol., Dec., 1905.)
Rivers, W. H. R.

During a recent visit to India Dr. Rivers investigated the senses of the Todas, in accordance for the most part with the methods that he had previously adopted at Torres Straits and elsewhere. The Todas are a fine and handsome people, living a simple pastoral life in the Nilgiri Hills of Southern India, with no great incentives to unusual development of the sensory powers. In visual acuity they were found much on a level with the Torres Straits natives, though slightly superior, the conclusion being confirmed that when errors of refraction and other pathological conditions are excluded there is no great difference in visual acuity between savage, barbarous, and civilised peoples. In colour discrimination the Todas also resembled the Torres Straits people, and exhibited a similar tendency to discriminate greens, blues, and violets less definitely than reds and yellows, showing that deficiencies in nomenclature (it is only for red that they have a really native term)

are accompanied by some degree of defective discrimination. With Lovibond's tintometer the Todas have a high threshold for red and yellow and for blue a higher threshold than have the English, though a lower than other primitive peoples examined. Rivers connects this insensitiveness to red with the prevalence of colour-blindness. This is very high: among 503 Todas tested with Holmgren's wools as many as 43 were colour blind (12.8 *per cent.* among the males, 1.1 *per cent.* among the females). All 43 cases were very definite and of red-green type. There was reason to believe that many of the cases were of the kind in which the red end of the spectrum is relatively darker than to the normal eye. In their susceptibility to visual illusions (the erroneous estimation of vertical as compared with horizontal lines and the Müller-Lyer illusion) the Todas come between the Papuans and the English adults, differing little from the English and Papuan children. In tactile discrimination the Todas are more sensitive than English observers on the forearm, but much less sensitive on the nape of the neck and the finger. These results are, however, impaired by various factors, and the real difference is probably very small. The Toda (like the Papuan) is, if anything, more sensitive to touch than the Englishman, but (tested by Cattell's algometer) he is distinctly less sensitive to pain. (The English subjects belonged, however, to the educated classes.) In acuity of smell (tested with camphor solutions) the Todas appear slightly inferior to the English. On the whole the general conclusions suggested agree with those brought out by the investigation of the Papuans. HAVELOCK ELLIS.

2. Neurology.

The Structure and Function of the Pituitary Body, etc. [*La Struttura e la funzione della ipofisi in alcune forme gravi, congenite ed acquisite, di psicopatia.* (*Riv. de Pathol. Nerv. e. Ment., vol. x, fasc. x.*) Garbini, G.]

It is generally accepted that the epithelial lobe of the pituitary body is composed of two portions, called by Sterzi the cromophile and cromophobe parts, connected probably with a duplicate secretion of the gland. The former, in mammals, would appear to be actively functioning, and to a lesser degree the latter. The most recent researches point to the fact that in the epithelial lobe there is a single type of cell which differs in its structural character according to its functional state. As regards the type of secretion, many held it to be normally colloidal in character. Wolff, while holding the same opinion, thought that this was formed from destruction of the red blood corpuscles. Sterzi believed the colloidal substance to be a product of degeneration. Guerrini held that there were two types of secretion, a colloid and a granular.

As regards the method by which the glandular secretion is eliminated there are three hypotheses: that it is conveyed by the blood vessels, that it is eliminated by the lymphatics, that it is discharged directly into the subdural space. The first is the most probable.

That the hypophysis has a very important function is assured.

Rogowitsch's hypothesis that the pituitary and the thyroid glands are vicarious in function, may be held to be disproved. If, nowadays, the theory that acromegaly was due to disordered function of the hypophysis is somewhat shaken, yet Collina's researches seem to show that the various symptoms due to lesions of this organ are the consequence of insufficiency or functional defect of the pituitary, the secretion of which seems, to use Collina's own words, "to have the duty of providing for the normal nutrition of the nerve elements." So that tumours of the hypophysis may express themselves at one time in the form of acromegaly, at another in the shape of a special cachexia. Agostini believes that, in younger people, lesions of the hypophysis take the form of hypertrophy or benign tumour, run a slow course, and induce symptoms of acromegaly; while in adults the tumours are of a malignant nature, run a relatively rapid course, and give symptoms of a cachexia.

The author considered that it would be of much interest to examine the hypophysis in cases of advanced imbecility and general paralysis.

His conclusions were: (1) that the typical secretion is of granular form; (2) that in cases of advanced imbecility and general paralysis, where marked alteration in the processes of metabolism is met with, the functional power of the hypophysis is maintained unaltered, and that the product elaborated by the pituitary gland has no influence on the general trophic condition of the system.

A. I. EADES.

Research into the Fibrillary Structure of the Nerve-Cell in Normal Conditions and after Section of the Nerve [*Ricerche Intorno alla Struttura Fibrillare della Cellula Nervosa in Condizioni Normali e in Seguito a Lesioni dei Nervi*]. (*Riv. de Pathol. Nerv. e. Ment.*, vol. x, fasc. vii.) Pariani, C.

Pariani first gives a description of the normal fibrillar structure of the cells of the anterior cornua and posterior spinal ganglia as revealed by the latest methods of Cajal, Lugaro, and Donaggio, and then shows what pathological changes he found in these cells after experimental resection of the sciatic in a dog.

As regards the fibrillar structure of the normal motor nerve-cell, he practically agrees with Donaggio as to the presence of the endocellular reticulum, the perinuclear thickening ("cercine"), and the course of the "long" fibrils; but he considers that these latter anastomose with the reticulum and with one another. He has traced the fibrils of the protoplasmic processes over the surface of the cell and penetrating into the reticulum to varying depths, and he has followed them to a considerable distance from the processes on leaving the cell, and found them interlacing and growing denser the farther they proceeded from the cell body. In the perinuclear thickening of the reticulum he found the fibrils of larger size and interlacing in such a manner as to form small spaces, the long diameter of which lay parallel to the nucleus.

As regards the relationship of the Nissl bodies to the fibrillar elements of the cell, these chromophile elements, small at the centre, large at the periphery, and extending for a certain extent into the protoplasmic processes, are mostly, but not exclusively, placed in the spaces between the fibrils. The absence of Nissl bodies in the axon is most probably due to the greater regularity and compactness of the fibrils constituting it.

The various types of ganglia cells have been well shown by Lugaro in his excellent work performed on the ganglia of dogs. Marinesco, in comparing the relationship of the chromophile elements to the fibrillar portion of the cells, finds that in Lugaro's large clear cells the fibrils are very fine and the meshes of network rather large; in the small dark cells the fibrils are larger and the meshes vary according to the volume of the cell; in the small and medium clear cells, with large and scattered Nissl bodies, the meshes are larger than in the preceding forms and the fibrils are strong; while in the large clear vorticose cells the fibrils are more or less parallel and undulating and form a sort of feltwork at the periphery.

Pariani then shows the pathological changes in the motor and spinal ganglia cells consequent on resection of the sciatic. The former exhibit the greatest changes from the fifteenth to the twentieth day, after which processes of repair commence.

Cells of anterior cornua.—The initial change commences near the perinuclear thickening, and consists in disarrangement and rarefaction of the fibrils. At first the nucleus occupies its normal seat, and the fibrils of the dendrons and round the periphery remain unchanged. Later the fibrils of the reticulum and of the perinuclear ring become interrupted and attenuated, assuming a granular appearance; in the last stage the central part of the cell is pale and appears filled with minute granules; in parts traces of fibrils are seen, the nucleus has lost its ring, and is situated at the extreme side of the cell; the peripheral fibrils and those of the dendrons have mostly disappeared. In a few cells all signs of internal structure have disappeared, the nucleus is deformed, and the dendrons are in a fragmentary state.

The processes of repair take the following order: the fibrillar structure of the cell is faintly seen, though the nucleus is still completely displaced; later large, coarse fibrils show themselves running in different directions, the network resultant therefrom being still incomplete. The peripheral fibrils are the first to resume a normal character. The nucleus returns towards the centre of the cell, and is surrounded by a slightly differentiated halo, which later becomes the perinuclear ring. Finally, the reticulum regains its former distinctness, and the fasciculated distribution of the fibrils returns.

In the spinal ganglion cells the pathological changes reach their climax sooner than in the motor cells. By the tenth day the nucleus is, as a rule, displaced to the periphery. Donaggio's method shows that the early changes consist in irregularity and attenuation of the reticulum, while the perinuclear ring, the fibrils at the periphery, and those constituting the axon remain as yet unmodified. Later, the reticulum assumes a punctate appearance, the nucleus is displaced excentrically, its ring being indistinct, and the fibrils at the periphery, including those of the axon, become quite pale, though they still preserve their structure.

In the vorticose cells in the early stage there is a marked difference between the central reticulated part and the bundles of concentric fibrils which surround it, the latter remaining almost normal, while the former is broken up and attenuated. Later, the fibrils round the nucleus and at the periphery no longer appear evident, while the fibrils in the centre part of the cell still obtain.

At the thirtieth day signs of repair may be noted, which are most advanced in the small cells. The nucleus begins to retrace its steps, the colour of the fibrillar substance returns, and the fibrils, at first large and irregular, gradually tend to form anew the normal reticulum.

A. I. EADES.

The Path of Endocellular Conduction [Vie di conduzione endocellulari]. (Riv. speriment. di. Freniat., vol. xxxi, fasc. 1.) Donaggio, A.

At the Congress of the Società Freniatrica, held at Genoa in October, 1904, Donaggio gave a *resumé* of his work on the endocellular nerve-fibrils, with his conclusions as to their anatomy and physiology.

By his method of pyridin fixation (as described in the July, 1905, number of this Journal) he discovered the presence of an endocellular reticulum, and in addition to this in some cells a system of what he calls "long fibrils" passing over the cells from one protoplasmic process to another.

As regards these nerve-fibrils he distinguishes two forms of nerve-cells. No. 1 is provided exclusively with the endocellular nerve-reticulum. No. 2 contains in addition to this the long fibrils previously referred to.

The endocellular network is composed of fine nerve-fibrils which anastomose freely, and are prolonged into the protoplasmic processes and axis cylinder. Around the nucleus they tend to form a definite thickening (cercine perinucleare).

The long fibrils pass through the nerve-cell without anastomosing or losing their individuality.

The axis cylinder is derived chiefly from the endocellular reticulum and to a small extent from the long fibrils. It arises, as a rule, from the perinuclear thickening of the former, either directly or by means of a cone-shaped process, the apex of which lies on the "cercine perinucleare."

He puts forward the hypothesis that the endocellular reticulum represents an apparatus for the reception and synthesis of stimuli, so that the nerve-cell is an element endowed with a high functional importance, and not merely a passage zone for nerve currents.

A. I. EADES.

3. Pathology.

Experiments upon Replantation of Brain-Matter [Versuche über Gehirn Replantation]. (Archiv für Psychiatrie, Bd. 40, Heft 2.) Saltykow, S.

It is known to pathologists that with some lower vertebrates—newts, frogs, and lizards—there may be a restoration of the nervous centres amounting to the complete restoration of the spinal cord. This process has been found to be a proliferation of the epithelia of the central canal. These cells pass into mitosis, from which ganglion-cells are produced as well as nerve-fibres, by the direct division of the nuclei. In spite of

the experiments of Voit on the brain of the pigeon, and Vitzou on the monkey, Dr. Saltykow holds that there is no assured case of regeneration of the central nervous system in warm-blooded animals. Nevertheless, it has been shown that divided parts of the spinal cord could reunite with renewal of function.

Saltykow has made a series of experiments upon forty-one rabbits with a view of determining how far such renewals can take place. He begins by describing his methods of operating. After removing sections of the brain, he replaced the excised portions and studied the changes in the wounds, beginning a few hours after the operation. Dr. Saltykow found that the replaced pieces retained their vitality, re-united with the brain left, and healed like any other tissue. There was no softening, as might have been expected, but though the cellular elements of the replanted tissue retained their form for about eight days, there was in time a progressive degeneration with swelling of the protoplasm, enlargement of the nuclei, increase of the chromatine and of the granular corpuscles. About the eighth day a decided mitosis begins; an alteration of the cells into something like a tuft of thread. This appearance, named from a Greek word *Mitros*, meaning a thread or web, is well illustrated in the engravings at the end of the article. The nerve-fibres also degenerate and disappear. Thus, though the replaced portions of brain matter retained for above two months their vitality, and the ganglion-cells were even seen to proliferate and new nerve-fibres to be formed, they became surrounded by a capsule of connective tissue, and slowly underwent sclerotic degeneration.

WILLIAM W. IRELAND.

4. Physiological Psychology.

Dreams as an Indication of Sexual Anomaly [*Der Traum als feinstes Reagens für die Art des Sexuellen Empfindens*]. (*Monatssch. f. Kriminalpsych.*, 1905.) Näcke, P.

The psychological and pathological significance of dreams has been studied in much detail during recent years in various countries. Näcke has frequently pointed out the significance of dreams as a sure proof of the normal or perverted direction of the sexual impulse, and in the present paper summarises his conclusions on this matter. Dreams, he argues, are not capricious or chaotic, but, as in the waking life, everything is here strictly determined, and the fundamental instincts of self-preservation and reproduction necessarily play a large part in dreaming life. Näcke believes that Vaschide's experiments conclusively prove that dreams go on even in the deepest sleep, though usually forgotten, while there are individual differences in dreaming, neurotic people having an excess of dreams; but though he has studied the dreams of the insane for many years past, Näcke (unlike de Sanctis) has not been able to find that they reveal any special peculiarities, and, whether or not they dream less than the sane, they speak less of their dreams and do not remember them well. It is as a reflection of the individual's sexual life that Näcke is inclined to attach a leading importance to

dreams ; even the smallest deviations from normal sexuality are betrayed in dreams with unfailing certainty. It is necessary, however, to be in possession of a series of the subject's dreams, extending over some time. A single dream may have little significance, because of the occasional occurrence of what are called "contrast-dreams." In masochism, sadism, fetichism, etc., Näcke has invariably found that an abnormal dream corresponded to the subject's actually abnormal sexual disposition. He has never known an innately homosexual person to have normal heterosexual dreams. On the other hand, it occasionally happens that a normal person has homosexual dreams ; this, Näcke believes, is because there are latent homosexual germs in all people. It must be pointed out, however, that this is by no means necessarily the case. Though dreams are always determined, they are often determined, not by the dreamer's radical instincts, but by a fusion of incongruous, and ever shifting, imagery, which is often quite adequate to produce a homosexual dream in a normal person. Näcke's main argument, however, remains sound, and the diagnostic value of dreams lies in the fact that people are much more willing to reveal the facts of their sleeping than of their waking life. HAVELOCK ELLIS.

Fragment of the History of a Case of Hysteria. [*Bruchstück einer Hysterie-Analyse*]. (*Monatsschr. f. Psychiatrie u. Neurolog., Bd. xviii, Heft. 4, 1905.*) Freud, S.

The volume of *Studies of Hysteria* which Professor Freud published in conjunction with Dr. Breuer some ten years ago aroused much controversy, but even many of those who were by no means prepared to accept its teaching at every point could not fail to recognise that it was an epoch-marking book in the history of hysteria. In method it introduced a refined and penetrating psychic analysis which had never before been known, and in theory it brought back in a more acceptable form the conception of the large part played in hysteria by the sexual emotions, which, under the influence of Charcot, had been too absolutely rejected.

While Freud's method and theory remain substantially the same, he has very considerably developed the technique of his analytical process. He has abandoned the use of hypnosis as a method of investigation, and attaches still more importance than before to what may be called "symbolic manifestations" of the psychic condition. He seeks to obtain a complete and sympathetic knowledge of the patient's outer and inner life, and to interpret the data thus obtained by means of clues which often seem of the slightest character. It is obvious that such a method must be carried out in an extremely elaborate manner to be in any degree convincing. Even the present fragment of a history, which might easily be dismissed as a quite ordinary case of hysteria, covers nearly a hundred pages, and though it really reveals itself as an exceedingly complex and many-sided history, which, under the investigator's hands, slowly falls into order, there is still much that a cautious and critical reader is inclined to view with suspicion, notably as regards the interpretation of dreams (a subject to which of recent years Freud has devoted special study) ; even here, however, the clues often prove such excellent guides that one hesitates to condemn them on

account of their extreme tenuity. It should be remarked that Freud now attaches very great importance to dreams in the interpretation, not only of hysteria, but of all allied psycho-neurotic conditions; without a study of dream-life, indeed, he believes we can make very little progress in this field. It is necessary, however, to pay close attention to all the automatic and involuntary manifestations of the psychic and physical organism. "He who has eyes to see and ears to hear becomes convinced that no mortal can hide his secret. He whose lips are silent chatters with his finger-tips and betrays himself through all his pores. That is how it is that the task of bringing even the most hidden regions of the soul to consciousness becomes quite possible."

It is impossible to analyse this analysis, but by many readers its study will be found highly fascinating and profitable. There are other readers for whom it will seem unsatisfactory, trivial, and unwholesome. Of this type of mind was the little girl who criticised the operations of the Divine mind with the remark that it "must be fiddling work making flies." People of this mental type cannot, however, be advised to study hysteria.

HAVELOCK ELLIS.

Sugar as a Stimulant [*Recherches Expérimentales sur l'Influence du Sucre sur le Travail*]. (*Rev. de Méd., Jan., 1906.*) *Féré, Ch.*

The nutritive value of sugar has been much emphasised during recent years, and (following Toulouse at Villejuif) Féré gave 300 grms. of sugar in water daily to patients suffering from defective nutrition, with beneficial results during several months, when it both ceased to be beneficial and could no longer be taken by the patients. In the present study Féré investigates the excito-motor qualities of sugar, as tested by the ergograph, herein following the same uniform and carefully regulated methods which he has already applied in the case of so many sensorial stimulants, as set forth in his book *Travail et Plaisir*. The dose used was 30 grms. in 100 cubic centimetres of water. When the solution was only held in the mouth for five seconds and then ejected, rapid but intense stimulation was produced, but in a few minutes this effect was lost and fatigue was accelerated. When ingested the immediate excitation was less marked but more prolonged, and was succeeded by a fresh excitation, apparently due to the absorption of the sugar, nine minutes after ingestion. But the total result was always a loss of work. Even in the experiment most favourable to sugar the total work achieved with the ergograph was only 91.03 per cent. of the amount accomplished without stimulation. Sugar thus conforms to the general rule, which Féré has always found to hold good, that every sensorial stimulant able to increase activity accelerates fatigue. Excitation is necessary to life, but in using artificial stimulants we must be aware what we are doing. They are useful for savages, who work in spurts, but are of no advantage, but rather the reverse, for those whose work is continuous. Féré is sceptical as regards the large claims now put forward for sugar, and thinks it had best continue to play its old-fashioned part as a condiment.

HAVELOCK ELLIS.

The Field of Distinct Vision of Form in the Insane and in the Instinctive Criminal [*Il campo della visione distinta delle forme negli alienati e nei delinquenti-nati*]. (*Arch. di Psichiat.*, vol. xxvi, fasc. i, ii, 1905.) Audenino.

A paper on this subject was published by Roncoroni in the *Archivio* in 1903, and the present contribution of Audenino is designed as a continuation and extension of the earlier researches.

Audenino's investigations were made on a series of 97 individuals, of whom 29 are described as normal, the remainder being made up of 18 instinctive criminals, 27 epileptics, and 23 patients suffering from various forms of insanity. The method used in the inquiry was the same as that employed by Roncoroni: An arrangement was fitted to a Landolt's perimeter, by which, in lieu of the ordinary test-object, one or two small squares were exposed to sight against a white background; in this way, by frequently altering the disposition of the squares, the limits were ascertained within which there was distinct peripheral vision of form.

The author gives the results of his research as follows:

(1) In normal subjects who are free from ocular disorders there is rarely any limitation of the field of distinct vision of form. In only 3 of the 29 individuals examined (13 *per cent.* roughly) was any such limitation found. In youths the field is often more extensive than in adults.

(2) In the instinctive criminal and in the moral lunatic the field is frequently narrowed, being so found in 8 out of 13 cases, without eye disease or error of refraction. The narrowing of the field for white does not always correspond with that of the field of distinct vision.

(3) Limitation of the field of distinct vision was noted in 77 *per cent.* of the adult epileptics, and in a smaller proportion (40 *per cent.*) of young epileptics. In some individuals it became more pronounced about the time of the fits.

(4) In the other diseased conditions—hysteria, alcoholism, paranoia—the field was sometimes found to be narrowed, but much less frequently than in the preceding groups.

The author argues that this limitation of the field of distinct vision, occurring, as it does, in individuals without ocular disease whose refraction is normal and whose visual acuity is often above the average, cannot be attributed to peripheral defect, but must depend on central causes. This view, he contends, is supported by the fact that the degree of limitation is most marked in the gravest forms of debility, namely, in epilepsy and in moral insanity. Its apparent variation in some epileptics in relation with the convulsive attacks would point in the same direction. He would, therefore, connect the condition with the moral anæsthesia and the various abnormalities of sensibility which, according to the school of Lombroso, characterise the epileptic and his congener, the instinctive criminal.

W. C. SULLIVAN.

Observations on Colour Hearing [*Beobachtungen über farbiges Hören*]. (*Arch. f. Psychiat. und Nervenkrank.*, B. 40, H. 2). Lomer, G.

Dr. George Lomer has made a renewed study of this curious condition, in which the hearing of a sound is combined with the sensation

of a coloured spot. He tells us that up to the year 1896 about 140 articles on the subject had appeared, principally by French and Italian authors. D'Abundo finds this affection to be hereditary, and some of its subjects neuropathic. In one case the vowels were associated with sensations of colour, and not the consonants. Words had the colour of the vowels which composed them. Some sounds were accompanied with colours, while tunes were not. In other cases all letters were accompanied with colours. The same sounds were not in different individuals associated with the same colours, but *a* was often associated with red, *u* with black, and *i* with white. In one instance the associations were given as follows: *a*, with black; *e*, with bright yellow; *i*, with sulphur yellow; *o*, with brown; *u*, with dark blue; *ai*, with a deep dark colour; *oi*, with purple; and *au* with blue. The name Luise was associated with dull blue, Margerethe with brown, Ida with yellow, George with deep brown, Max with dark blue, and so on.

Dr. Lomer observes that there are certain innate correspondences between the perception of colours and that of musical sounds. Albertoni has shown that in people who are colour-blind there are typical defects of the musical sense. Those blind to green take up in hearing, and repeat in singing, different notes from those blind to red.

WILLIAM W. IRELAND.

5. Ætiology.

Heredity and Predisposition in General Paralysis [Erblichkeit und Prädisposition resp. Degeneration bei der progressiven Paralyse der Irren]. (Archiv f. Psychiat., Bd. xli, Heft 1, 1906.) Näcke, P.

Following up his previous studies of the inborn degenerative elements in general paralytics, Näcke here reviews the question at considerable length in reference to the most recent investigations, summarising a very large amount of literature in his usual careful and precise manner. He finds that there is still need for thorough investigation on a large scale and with due regard to detail; the personal equation differs so widely that the control study of normal individuals must always be carried out by the same investigator, and it is better for inquiries of this kind to be in the hands of two investigators working together.

After defining afresh what he means by "degeneration," Näcke reviews the latest observations, and concludes that though they are by no means harmonious, they lead to the conclusion that stigmata are more numerous in general paralytics than in normal persons, while in number and apparently also in gravity they approach those found in other psychoses (excepting idiocy and epilepsy). As regards morbid heredity, a review of the literature shows that the majority of authors now admit that it is very frequent in general paralysis, according to some almost as frequent as in other forms of insanity, though very seldom heavily charged. The existence of such heredity appears to favour syphilitic infection, partly because there is a tendency to fall into excesses, and partly because there is sexual precocity. As regards the psychic disposition of persons who become general paralytics, Näcke observes

anomalies of character and nervous disturbances, as well as inclination or else intolerance towards alcohol. They are usually sanguine and choleric, whence, doubtless, the nature of the subsequent delusions. Näcke believes that the arteriosclerosis so frequently found (and often not of syphilitic origin) may appear at an early age. The psychic and somatic anomalies of the children of general paralytics have not been properly investigated; they are by no means always due, in Näcke's opinion, to paternal syphilis. He concludes that in most, if not all, cases, the general paralytic possesses an invalid brain, either *ab ovo* or developed later, and thus, as a rule, presents a degenerative predisposition which is excited into activity by syphilitic infection, though such infection is not essential to the manifestation of the disease.

During a recent visit to Bosnia, Näcke has taken the opportunity of inquiring into the relationship between syphilis and general paralysis in that land ("Syphilis und Dementia Paralytica in Bosnien," *Neurol. Ctbltt.*, 1906, No. 4). His inquiries at Sarajevo and elsewhere showed that though syphilis is extremely common (not uncommonly communicated to children in extra-genital ways) and usually severe, yet general paralysis is extraordinarily rare. The same is true of Herzegovina, and apparently Dalmatia also, where syphilis is very common and often badly treated or not treated at all. Tabes is also very rare. The people of Bosnia are a very fine and handsome race, and in this relationship of syphilis and general paralysis Näcke sees a fresh proof of the thesis that general paralysis can only arise in an *ab ovo* invalid brain, or perhaps in some cases a brain that has become invalid during life. The facts cannot be explained away, he remarks, by the theory that it is a question of racial differences, although that theory may contain a certain amount of truth, for there is ample evidence that under the stress of civilisation and with increased degeneration the relationship of general paralysis to syphilis undergoes a change. Syphilis has long been prevalent in Japan, but it is only during recent years, under the stress of a new civilisation, that general paralysis has also become common. Exactly the same change has occurred among the American negroes since the abolition of slavery, and in Roumania since that young country began to develop, though syphilis has always been common there. The infrequency of general paralysis among prostitutes, also, Näcke is inclined to explain by the fact that they mostly come from the country and begin their career with a sound body and valid brain.

HAVELOCK ELLIS.

The Psychoses in Relation to the Physiological Phases of the Organism
[*Sulle Psicosi in Rapporto alle Fasi Fisiologiche dell. Organismo*].
(*Il Manicomio, anno xx, No. 3, 1904.*) Angiolella.

In this paper, read at the Twelfth Congress of the Società Freniatrica Italiana at Genoa, Angiolella devotes himself to a critical discussion of certain of the assumptions involved in Kraepelin's views with regard to dementia præcox.

Recalling, in the first place, the familiar division of the cycle of life in the higher animals and in man into the three stages of development, maturity, and decay, Angiolella points out that the transitional phases of puberty and the beginning of senility represent two crises which the

organism must go through in order that the nervous system may adapt itself to new conditions of existence. That is why these are the most likely moments for the manifestation of individual anomalies and defects. If there is a degenerative tendency it comes to the surface, giving rise to paranoiac conditions, to hysteria, to epilepsy, or disclosing various degrees of imbecility in the intellectual or moral spheres. If, on the other hand, the underlying vice be a simple weakness of the nervous elements, what will appear at these critical epochs will be the simple psycho-neuroses, states of excitement or of depression, or alternations of these states, confusional disorders, and so forth. These conditions will not differ in any essential from the insanities at other periods, except in so far as they will be coloured by the peculiarities proper to the particular epoch, which represent simply a morbid exaggeration of its physiological characteristics.

In adolescent insanity, no doubt, there is a notable tendency to the development at the outset or very early in the attack of an element of dementia, which is the expression sometimes of a congenital weakness of brain, and sometimes of the rapid exhaustion of cerebral energy under the stress of disease. But such a tendency does not, any more than the secondary characters that the psychosis takes from the physiological epoch at which it has developed, warrant us in distinguishing the insanities of any of these periods into separate nosological entities, to which title they have no claim from either the clinical or the pathological point of view.

W. C. SULLIVAN.

Heredity and Education in the Genesis of Mental Disease [*Hérédité et éducation dans la genèse des maladies mentales*]. (Rev. de *Psychiat*, June, 1905.) *Toulouse and Damaye*.

The question discussed in this critical review has been already touched on by Dr. Toulouse in other contributions to medical literature. In the present paper, written in collaboration with one of his pupils, he restates his arguments against the view which since the time of Morel has exaggerated the importance of heredity in mental disease, and vindicates for the environment and for that limited and selected application for the environment which is termed education, a large and sometimes a predominant part in the genesis of insanity.

The influence of the milieu, which is readily seen in the morphological and physiological variations in plants and animals under different climatic and other conditions, is equally evident in the differences in stature and weight in the different social classes of the same population. The psychological character which the individual inherits is similarly modifiable by the environment. Heredity, in short, is merely a vague tendency whose ultimate expression is largely determined by influences from without.

Applying these general considerations to the facts of insanity, the authors point out that the usual proof of the predominant influence of heredity, from the frequency with which cases of mental disorder can be traced in the family history, is fallacious in several ways. In such inquiries the conception of what constitutes abnormality of mind is generally quite vague and indefinite; further, the results cannot be con-

trolled by any reference to the conditions in the family history of the sane. And a still more serious source of fallacy is the failure to distinguish in the facts the part that is due to imitation and to the influence of the milieu from that which properly belongs to heredity. The need of such a distinction is at once suggested by the significant fact that in the most striking cases of hereditary disease, those, namely, where there is apparently a direct transmission from one member of the family to another, the forms of insanity or of nervous disease that are so transmitted are usually those without known anatomical basis; general paralysis is rarely hereditary, the systematised deliria are often so; hysteria is frequently communicated, but epilepsy is not.

It is his early education which in a great measure gives the individual his way of reasoning and his way of reacting to emotions. Growing up amongst people who exercise no restraint on their feelings, who practice no intellectual discipline, the child of the neurotic parents becomes, like them, subject to obsessions, prone to irrational and paradoxical thought.

In illustration of these views, some observations are quoted of the communication of delusions between relatives and between persons of different families.

In the same order of facts may be counted the suggestive influence of medical examination, of the perusal of medical literature, and of the vulgarisation of imposing medical words, to which in recent years we owe such artificial diseases as neurasthenia. As the practical corollary to these arguments, the authors insist on the importance of a specially adapted education as a means of preventing the development of mental disease in predisposed subjects.

W. C. SULLIVAN.

6. Clinical Psychiatry.

A Case of Moral Insanity with Repeated Homicides and Incendiarism and Late Development of Delusions. (Amer. Journ. of Insanity, vol. lxi, No. 2, 1904.) Stedman.

The subject of this observation was the daughter of an eccentric and intemperate father; one sister became insane, and another was a prostitute. The patient herself, though remarkably intelligent and quick to learn, was distinguished from childhood by a passion for deceit and aimless lying. At the age of 32, having undergone four years' training in a hospital, she took up private nursing, and followed it for some thirteen years, until in 1901 the mysterious deaths of four of her patients within the space of a few weeks, after short illnesses with symptoms suggestive of narcotic poisoning, led to her arrest and prosecution. She unhesitatingly admitted her guilt, and confessed further to having poisoned several other patients in a similar manner, the total number of her victims amounting to twenty. There was every reason to believe that all these admissions were true, and that she had besides that made four attempts at arson in the houses of patients and friends. In reference to these crimes the woman showed a total absence alike of remorse and of

fear. Her account of her motives was very variable and inconsistent, and in some details obviously false ; but it appeared probable that the acts were the outcome of obsession ; she asserted that their completion was followed by a peculiar sense of relief. Her intelligence was perfectly lucid, and there was no indication whatever of delusions or hallucinations. Physical examination failed to show the presence of any stigmata of degeneration, or of any signs of hysteria, or of any organic disease. Her menstruation had been irregular, but no relation was traced between this function and the disorder of conduct.

In accordance with the medical evidence that she was suffering from moral insanity, she was found irresponsible, and was committed to an asylum. Towards the end of her first year there she began to show distinct evidence of mental failure with some emotional depression, to which definite persecutory delusions were soon added. These delusions were at times sufficiently pronounced to lead her to refuse her food for long periods.

Discussing the case, the author draws special attention to the late development of the delusional symptoms, pointing out that their occurrence, which is not infrequent in the course of moral insanity, is a strong argument for the contention that intellectual involvement in some form is an essential feature of the disease.

W. C. SULLIVAN.

Dementia Præcox. (Journ. of Ment. and Neur. Dis., June, 1905.)
Sachs, B.

This paper was read by the author before the American Neurological Association in September, 1904, to open the discussion on "Dementia Præcox."

He enters a strong and much-needed protest against the tendency of present-day alienists to diagnose a vast majority of the cases of mental diseases in youthful individuals as cases of this form of insanity.

There are definite cases which fit in admirably with the description as given by Kraepelin, and this is particularly true, he thinks, of the earlier forms of mental derangement occurring in members of families in which there is a very marked psychic taint, but even in such individuals many years may pass before appreciable dementia sets in. In his opinion the term should be carefully restricted to such cases in which mental deterioration at an early stage of the disease is clearly recognisable, and should be carefully considered, and possibly avoided, in those cases in which a dementia may possibly be developed in the far distant future. He considers that making the diagnosis of dementia præcox puts the stamp of an incurable malady upon persons who may be sufficiently alert to be useful to themselves and others for a long period of years, and in that sense does them distinct injustice. He cannot see the gain in grouping widely different conditions under one heading simply because the individuals so afflicted are in the first third of life, and therefore thinks the older plan of clinical sub-division to be the more commendable, and that the tendency to dementia should be insisted on only when there is reason to think that a deterioration is certain to develop at a relatively early period.

A. W. WILCOX.

Syphilis Infection and Paretic Dementia. (Med., October, 1905.)
Kiernan, J. S.

The possibility of syphilitic infection of parietic dements is still an issue which continues to be raised, although their disease is now generally recognised, says the author, as a parasyphilitic phenomenon. Referring to Krafft-Ebing's unsuccessful attempts to inoculate these patients with syphilis, he truly points out that had they succeeded they would not have settled the question, as Auzias-Turenne's experiments have shown that syphilis will not always infect a non-syphilitic, whilst, on the other hand, syphilitic reinfection has been demonstrated by competent syphilographers.

If the parasyphilitic doctrine be adopted as regards parietic dementia, the psychosis is past the specific stage, since it no longer responds to antisiphilitic treatment. The question therefore arises, he says, as to whether the organism may not have been so changed as to yield once more to syphilitic infection. There are two possibilities which would lead to syphilitic infection of parietic dements—the possibility of reinfection and the possibility of a non-syphilitic parietic dementia.

Kiernan then describes ten cases which have been under his own observation, in which syphilitic infection occurred during parietic dementia. "In the greater number of these cases," he says, "preparietic dementia syphilis could be excluded, while in the remainder it was a bare possibility." These cases demonstrate, he thinks, that the ordinary tests of the syphilitic origin of parietic dementia are valueless unless carefully scrutinised.

A. W. WILCOX.

Two Cases of General Paralysis of the Insane. (Antiseptic, December, 1904.) *Maidu, M. S.*

These two cases are of interest as occurring in natives of India, in which country general paralysis of the insane is generally acknowledged to be less prevalent than in Europe. These are the only two cases occurring amongst Indians in India that the author has met with during the last twenty years. Both occurred in native gentlemen of education and position, leading lives of great mental activity. In the first case there was a history of syphilis and alcoholic and sexual excess; in the second there was no history of syphilis, and the patient had always led a most exemplary life.

The records of these two cases only, although of interest, hardly warrant the author, we think, in dismissing some of the most generally accepted theories as to the causation of general paralysis of the insane, and in asserting that mental strain is one, if not the *chief*, cause of the disease.

A. W. WILCOX.

On Family Amaurotic Idiocy and Allied Diseases [Ueber Familiäre Amourotische Idiotie und Verwandte Krankheitsbilder]. (Monats. f. Psychiat. und Neurol., Oct., 1905.) *Vogt, H.*

In a paper of forty pages Dr. Vogt concludes his studies on this subject. The remarkable combination of symptoms described by Sachs, and other physicians of New York, of blindness owing to amaurosis, with a red spot in the retina, fading of the intelligence,

paralysis, and early death, occurring in children of Jewish origin, has naturally excited much attention amongst pathologists. As Dr. Vogt remarks, this affection presents a broad difference to ordinary idiocy. The latter is generally the result of different conditions before or after birth, the deficiency of intelligence is fixed or slowly improves; whereas in this amaurotic dementia there is a steadily downward tendency; the blindness and mental deficiency increase, and the child soon dies. Dr. Vogt has collected a number of cases of a similar tendency to dementia in older children, some of them suffering from cerebral diplegia. In these he has observed atrophy of the optical neuron; the red spot on the retina is wanting, but this has not been observed in all the cases of infantile amaurosis. There is a certain resemblance in the nature and course of the cases described by Dr. Vogt, though the symptoms are not quite the same nor so closely grouped. This, however, may be owing to the child having obtained a later stage of development before the disease set in. Many of Dr. Vogt's cases were also of Polish Jewish origin.

WILLIAM W. IRELAND.

Neuropathic Halos. (Rev. de Med., April, 1905). Féré, Ch.

CASE 1: February 23rd, 1883.—Married woman, æt. 28. Neuroarthritic family history. Personal history showed various hysterical manifestations during the previous ten years, and there were several permanent stigmata of hysteria. Moreover, she had attacks of migraine, usually at the monthly periods, which began in the morning, and ended in the evening with glairy vomitings. During an attack which was worse than usual, and was accompanied by a feeling of great pressure in the frontal region, and by coldness and cyanosis of the extremities, Dr. Féré saw her about 4 p.m., and was struck by the sight of a luminosity around the head, about eight inches in radius, of an orange colour, and diminishing in brightness towards the periphery. A similar phenomenon appeared round the two hands. The skin, which was ordinarily of a dull white, had an orange tint, deeper than that of the halos. The luminosity round the head and hands had appeared about two hours before Dr. Féré saw the patient, and the colouration of the skin a few instants earlier still. Both ceased about two hours later, at the time of the habitual vomiting.

CASE 2: February 15th, 1884.—Married woman, æt. 25. No nervous trouble known except migraine, which had occurred at the monthly periods from the time of puberty. She had two healthy sons, æt. 6 and 5, and a daughter, æt. 4, who suffered from hysterical convulsions. During an attack of migraine of unusual intensity, the patient received a shock on finding that her little daughter, whom she thought to be recovering from her convulsions, had had a return of them. The mother fell back in bed, became stiff, and at the same time her skin suddenly became of an orange colour, which seemed to Dr. Féré exactly like that in the first case, and at the same time a luminosity appeared round the head and hands of the same orange colour. This luminosity was smaller than that in the first case, was more distinctly rayed at the periphery, and was brighter, though the hour was earlier (3 p.m.). The phenomenon lasted only some minutes, after which the patient recovered the power of speech.

CASE 3: July 12th, 1904.—Married woman, with grown-up children. Family history excellent, and personal history also excellent till the previous year, when the ataxia of her husband brought on worries, hard work, and insomnia, which caused her to grow thin. Nine or ten months before the occurrence of the phenomenon she experienced numbness and prickings in the tips of the fingers of her left hand at the moment of waking, whether in the morning or during the night. These sensations spread to the toes of the same side; then the other side was affected, and motor disorders appeared, especially inco-ordination of the fingers. Her sleep became troubled; she was awaked alternately by sensory shocks (sudden noises or subjective illuminations), and by emotional shocks. The latter were the more disturbing to her, and often left her in a distressing state of anxiety, accompanied by precordial oppression. One night her husband was aroused by her cries, and was greatly alarmed by a phenomenon that accompanied her distress. It was a light surrounding his wife's head. In full darkness she and he, and the objects near them, were suddenly reflected in the mirror of the wardrobe opposite the bed. This illumination was caused by the light round his wife's head, which consisted of a sort of crown of divergent rays of unequal length (eight to ten inches), radiating from the outlines of her profile, from whatever direction it was seen. Her face was pale and had a yellow tint. The halo developed suddenly like the anxiety, and, like the anxiety, it disappeared gradually, the whole phenomenon lasting hardly more than a quarter of an hour.

In cases 1 and 2 the halo was seen by Dr. Féré and by the patient's husband. In case 3 it was not seen by Dr. Féré. In none of the patients did the phenomenon reappear on any other occasion.

P. C. SMITH.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

A QUARTERLY MEETING of the Medico-Psychological Association was held at the West Riding Asylum, Wakefield, on Friday afternoon, February 23rd, 1906, under the presidency of Dr. T. Outterson Wood.

There were meetings of the Council and of the Parliamentary and Educational Committees held at the Queen's Hotel, Leeds, on the morning of the same day.

The following members were present at the Council meeting: Drs. Aveline, Bower, Chambers, Craig, Dawson, Drapes, Edgerley, Jones, MacBryan, Miller, Hayes Newington, Pierce, Percy Smith, Taylor, Turnbull, White, Wood, Urquhart, and Yellowlees.

Apologies were received from Drs. MacDonald, Nolan, and Shuttleworth.

Prior to the meeting in the afternoon nearly sixty members and visitors were hospitably entertained at luncheon by Dr. Bevan Lewis.

There was a large attendance of members at the Quarterly Meeting.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were elected ordinary members: Ewens (Maj. I.M.S.

Bengal), George Francis William, M.D., R.U.I., D.P.H.Camb., Superintendent, Punjab Asylum, Lahore, c/o Messrs. Grindlay and Co., 54, Parliament Street, London, S.W. (proposed by Theo. B. Hyslop, Wm. H. B. Stoddart, and Maurice Craig); Firth, Arthur Harcus, M.A., M.B., Ch.B.Edin., Wadswley Asylum, near Sheffield (proposed by Walter S. Kay, William J. Vincent, and Daniel Gillespie); Gavin, Noel John Hay, M.B., Ch.B.Edin., Norfolk County Asylum, Thorpe, Norwich (proposed by David G. Thomson); Lyell, John Hepburn, M.D.Glasg., M.B., C.M., A.M.O. to H.M. Prison, Royal Infirmary, and Parish Council, Perth, 15, Marshall Place, Perth (proposed by John McNaughton, Alex. R. Urquhart, and Robert Jones); Macarthur, John, M.R.C.S., L.R.C.P.Lond., London County Asylum, Claybury, Woodford Bridge, Essex (proposed by Theo. B. Hyslop, Chas. T. Ewart, and Robert Jones); Spark, Percy Charles, M.R.C.S., L.R.C.P.Lond., London County Asylum, Hanwell, W. (proposed by Percy J. Baily, H. Hayes Newington, and Robert Jones); Titterton, Herbert Charles, M.R.C.S.Eng., L.A.H.Dub., Vine Cottage, Norwood Green, Southall, Middlesex (proposed by William H. Bailey, G. H. Savage, and Robert Jones).

CONTRIBUTIONS.

The PRESIDENT read a paper entitled "Mental (or Asylum-trained) Nurses, their Status and Registration" (see page 306).

On the motion of Dr. HAYES NEWINGTON, seconded by Dr. PERCY SMITH, it was resolved to refer this subject to a sub-committee of the Educational Committee.

Dr. BEVAN LEWIS read a paper entitled "Alcohol, Crime, and Insanity" (see page 203).

Dr. MAULE SMITH gave a microscopical demonstration of neuro-fibrils in various pathological conditions, and furnished the following description:

The specimens shown under the microscopes are intended to demonstrate the arrangement of the neuro-fibrils in nerve-cells from various regions of the nervous system of healthy animals—ox, sheep, and pig—and also from various pathological conditions in the human subject, chiefly in the more chronic forms of insanity. The methods by which the sections have been prepared are those of Bethe and Lugaro. On account of its uncertainty, the method of the former is unsatisfactory; but more certain results are obtained by using 1:3000 solution of thionin in place of toluidin blue. The strength of acid used was 6 per cent.

The method of Lugaro is very much more certain in its action; it depends upon the reduction of colloid silver, with which the sections have been impregnated, by means of gold chloride bath, which consists of 2 per cent. gold chloride and ammonium sulpho-cyanide.

The slides with sections from the motor areas of the sheep and pig show the fibrils streaming from the apical process into the basal dendrites. At the base of the pyramidal cells some of the fibrils break up and form a loose reticulum from which the fibrils of the axis cylinder arise. The cap of the nucleus also shows undifferentiated reticulum. The cells in the medulla of the pig prepared by the method of Lugaro show a wealth of fibrils in three layers arranged round the nucleus. Situated in immediate relationship to this body is the perinuclear ring of a small meshed dense reticulum, outside is a more diffuse larger meshed network, while at the periphery the meshes are much larger. The fibrils from the processes in many cases preserve a distinctly independent course, although anastomosis is observed. At the entrance to the cell-body a general breaking up and formation of a loose reticulum takes place. The axis cylinder arises by means of an open meshwork in which no independent fibrils can be made out. It is thus a means of distinguishing it from other processes. A very similar appearance is seen in the cells of the spinal cord stained by Bethe's method; the three layers of meshwork are seen, and the formation of the peripheral reticulum by the dendritic fibrils.

In pathological states distinct degrees of neuro-fibrillar disintegration can be seen. Sometimes side by side with an apparently well-stained cell are others in all stages of breaking up; the fibrils become indistinct, fragmentary, and finally disappear. In other cases, especially in the ganglion cell layer of the cortex, there is only the merest outline, in which no definite arrangement of network is detected in the various distorted cells with eccentric nuclei and stunted

processes. In this layer the perinuclear reticulum seems to be the last structure to lose its definition. Pigmentary accumulation is almost universal in advanced cases. It is contained in a reticulum whose meshwork is much larger than that of other parts of the cell; the threads which compose it are much thicker and the meshes are frequently broken up at the centre of the area of degeneration. Its characters might support the idea that it differed in constitution from the reticulum proper of the cell, although it might also be maintained that a portion of that structure was undergoing degeneration.

A cordial vote of thanks was accorded to Dr. and Mrs. Bevan Lewis for their hospitality.

The members dined together in the evening at the Queen's Hotel, Leeds.

NOTES ON THE HISTORY OF CARLOW ASYLUM. (1)

By J. J. FITZGERALD, M.B., Medical Superintendent.

Carlow District Asylum, when erected in the year 1831 to provide for the insane of Counties Carlow, Kildare, Kilkenny, and Wexford, was reckoned sufficient for the accommodation of 104 patients. The populations of the above counties at the census of 1831 were: Carlow 81,988, Kildare 108,424, Wexford 182,713, and Kilkenny 169,945; total 543,070. At the census of 1901 there were 37,748 persons resident in County Carlow, and 63,566 in County Kildare; total 101,314; whilst to-day, July 6th, 1905, there are 426 patients in residence. Doubtless you are all aware this District Asylum now only provides for the insane from Counties Carlow and Kildare.

The buildings of the asylum cost £18,474 5s. 9d., and for the 15 acres 39 perches of land which comprised the asylum estate £2289 os. 3d. was paid—£152 2s. 6d. per English acre. A jury assessed the value of the land, the owners thereof had no reason, I imagine, to quarrel with their verdict. Furniture and bedding cost £1053 6s. 2d., and other contingencies, including "wire lattice to sundry and various windows," which I suppose in plainer terms meant iron bars, £705 18s. 2d. The total cost of the Asylum for land, buildings, and equipment, was £22,552 10s. 4d.; about £220 per bed. This sum was repaid to the Treasury, which at that time did not charge interest on the loan, by twenty-eight equal half-yearly instalments. County Carlow repaid £3246 3s. 1d., County Kildare £4313 12s. 0d., County Kilkenny £7681 os. 0d., and County Wexford £7281 15s. 2d.

The institution was handed over to the Local Governors on February 20th 1832, and on the following day the first "Manager and Moral Director," as the Superintendent was then termed, Mr. Francis Crofton, took up duty. It is noteworthy that this gentleman had no medical qualifications. The first physician—non-resident—was Dr. Meade Nisbett Stone, who was succeeded, in April, 1836, by Dr. M. E. White; eventually Dr. White, in 1848, became the first Resident Physician and Superintendent Manager, as the Resident Medical Superintendent was then designated. He maintained the view, generally held in his day, that curable cases only should be admitted or maintained in asylums. Dr. White died in 1866.

The Asylum was opened on May 3rd, 1832; the first patient, admitted on May 7th, 1832, belonged to County Kilkenny. On January 31st, 1833, the inmates numbered 78—23 from Carlow, 7 from Kildare, 21 from Wexford, and 27 from Kilkenny. Neither epileptics nor idiots were admissible. Pay patients were not tolerated.

The plan of the Asylum was that of a radiating building of two stories, having the airing courts confined to the irregular spaces between the radii, the front building and a high outer wall. The laundry and kitchen filled the space immediately behind the centre of the front building, which was occupied by the apartments of the manager and matron. The patients had to wash in open courts, under shelter of a shed, one bath being provided for each side of the building. Neither places for religious worship, dining halls, water-closets attached to the wards, sculleries, nor store rooms existed. The airing courts, the only places for the outdoor recreation of the patients, were situated on the northern side of the

building. Why such an undesirable situation was adopted I leave others to guess. The sewage system was ill-planned and very defective, so that, till comparatively recent times, dysentery and typhoid, as might be expected, accounted for many of the deaths. No infirmary existed, and the sick were treated in their single rooms.

The following composed the staff of the Asylum, with their respective salaries and wages per annum :

Officers.—Mr. Francis Crofton, manager, £220; Miss Elizabeth Freeman, matron, £100; Mr. Meade Nisbett Stone, physician, £100; clerk and store-keeper, £30; gardener, £30.

Domestic servants.—Five keepers, £12 12s.; five nurses, £6 6s.; six assistant nurses, £4 4s.; one cook, £10; one assistant cook, £4 4s.; one laundress, £6 6s.; one assistant laundress, £4 4s.; one board-room and office maid, £4 4s.; one housemaid, £4 4s.; one yard-keeper, £6 6s.; one gate-keeper, £6 6s.

Chaplains were not appointed till 1844. The superior officers were appointed by Government, the subordinate by the manager.

The assistant nurses had to do a portion of the house work on the male side, part of their duty requiring them to have the day-room perfectly clean and ready to receive the male patients in the morning, and I expect they performed their duties satisfactorily, as Dr. White during his term of office suggested that a female nurse should be employed for nursing male sick patients. I believe that this suggestion was not adopted. Dr. White, however, anticipated in this matter one of our modern measures for the treatment of our patients.

He likewise held that the punishment of insane patients for offences should be deprecated.

The asylum originally contained eighty-eight single rooms, or cells as they were usually termed. It will be remembered that the entire accommodation was only for 104 patients. The corridors were flagged in every division, and many of the single rooms had tiled floors. The windows were small, their frames were of iron, and barred in nearly every instance. In fact, the Institution was in its early days but little removed from a prison. The inspectors-general of prisons were the supervising authority; the Inspectors of Lunatics were only created and appointed in 1845. The dietary was as follows: servants, daily, 3½lbs. of potatoes, 1lb. of bread, and ¾rds quart of new milk. Weekly, 3 lbs. of meat with vegetables. Butter, eggs, sugar, and tea could, of course, be provided out of the salary of £4 4s. per annum; after the nurse had clad herself for her short visits to her friends and relations in Carlow town, an annual holiday was never dreamt of.

Patients.—Breakfast, 8 oz. oatmeal with ¼rd quart new milk. Dinner, 3½ lbs. potatoes with 1 pint mixed milk (males), 3 lbs. potatoes with 1 pint mixed milk (females). Supper, 8 ozs. brown bread and 1 pint mixed milk.

The average cost per head of this meagre fare amounted to 2½d. per day.

The admissions from 1832 to 1843 averaged about fifty per annum, and the recovery rate was 48·3 per cent. In 1843 it was reported, apparently with some satisfaction, that cases requiring restraint and coercion did not exceed 2 per cent. of the asylum population. In the year 1843 the average number resident was 169. In the official report of the following year there is a record "that a straw house had been fitted up comfortably so as to accommodate eleven more patients." This sentence for a long time puzzled me, till I remembered that the bedding in the asylum was at first straw, and, accordingly, I think we may assume that this house that had been used for storing straw was turned into a dormitory for patients.

1844.—In 1844 typhus fever visited the asylum, and the patients attacked were removed to what is now known as the garden house, an isolated building in the large garden.

1846.—In 1846 the inmates numbered 193; the asylum had been built to accommodate 104 patients, and as no structural additions had been made, and but slight internal alterations, we can readily understand the condition of overcrowding that must have existed at the time.

About 8 per cent. of the patients were placed under restraint. The physician states "that he frequently on his visits orders a patient to be freed from restraint . . . and he further states that restraint has been on the whole greatly diminished during the year." The inspectors-general, commenting on this, write: "Muffs and arm-straps do not sound well at the present day, and the sooner such instruments are abolished the better." Of the 193 patients, nine had committed murders;

one of these unfortunates killed his companion in a paroxysm of maniacal excitement in the year 1831; he was tried and acquitted on the plea of insanity, and soon after removed to this asylum. Subsequent to his recovery, which took place in the course of a year, he employed himself as steward on the grounds and in aiding the attendants in their various duties. On the erection of Dundrum Asylum, completed in July, 1850, he requested to be allowed to remain in Carlow, "where all his associations were centred," or to be allowed to emigrate. As the former request could not be legally acceded to, His Excellency the Lord-Lieutenant, being satisfied of the man's character and the securities entered into that he would not return to this country, gave him permission to leave. He sailed from Liverpool for New York, was shipwrecked on the north-west coast of Ireland, lost whatever property he possessed, and narrowly escaping with his life, came up to Dublin, and placed himself under the control of the inspectors. What was his after history I have been unable to determine. Bleeding and mercurialising the patients were common modes of treatment, although blisters on the head and counter-irritants were also employed. Opium and hyoscyamus were the common hypnotics. At this period it was suggested to enlarge the Asylum so as to accommodate 100 more patients, and to separate County Kildare from the Asylum district, and add it to Maryboro Asylum district. A governor of the Asylum proposed as an alternative than an asylum for females be established in County Kildare, and that Carlow Asylum be used exclusively for males.

1852.—In 1852 Kilkenny District Asylum was opened, and on September 13th and 14th of that year fifty-four Kilkenny patients were transferred there from here, Carlow Asylum district having to refund £6511 to the new Asylum.

1854-5.—For the year 1854-5 the average cost per head was £20 7s. 6d., a little over a pound less than for the financial year 1904-5, just half a century later.

1856.—In 1856 the inspectors recommended the separation of County Wexford from this Asylum District; this necessary change was not carried into effect till twelve years later, when the County Wexford patients were removed to Enniscorthy Asylum.

1857.—In 1857 there was one bath for the whole establishment, and that a very bad one; what happened to the other I cannot say. The bath was outside, and was a cold and shower one. There was only one water-closet in the whole house, probably for the superintendent. The patients had to wash in the airing courts.

1872.—By order in Council of January 19th, 1872, £20,000 was expended in enlarging the Asylum; this expenditure provided 146 additional beds, so that the Asylum then accommodated 250 patients. Within the past twelve or thirteen years £34,700 have been expended, and the Asylum, it is estimated, can accommodate 421 patients. £77,252 10s. 4d. have been spent on this Asylum, so that each bed has cost about £183 10s. 0d.

The history of the Institution from 1872 to the present is comparatively well known to you all, but the appended extract from a recent Report of the Inspectors of Lunatics briefly sums up the changes the Asylum has undergone in the interval:

"It is a pleasure to notice the great improvement which has taken place in the condition of this Asylum since my colleague and I first visited it in 1890.

"The patients were then confined in cheerless exercise yards, the day-room accommodation was altogether insufficient, most serious sanitary defects existed in all parts of the buildings, the clothing and bedding were ragged and inadequate, many of the sleeping rooms were cold in the extreme, the dietary was meagre, no associated entertainments were held, and there were few objects of interest provided in the wards.

"Now the Asylum has been modernised in nearly every respect, and the care and treatment of the patients reflect great credit on the Committee, the Resident Medical Superintendent, and the Staff."

In conclusion, I hope that this brief and sketchy paper has added some small interest to your visit to-day to Carlow District Asylum.

(1) A paper read at the meeting of the Irish Division, held on July 6th, 1905, at the Carlow District Asylum.

COUNTY COUNCILS' ASSOCIATION, EXECUTIVE COUNCIL,
JANUARY 24TH, 1906.

THE Secretary reported the receipt of certain detailed communications from the Local Government Board and the Lunacy Commission on the subject of the cost of providing lunatic asylums and isolation hospitals, and Mr. Willis Bund stated that he had received an important letter from the architect to the Lunacy Commission, which he was authorised to place at the disposal of the Association.

On the motion of the chairman, it was resolved :

"That the correspondence, including the letter from the architect to the Lunacy Commission, be printed with the minutes,⁽¹⁾ and that the matter be referred to the Parliamentary Committee for further consideration."

APPENDIX III.

Cost of Erection of Isolation Hospitals and Lunatic Asylums.

MEMORANDUM SENT TO THE LOCAL GOVERNMENT BOARD AND LUNACY COMMISSIONERS.

The requirements of the Local Government Board and the Lunacy Commissioners with regard to these buildings might be modified in the following particulars :

(1) In any isolated and well situated site, the cubic space of wards per bed might be reduced.

(2) A barbed wire fence or hedge might take the place of the 6 ft. 6 in. wall or park paling which is required.

(3) In small hospitals the irregularity in the number of each sex should be met by having three small wards instead of two wards of equal size.

(4) The premises might be warmed by hot water pipes, heated from a central furnace, instead of by fire-places with coal fires, thereby saving prime cost and greater economy in maintenance.

(5) Patent impermeable floorings should be allowed, they being cheaper than wood.

(6) The internal walls, and in the case of hollow walls the inner 4½ in. brickwork, might be replaced by patent partitions, thereby reducing the cost of foundation and plaster, etc.

(7) The window frames might be built flush with the inside wall, saving rounded angles, etc.

(8) Door linings could be reduced and doors standardised, thus avoiding panels and rounded angles.

(9) Windows could also be standardised and possibly made in cast iron.

(10) Generally if the Lunacy Commissioners would frame and the Local Government Board approve an economical specification of cheap materials and standardised details on which tenders could be invited, a great saving of cost would be ensured, because builders and merchants would know there was a guaranteed market for such standardised details, and they could be supplied at very little over prime cost.

"HOME OFFICE, WHITEHALL, S.W. ;

"July 7th, 1905.

"SIR,—With reference to your letter of the 2nd ultimo (62,638 K.), enclosing a resolution and suggestions of the County Councils' Association with respect to the cost of lunatic asylums, I am directed by the Secretary of State to acquaint you, for the information of the Local Government Board, that he has been in communication with the Commissioners in Lunacy in the matter, and to transmit to you, herewith, a copy of a letter received from the Commissioners upon the subject.

"I am, sir, your obedient servant,

"(Signed) M. CHALMERS.

"The Secretary to the Local Government Board."

(1) See Appendix.

"LUNACY COMMISSION,
 "66, VICTORIA STREET, S.W.;
 "June 22nd, 1905.

"SIR,—With reference to Mr. Byrne's letter and ultimo (62,638 K.), enclosing a resolution and suggestions of the County Councils' Association, I am directed by the Commissioners in Lunacy to say that they have given careful consideration to the matters referred to therein, and have also submitted them to their consulting architect for his opinion.

"As regards the letter containing the resolution, the Commissioners have no difficulty in agreeing with the Association that the housing of acute cases of insanity and chronic lunatics who are incurable in the same class of building involves an unnecessary expenditure for the care of the latter, who might be accommodated in cheaper buildings.

"This view the Commissioners have frequently set forth in their annual Reports and elsewhere, and they are glad to notice that local authorities are gradually arriving at the same conclusion. As regards the memorandum, which seems to refer altogether to isolation hospitals:—

"(1) The Commissioners have required the present cubic space to be provided in accordance with the requirements of the Local Government Board, who have to be satisfied with plans of isolation hospitals for the building of which loans have to be authorised by them.

"(2) It is not usual to erect fences of any kind round isolation hospitals for asylums, but barbed wire fences, with which patients could seriously injure themselves, would be quite unsuitable.

"(3) No isolation hospital for an asylum is ever sanctioned by the Commissioners for more than three patients of each sex, and the Commissioners do not press for even this number.

"(4) In such a building open fire-places are a quite adequate means of heating.

"(5) Patent impermeable floorings are nearly always used in such buildings, and are always preferred.

"(6) The Consulting Architect doubts if this suggestion would decrease expense.

"(7) The suggestion of building window frames flush with the inner wall is frequently adopted.

"(8) (9) (10) It is considered to be extremely doubtful whether any useful result would be gained by further standardisation more than is already done.

"But it must be remembered that these points have reference only to the very small comparative expenditure for isolation hospitals, and touch only the fringe of the question. This would also be the case if they referred also to the buildings of asylums generally. The Commissioners have, however, been very glad to learn the views of the County Councils' Association, and to recognise its desire to reduce to a working minimum the expenditure upon lunatic asylums, a matter which the Commissioners have constantly and anxiously before them in their consideration of the plans which are submitted to them by local authorities.

"I am, sir,

"Your obedient servant,

"(Signed) A. H. TREVOR,

Secretary."

"35, PARLIAMENT STREET,
 "WESTMINSTER, S.W.
 "November 30th, 1905.

"DEAR MR. WILLIS BUND,—I have accepted your suggestion to write to you 'at my leisure' on the subject of the growing cost of lunatic asylums as discussed at a recent meeting of the County Councils' Association; but, owing to the more urgent claims on my time, I am afraid I have unduly delayed my letter to you.

"Turning up the other day a report I wrote a year or two ago in reply to a memorandum from a Principal Secretary of State urging the importance of curtailing expenditure on asylum buildings, I find it expresses generally my views on

the subject to-day, and I cannot do better than quote from it where pertinent to the present inquiry, enlarging where further explanation is desirable.

"Accepting the statement that the cost of lunatic asylums has increased of late years, and attempting to analyse the cause, I put aside, for the moment, the exceptional cases of excessively costly asylums designed by architects inexperienced in asylums construction, and who have possibly been tempted to compensate for the want of originality of plan by a lavish display of decorative art; and I am of opinion that the increased expenditure has arisen from the following causes:

"(1) The general increase of the cost of building; higher rates of wages being now paid than formerly and with less profitable results.

"(2) The exigencies of modern science, which demands *inter alia*:

"(a) A higher class of building and more costly internal finish by plastered walls, glazed brick linings, wooden dadoes, etc., introduced with a view to better sanitation and economy in maintenance.

"(b) A more luxurious equipment in the way of heating, ventilating, lighting, furnishing, etc.

"(c) Better sanitation, involving more perfect sewerage systems, with appliances and fittings of costly type.

"(d) Special construction to prevent the spread of fire and duplicate staircases throughout to allow alternative ways of escape.

"(e) More rapid and accurate means of inter-communication by electrical appliances.

"(f) The better accommodation for nurses and attendants than was formerly demanded when a lower class of imperfectly trained servants was employed.

"(3) In some cases by inexperience on the part of those responsible for the erection of asylums, and consequent waste or extravagance.

"While the above may count for much of the increased cost of asylums, it will be argued that these conditions are applicable to all classes of public buildings, and this is to some extent true, although with results generally in favour of asylums as compared with such buildings as infectious hospitals, board schools, and work-houses. The average cost per bed of a modern fever hospital is largely in excess of that of an average modern asylum, although the former is similar in construction and without the accessory buildings necessary to the latter, such as chapel, recreation hall, workshops, farm buildings, etc.

"Thus it must be conceded that the increased cost of modern asylums is no more than normal, and we must seek further afield if we are to discover a remedy for excessive expenditure.

"In the Secretary of State's memorandum above referred to, certain suggestions were offered as to the mode of housing the insane, classifying them as follows:

"(1) Dangerous patients, who should be kept beyond means of escape.

"(2) Hopeful cases, which should have special consideration.

"(3) Chronic, harmless, and tractable patients, who could be comfortably but plainly housed.

"If this classification were constant such difficulty would be removed, but unfortunately in the varying conditions of lunacy it is difficult to say when a patient can be classified as either hopefully curable, or chronic and harmless. The patient for years may belong to the latter class, but suddenly and unexpectedly make a rapid recovery; or, on the other hand, may as suddenly develop homicidal or dangerous tendencies; and, therefore, every asylum must provide accommodation for all classes of patients, who can be transferred speedily from one class of buildings to another.

"Still, much might be done to simplify the construction of asylums, particularly if some relaxation were allowed in the stringent rules laid down for the protection of patients.

"Prior to the Lunacy Act of 1844, terrible abuses prevailed in the treatment of the insane, but in the necessary steps taken to correct these evils very stringent regulations had to be enforced, which had the effect of surrounding the lunatic with such protective measures as to make it practically impossible for him to suffer accidental harm unless by a failure in the vigilance of those in charge of him; and woe betide the attendant whose vigilance fails at a critical moment.

"These protective measures are undeniably proper and salutary, but the effect has been to add to the cost of asylums by the introduction of new appliances for safe-

guarding patients and automatic devices for preventing accidents, together with modern inventions for insuring the vigilance of attendants, such as the tell-tale clock, or speedy means of communication between the staff by telephones or a telegraphic system of alarms indicating at once an outbreak of fire. Some of these and other special precautions are chiefly necessary with the acute and dangerous cases, and might be relaxed with chronic and harmless patients.

With regard to the second class of patients before referred to as "hopeful cases," considerable attention has of late been devoted to their accommodation and treatment, and in several modern asylums separate establishments apart from the main building have been constructed, where all patients showing any hopes of recovery are admitted and frequently discharged cured without ever entering the asylum proper.

These buildings, termed "Acute Hospitals," are constructed so as to offer special opportunities for segregation and treatment not possible in the main asylum, and, if more costly of construction, the outlay is justifiable on both humane and economic grounds if a greater percentage of cures is the result. With regard to the third class, the "chronic harmless and tractable patients," it has often been urged that provision might be made for them in asylums of simple and inexpensive form, and more than one attempt has been made in this direction.

In some of our most recent asylums detached villas of simple design have been provided, which, while perhaps not costing less than the ordinary chronic ward, will probably have the effect of showing that this class of patients can be relegated to convalescent homes under less costly administration than in an ordinary asylum.

"But to consider further the possibility of reducing the cost of asylum buildings generally, I am of opinion that something might be done if some of the principles already referred to could be sacrificed. In the early days of asylum construction lunatics were treated more like felons, and buildings were constructed of massive proportions and strength, and in the evolution of asylum architecture this idea of forcible detention has always more or less prevailed, and our asylum of to-day, while losing much of its prison-like features, retains much of its strength, and frequently goes far beyond the domestic buildings which these people occupy in ordinary life.

"Modern science has taught us that certain materials properly applied can be used in smaller quantities to produce as sound and durable results as our forefathers obtained by the lavish use of material on less scientific methods, and I am satisfied that one-storey buildings of lighter construction with less solid foundations, no fireproof floors or ceilings, and no staircases, could be erected at less cost per bed than the two- or three-storey wards now common to our asylums.

"This form of building would cover more ground and would therefore involve a totally different system of planning, in which some of our present ideas would have to be discarded, but I am satisfied that the whole of the chronic quiet and tractable cases, together with epileptics and a large proportion of the sick and infirm, could be housed in these wards at a less initial cost, and also, I believe, at a lower rate of maintenance, owing to the buildings being all on one floor level, than in our present two- or three-storey buildings.

"Special provisions of a somewhat more expensive character would have to be made for refractory cases, and also for such of the sick and infirm class as were under hospital treatment, the recent cases being treated in the separate buildings before referred to as the 'Acute Hospital.'

"The continued growth of lunacy, which has now reached an annual increase of more than 3000 cases in England and Wales alone, representing a capital outlay of nearly a million of money, makes it desirable that means should be devised for housing the insane at a moderate cost; otherwise, with the rapidly-growing debt of the country, it will be impossible to build isolation hospitals or do anything to promote the welfare of the useful and deserving classes, educationally or socially. When, therefore, we consider the costly finish and fittings of the present-day asylum, the question presents itself—Is it fair that such large sums of public money should be spent in the excessive protection and prolongation of life of a class who can never be of use to their fellow men, and who are little comfort to their friends or joy to themselves? Should it not suffice to provide them with accommodation as good as they have had in their own homes, with reasonable protection and

comforts, but without unduly prolonging their lives by the excessive care and luxury so generally insisted upon in the modern asylum?

"In conclusion, I wish to call your attention to a reference you made the other day about the cost of your new asylum, which was somewhat misleading. You said it would work out at a rate of £325 per bed. While this may be strictly true, you forget that the administrative buildings—recreation hall, workshops, laundry, etc.—are constructed for an asylum of double the present size, so as to allow of future extension, and as the patients' wards represent scarcely half the value of the entire building, you have already expended three fourths of the cost of an asylum for double the present number of patients, and therefore, when the additional wards are erected, the average cost of your building will be reduced to £240 a bed.

"Many asylums of recent date have cost no more than this, and even less, as in the case of the County of London, where, in spite of high wages, asylums are built perhaps more economically than in any other county in England. Two asylums quite recently completed by the L.C.C. have cost, in the one case less than £200 per bed, and in the other not very much more; while a third they are now building on similar lines bids fair to rival the other two in completeness and cost.

"I am, yours truly,

"GEORGE T. HINE."

The County Council Times and Local Government Review.

COMPLIMENTARY.

Dr. JOHN B. CHAPIN.

WE have received a handsome volume giving an account of a notable dinner in honour of Dr. Chapin, of the Philadelphia Hospital for the Insane, on the completion of fifty years' professional work. Dr. Chapin, as is very well known, succeeded that lamented physician, Dr. Kirkbride, whose name is held in especial reverence on both sides of the Atlantic. The chair was occupied by Dr. Edward N. Brush, who had occasion to say many fine things about Dr. Chapin, and the proceedings, which were most enthusiastic and widely supported, culminated in the presentation of Dr. Chapin's portrait, a fine photogravure of which adorns the memorial volume. We heartily congratulate Dr. Chapin and his friends on this happy occasion.

Mr. R. H. HEURTLEY SANKEY.

Mr. Sankey has retired after a notable length of active service at the Oxford County Asylum. Indeed, it may be doubted if there has been another medical superintendent so long on duty, with the exception of Mr. Humphrey at the neighbouring institution for Buckinghamshire. Mr. Sankey's residence at Littlemore stretches over fifty-two years, and we trust that he will favour us with his reminiscences of the many changes which he has witnessed during his professional life. It was Mr. Ley, of Littlemore, Mr. Sankey's predecessor, who proposed the establishment of this *Journal*, while he was treasurer of the Association; and for fourteen years these two gentlemen were associated as medical superintendent and assistant medical officer. Mr. Sankey was thus brought into contact with the Association in its early development, and can recall the memories of those we specially honour. His name is distinguished in our lists by the asterisk showing that he joined before 1855, and there is but one veteran, Dr. T. N. Brushfield, to bear him company. Long life and happiness to both!

We are glad to observe from the *Oxford Times* of March 10th that Mr. Sankey retires on a pension of £582 per annum, such sum not exceeding the amount of two thirds of his salary and emoluments. Some adverse comments were made at the city council meeting, but the motion passed with only three dissentients. The committee made handsome acknowledgment of Mr. Sankey's work which those of us who know him will gladly endorse, while his wide circle of friends will wish him many and happy days in his retirement.

NOTICE BY THE REGISTRAR.

The next examination for the Certificate of Proficiency in Nursing will be held on Monday, May 7th, 1906.

NOTICES BY THE LIBRARIAN.

ADDITIONS TO THE LIBRARY.

DONATION.—*Criminal Responsibility*, Mercier.

PURCHASED :

- Bianchi, L.—*Text-book of Psychiatry*, Trans. by L. Macdonald, 1906.
 Kraepelin, E.—*Lectures on Clinical Psychiatry*, Trans. by T. Johnstone, 1906.
 Du Fursac, J.—*Manual of Psychiatry*, Trans. by Rosanoff, 1905.
 Paton Stewart.—*Psychiatry*, 1905.
 Krafft-Ebing.—*Insanity*, 1905.

NOTICES OF MEETINGS.

Annual Meeting.—The President-elect suggests that the next Annual Meeting be held in London on Thursday and Friday, July 26th and 27th, 1906.

Quarterly Meeting.—The next meeting will be held at the rooms of the Association on Thursday, May 31st, 1906.

Northern and Midland Division.—The Spring Meeting will be held, by the courtesy of Dr. Macphail, at Derby Borough Asylum, on Thursday, April 19th, 1906.

South-Eastern Division.—The Spring Meeting will be held, by the courtesy of Dr. Boycott, at Hill End, St. Albans, on Wednesday, April 25th, 1906.

South-Western Division.—The Spring Meeting will be held at the Winsley Sanatorium, near Bath, on Friday, April 27th, 1906.

Irish Division.—The Spring Meeting will be held on Tuesday, April 24th, 1906.

APPOINTMENTS.

Dobson, Margaret B., M.D.Lond., Pathologist to the West Riding Asylum, Wakefield.

Gostwyck, C. H. G., M.B.Edin., Senior Assistant Medical Officer to the Stirling District Asylum, Larbert.

Laval, Evariste, M.B.Edin., Assistant Medical Officer to the Warneford Mental Hospital, Oxford.

Miller, Jas. Webster, M.B., Ch.B., Assistant Medical Officer to the Dorset County Asylum, Herrison.

THE
JOURNAL OF MENTAL SCIENCE

[Published by Authority of the Medico-Psychological Association
of Great Britain and Ireland.]

No. 218 [NEW SERIES
No. 182.]

JULY, 1906.

VOL. LII.

Part I.—Original Articles.

Amentia and Dementia: a Clinico-Pathological Study.
By JOSEPH SHAW BOLTON, M.D., M.R.C.P., Fellow of
University College, London; Senior Assistant Medical
Officer, Lancaster County Asylum, Rainhill.

PART III.—DEMENTIA (*continued*).

	PAGE
<i>Introduction</i>	221
<i>The general pathology of mental disease and the functional regions of the cerebrum</i>	224
<i>Mental confusion and dementia</i>	428
I. <i>Causes of mental confusion</i>	429
II. <i>Symptomatology of mental confusion</i>	433
(A) <i>Psychic phenomena due to pathological conditions of the centres of association</i>	434
(1) <i>Simple mental confusion</i>	434
(2) <i>"Confabulation"—"Pseudo-reminiscence"</i>	445
(3) <i>"Delusion"</i>	456
(B) <i>Psychic phenomena due to pathological conditions of the regions concerned with the evolution of sensation and recognition, and allied products of aberrant mental association</i>	465
(1) <i>"Illusion"—"Hallucination"</i>	465
(2) <i>Complex psychic states evolved from these</i>	481
III. <i>Sequelæ of mental confusion</i>	486
<i>Recovery</i>	486
<i>Stationary dementia</i>	487
<i>Progressive dementia</i>	488
[<i>Group I—Primarily neuronc dementia</i>]]
[<i>Group II—Progressive and secondary dementia</i>]]
[<i>Group III—Special varieties of dementia</i>]]

MENTAL CONFUSION AND DEMENTIA.

IN the present section the writer proposes to deal at length with the symptomatology, which is the psychic equivalent of those physical states of the cerebrum which are the necessary precursors of dissolution of the cerebral neurones. There being no suitable word in use for the description of this symptomatology, and it not appearing desirable to coin a new one for the purpose, the term "mental confusion" will be employed to connote, in the broadest sense, the mental symptoms which occur in association with certain pathological states of the cortical neurones which may be followed by the recovery or by a more or less extensive dissolution of these elements.

In the introduction to this part of the paper (pp. 221-224) the writer has already indicated the types of case in which the latter of these sequelæ ensues, and it is sufficient for the present to state that the former sequela occurs in cases in which the cause of the pathological state of the neurones is of a temporary or removable nature, and has been neither so prolonged in duration nor so severe in degree as to cause irreparable damage to more than a negligible number of the nervous units of the cerebrum.

Patients suffering from mental confusion may thus recover, or, at any rate, may recover sufficiently to pass as "sane" individuals. If, however, the mental confusion is profound, more or less weak-mindedness is probably an invariable sequela; and in cases where neuronc dissolution is the result of a normal process of involution, or is due to a progressive or irremovable cause, the ensuing grades of dementia are each preceded by a degree of mental confusion the duration and severity of which bear a direct relationship to the amount of dementia which follows.

As has already been pointed out in dealing with the subject of amentia (*Journal of Mental Science*, 1905, p. 665), the aberrant symptomatology manifested by cases of ordinary high-grade amentia or of recurrent insanity does not pass beyond a psychic stage which might be mistaken for mental confusion, but which is really allied, on the one hand, to the inability to think which occurs in some persons owing to nervousness—*e. g.* a student at a *vivâ-voce* examination—and on the other to the thoughtless remarks of children or persons who happen to be "talking

through the backs of their heads." This mental state may be conveniently referred to under the term "psychic resolution"; there is no reason to suppose that it is associated with other than functionally aberrant neuronc activity; and recovery occurs sooner or later.

The phenomena to be described in the present section under the term "mental" or "psychic confusion" differ from those just referred to in being the result of definite pathological states of the cortical neurones. If the neurones recover, the mental confusion disappears; if irreparable damage to an appreciable number of the cortical elements has ensued, a proportionate degree of permanent psychic disability, or "psychic dissolution," is the necessary consequent.

The types of mental disease described in Part II under the term "Amentia" therefore differ fundamentally from those to be considered in the present and final division of the paper in that the symptomatology of the former is due to subnormal or aberrant neuronc activity of developmental origin, and that of the latter is caused by aberrant or defective cerebral processes which have their basis in primary or secondary pathological states of the cortical neurones.

CAUSES OF MENTAL CONFUSION.

The major proportion of cases of mental confusion are examples of natural involution of the cortical neurones, which occurs in the reverse order to that of their evolution, and ensues at such individually diverse periods of life as are determined by their inherent capacity of resistance to the process of decay. In such cases, whilst it is usual for both the actual point of time at which the process of dissolution commences, and also the extent and degree to which it at any particular time proceeds, to be largely influenced by extraneous factors, a well-marked grade of dementia is the invariable final sequela.

It is, nevertheless, common to meet with cases of mental confusion which are directly produced by extraneous causes at a time prior to the period when normal involution of the cortical neurones is imminent. If such cause be temporary or removable, more or less complete recovery of the cerebral neurones (and from the mental confusion) may ensue, or more or less wide-

spread destruction of the cortical units (with for the time being a stationary amount of dementia) may follow. If, on the other hand, the extraneous cause be of a permanent and progressive nature, the ensuing neuronc dissolution and consequent dementia progress until death occurs.

It is thus evident that foremost amongst the causes of mental confusion must be placed what is, in at any rate a very large proportion of the cases in which it occurs, the necessary precedent to this psychic state, namely a subnormal durability of the higher neurones of the cerebral cortex.

It is true that a general toxæmia of sufficient intensity is able to produce a temporary state of mental confusion even in normal cerebra—*e. g.* the deliria of infectious diseases, of certain organic and inorganic poisons, etc. In these cases, however, the neurones of the cerebrum suffer from pathological changes which are similar to those occurring in the other vital units of which the body is composed; and the exact incidence and intensity of the lesions differ in different cases according to the special selective action of the particular toxine under exhibition.

In the types of mental disease which are at present under consideration, influences to which normal cerebra may be without injury subjected frequently produce widespread dissolution of these elements with a corresponding degree of permanent mental enfeeblement; and in a considerable number of cases a rapid or slow premature dissolution of the cerebral neurones occurs in the reverse order to that of their evolution and in the apparent absence of any extraneous causative agent.

This inherent durability or capacity of resistance to the process of decay, which varies so greatly in the case of the cerebral neurones of different individuals of the race, is not peculiar to the cerebrum, though, owing to the great complexity and consequent instability, and to the relatively recent evolution of the higher elements composing this organ, it is probably much more variable in degree in the case of the cerebrum than in that of any of the other tissues or organs of which the body is composed.

It is therefore necessary amongst the causes of mental confusion to place first the physical basis, which in at least all severe cases is the necessary precedent to this psychic state, namely a *deficient durability of the higher cortical neurones.*

Next on the list of causes, owing to the fact that, though

secondary or exciting causes only, they are not pathological in nature, may be placed the *various forms of physical and mental "stress"* which, especially at the "critical" periods of life, often excite morbid changes in cortical neurones of deficient durability, although they would be relatively or absolutely without prejudicial influence on normal cortical neurones.

Lastly, the chief exciting or secondary causes which are pathological in nature must be detailed. These may be classed into two groups, namely:

(1) *Direct action of toxines*.—Of these the most important, and also the most common, are alcoholic excess, which produces the symptom-complex described as "Korsakow's disease" and the toxæmia which frequently follows childbirth, and which is responsible for the "confusional" varieties of puerperal insanity. The different toxæmias and infections, when acting on suitable cerebra, are probably equally capable of producing pathological changes in the neurones of the cortex, but such causative agents act more rarely than do the two first cited.

Whether the cases which arise in consequence of the action of one or more of these causative agents recover or develop dementia depends on the resistance of the affected neurones and on the extent and severity of the pathological changes which are produced.

(2) *Indirect action of toxines* resulting in deficient nutrition of the cortical neurones and, therefore, tending to interfere with their vitality and functional activity.

(A) *By vascular and neuroglial* (and chiefly secondary neuronic) *changes, which follow prolonged action of the toxine,* and which are probably largely of the nature of secondary proliferation after, or of reaction to, the injury produced by the toxine, or by adverse influences occurring at any subsequent period of life.

The chief variety under this heading is the dementia paralytica (general paralysis) which is a frequent sequela of systemic syphilis in degenerates, and which rapidly or slowly passes on to a fatal issue.

The course taken by cases of dementia paralytica depends largely on their respective degrees of degeneracy.

In the under-developed and poorly constructed neurones of the imbecile variety of juvenile general paralysis the process of dissolution is slow, and the neuronic changes, as has been

shown by Watson, are proportionately more extensive than are the vascular and neuroglial.

On the other hand, in the better developed cerebra of the ordinary juvenile general paralytic who is infected with syphilis at birth or thereabouts the process of dissolution is more rapid and vascular and neuroglial proliferation is more pronounced.

Further, in adult cases of general paralysis the course is usually chronic in degenerates, who readily break down under the influence of external "stress," and who, therefore, require early segregation, with the consequent relative absence of this factor; and it is commonly more rapid in the less degenerate subjects who, before break-down occurs, are frequently subjected to the severest forms of mental and physical "stress," and whose neurones are therefore strained to the utmost before asylum *régime* becomes necessary. In both these types, as the syphilitic infection at the time of its occurrence had acted on already developed neurones and therefore had not induced still further developmental disabilities in these, vascular and neuroglial proliferation is pronounced.

Finally, in senile cases of general paralysis, in which reparative reaction is naturally more feeble, the course of the process of dissolution is variable, and the general type of the symptomatology and of the morbid anatomy and histology approximates towards that which exists in senile progressive dementia.

Though previous syphilis, as has been stated, is usually the important extraneous factor in the production of (secondary) presenile dissolution of the cerebrum, other influences, particularly certain of the slowly-acting metallic poisons—*e. g.* lead—produce a progressive cerebral dissolution of similar character; and about 25 *per cent.* of the insane who are the subjects of epilepsy suffer from a similar progressive disintegration of the elements of the cerebrum. The pathological changes which exist in the cerebra of such epileptic cases have recently been elaborately detailed by Turner.

It may be added that such devitalising factors as prolonged alcoholic excess, etc., play an important secondary part in the development of many of the cases referred to under this heading.

(B) *By the vascular degeneration accompanying senility or premature senility*, which similarly results in secondary toxic and nutritional affection of the cortical neurones. In cases of this

type also the dementia which supervenes progresses rapidly or slowly until death ensues.

It is perhaps unnecessary to remark here that, as has already been shown at length both in Part I of the present communication and also in previous contributions, vascular degeneration, even when extreme, has relatively little influence on cerebral neurones whose durability is within normal limits.

SYMPTOMATOLOGY OF MENTAL CONFUSION.

It is proposed in the following description to deal with the subject of mental confusion from the psychological rather than the purely symptomatological aspect, and therefore neither the mode of presentation nor the actual subject-matter under consideration will be found to conform to the standard description of the symptom-complex which is usually referred to under such various names as "confusional insanity," "Korsakow's disease," etc.

This mode of treatment is adopted as it is the writer's purpose to demonstrate that mental confusion is not a special symptomatological feature of a certain type of mental alienation, and that it occurs, not only in many recent cases of insanity which terminate favourably, but is also the necessary precedent to the onset and progress of dementia in all cases which eventually suffer from cerebral dissolution.

The subject will be discussed, for purposes of convenience, under certain headings, and descriptive cases which illustrate the special psychic disturbances under consideration will be introduced into the text. The general description will fall under two main subdivisions: (1) psychic phenomena due to pathological conditions of the centres of association, and (2) psychic phenomena due to pathological conditions of the regions concerned with the evolution of sensation and recognition, together with allied products of aberrant mental association.

Under the former heading simple mental confusion will first be referred to; the description of this psychic state will be followed by an account of the symptoms usually spoken of as "confabulation" or "pseudo-reminiscence," and reference will then be made to the more aberrant processes of (lower) association which result in the production of "delusions."

Under the latter heading the nature and mode of develop-

mental "illusions" and "hallucinations" will receive consideration, and certain more complex psychic products which occur under the local influence of the latter phenomena will also be referred to.

(A) *Psychic Phenomena due to Pathological Conditions of the Centres of Association.*

(1) *Simple Mental Confusion.*

In profound mental confusion, whilst the subject takes no voluntary notice of his surroundings and pays no attention to the calls of nature, if he be able to exhibit any evidence of mental activity whatever, a simple question is obviously understood. Unless such a question requires a familiar reply and this reply is made with reasonable rapidity, the impression produced fades, and the patient forgets that the question has been asked. Sometimes a question, though understood, is forgotten before the reply is forthcoming, and the patient responds with such remarks as "What do you say?" "I don't know," etc. It is hardly necessary to remark that such an extreme abeyance of psychic function even for a short period of time naturally results in an entire loss of such fundamental perceptions as those connected with time and place, which in the normal individual depend upon his cognisance of sequence of sensations, and permanence or change of position, respectively.

If the confusion be less profound, the patient may, apart from his ignorance of time and place, converse in an apparently normal manner for a considerable period. He is, however, largely or entirely unable to retain recent impressions for any reasonable period of time, and he frequently forgets different pieces of information almost as soon as he has acquired them. He may, for example, be repeatedly told where he is, the time of day, etc., at intervals of a few minutes, and at the end he is as ignorant on these particular points as he was at the beginning. Whilst the rapid fading of mental impressions is especially obvious with reference to time and place, it exists, in well-marked cases, with regard to all varieties of new information.

It is hardly necessary to add that in severe cases the patient confines himself to the giving of replies to questions or to

the acknowledging of information, and makes no attempt at voluntary conversation, for the rapid fading of new mental impressions entirely bars the formation of further associative combinations.

In the following case of profound confusion the patient was successful in giving his name and age, but further questioning caused him to be unable to do so, probably through the rapid onset of fatigue, though it was quite obvious that he still understood the question. When later, after an interval of rest, he was again able to give his name, he voluntarily followed this by a statement of his age, which demonstrates that a remnant of the power of association by contiguity was existent. To other questions he replied "Yes," "No," or "Don't know," but a question concerning syphilis, which so commonly induces an indignant denial, made a sufficiently lasting impression to obtain a definite response of "Never had it."

CASE I.—*Admitted November 18th, 1904 (Hellingly Asylum). Father insane. Cause, intemperance.*

Male, married, licensed victualler, æt. 57. Present notes taken on admission.

A pale, miserable-looking man. He gives his name and says his age is forty. To questions of day, date, month, year, etc., he says "Don't know, sir," and he makes the same reply to that of the time of day. He knows no one here and doesn't know where he lives or where he is. Then he tells me that he doesn't know his name, and when I say that he has already told me he says "Have I, sir?" After an interval of rest he is able to give his name, and then he voluntarily adds his age is forty. He then to all questions says "Have I?" "I don't know," and "No," and "Yes." He "doesn't know" what anything is that is shown him. He denies alcoholic excess. When asked his business he "ain't got one." ("Ever had?") "No." ("Married?") "No." ("Ever been?") "No." ("Children?") "No." ("Ever had?") "No." ("How long ago syphilis?") "Never had it!" He looks dull and sleepy, but replies readily enough. He understands, as far as can be made out, all that is said to him and does as he is told in every way.

After physical examination he says: "You've been very good to me." ("You are a funny customer!") "I am?" ("You weren't born yesterday?") "Wasn't I?" ("No!") "I

thought I was." When he is got to laugh, he laughs in a most fatuous and uninterested manner.

Pupils equal, 1 mm., and absolutely immobile. Ears very plain. Palate very long and large. Tongue catarrhal and finely tremulous. Plantars dull. Knee-jerks absent. He lifts and moves his legs freely. There is no apparent sensation of any kind in his legs, and yet there is no inco-ordination. When told to put the left heel on the right great toe, he crosses the left leg over the right. When asked to repeat it, he crosses the right leg over the left. He can at once touch together the big toes and the heels. He shows Romberg's sign well, but there is no marked stamping when walking, and no wide base. Abdominal reflexes present. Severe double aortic disease, with much hypertrophy and dilatation of heart.

Patient died three and a half months after admission.

In contrast to the above case is the following, which, however, still exhibits such marked inability to retain recent impressions that though the patient had only had his dinner a few minutes, he thought that "it is getting on to dinner-time." He was almost unable to originate remarks of his own, but he replied readily enough to questions, and paid a certain amount of attention to his surroundings, as he asked for a light for his pipe and tried to look at the writer's note-book. He had no idea how long he had been in the asylum or even of the time of the year. In spite of his advanced age and general feebleness, he was anxious to go out to work, and he believed that it was his custom to work every day.

Though not a single one of these symptoms affords definite evidence of present dementia, they indicate, in a man of seventy-eight, that dementia is (almost) certain to supervene, even though they should have been directly produced by alcoholic excess, of which there was no evidence in this case.

CASE 2. Admitted November 30th, 1903 (Hellingly Asylum).— Previous attack of unknown date. Duration prior to admission stated to be about two years.

Male, æt. 78, labourer, admitted five days ago.

Patient smiles pleasantly and asks me for a light for his pipe. He tries to see what I am writing. He gives his name, and his age as "getting on for eighty." He "cannot say justly when I

came here, but I have been here a tidy while." He thinks he is in a "union." He doesn't know the day "as I have been here so long." When asked the time of year he replies that "it is getting on to the back end of summer" (beginning of December). He had his dinner a few minutes ago but still thinks that "it is getting on to dinner-time." He tells me that he works here every day.

He frequently asks to be allowed to work out in the garden. He wanders about the corridors and endeavours to find his way outside. He dresses himself but is slow over it. As a whole he acts quite intelligently, but owns that at times he "gets a bit lost and wants to go away."

Patient died thirteen months after admission.

The following case also exhibits much mental confusion, but the patient is better able to originate remarks and can also perform simple acts of mental association, which, however, are concerned chiefly with the events of long ago. She cannot, however, state her age correctly, and does not appreciate that her eldest daughter is nearly as old as herself if her information is correct. She also states at different times that she has had six children, that she has buried five, and that she has brought up twelve.

These features of the case, as will be pointed out later, demonstrate that considerable mental dissolution has already occurred. That she suffers from illusions of identity points, on the other hand, as will be shown later, to the existence of recent pathological changes in the cortical neurones.

CASE 3. Admitted November 16th, 1903 (Hellingly Asylum).— Mother died in an apoplectic fit. Duration prior to admission stated to be three years.

Female, *æt.* 74, admitted twenty-four hours ago.

Patient gives her name and states that her age is "one or two and twenty." She has had six children; the eldest is about eighteen and the youngest "just runs alone. She's a picture, and she'll run after any man. Her brothers learned her to run after 'em." She laughs heartily and childishly after this remark. "Yes, I've buried five. That's a good many, wasn't it?" ("Married?") "It is in the book, I know. I couldn't tell you." ("Who is that?") "I don't know her. Oh!

Yes, I think I do! Of course I do. How are you?" Sits up and shakes hands. "I'm pleased to see you, quite pleased. I keep on cough, cough, cough, cough. It's such a jarring complaint for your head, ain't it?" She does not know the day, and when asked the time of year replies, "My girl could directly, I dare say, only she's gone out." She thinks she is at "Mount Pleasant." Later on she says that she has brought up twelve children, and that the head nurse is the youngest of them. She is garrulous and volunteers such remarks as "Like herrings? I'll bring you up some."

Patient died eleven months after admission.

The next case exhibits an equal amount of mental confusion but shows less signs of dementia. The patient is thus better able to appreciate her condition, and shows *consciousness of confusion* by the remarks: "I forget, poor old wretch that I am. I'm good for nothing," and "Blessed if I can tell you. It confuses me when I get two or three things on my mind at once, but I shall remember." She exhibits illusions of identity and is lost to time and place. It is noteworthy that her attempts at mental association, as would be expected, deal with recent experience rather than with the events of long ago, and thus differ somewhat from those of the previous case.

CASE 4. *Admitted December 10th, 1903* (Hellingly Asylum).—No history. Duration prior to admission stated to be about six weeks.

Female, æt. 81, widow. Admitted twenty-four hours ago. Restless, fidgets with the bed-clothes, and smooths them out, etc. She asks me how I am, and when I make a remark she at once asks me what I say. She has met me before "close to home; I know you by sight." She thinks the nurse is called Haverdale. She is in a hospital "almost close to the top of the street. I came this morning." "I forget, poor old wretch that I am. I'm good for nothing." The day is Tuesday (Friday). It is about November 3rd (December 11th). She has been here since the beginning of the week. She doesn't know the time of day. The month is "September or October; yes, October, but I came here in September." She thinks she came on Tuesday. She had tea an hour ago, "two nice cups," and thinks it is about eight o'clock (6.15 P.M.) She came here in

“October, yes September; October. I forget the day of the month. I haven’t been here long, have I? I shall try to do everything I can whilst I am with you.” She has a husband, D. R—, who is “not quite so old as me. Blessed if I can tell you. It confuses me when I get two or three things on my mind at once, but I shall remember. I hardly ever go from home anywhere.”

The patient is extremely restless, is very apprehensive, and is wet in her habits.

Patient died eight months after admission.

The following pre-senile case shows on the one hand much less loss of the capacity for association of ideas, and on the other such marked illusions and hallucinations that a degree of apprehensiveness and depression is produced which causes the patient to be at times almost frantic.

Whilst it might, perhaps, be argued that in such a case apprehensiveness is the primary feature and that both the illusions and the hallucinations are secondary developments, a careful study of this and similar cases, and also of numerous types of the delirium of acute alcoholism, has convinced the writer that the interpretation he has given is correct. He is of opinion that, in at any rate the vast majority of cases, gross emotional disturbances, which occur in conjunction with aberrant sensory or associative phenomena, are modifications of the normal emotional tone of the individual which are produced by these. It is commonly observed that cases of confusion where the associative functions are largely in abeyance exhibit little or no emotional disturbance; also extremely marked illusions and hallucinations often occur together with both consciousness of confusion and a capacity for the performance of mental association, and the patients may or may not suffer from severe emotional disturbance.

*CASE 5. Admitted March 24th, 1904 (Hellingly Asylum).—*Duration prior to admission stated to be about one month.

Female, married, wife of a farm labourer, æt. 52. Admitted twenty-four hours ago.

A dull but perplexed woman, who asks, “What is this all about, doctor? What am I here for? Whatever have they brought me here for I can’t think.” (“Are you miserable?”) “I feel awfully miserable. I haven’t seen nothing or done nothing.

Everything seemed to go wrong, work and everything; washing and everything seemed to be all just anyhow. The things I put on the line seemed to be changed, sometimes things with no names on. I wish they had given me some poison before I came here. . . . Oh, dear, dear! . . . I fancy someone has tried to do me harm but they say not. They say they don't wish me no harm and yet I fancy they do. . . . Sometimes I don't know my husband, I think it is somebody else. Sometimes he don't look like my husband and another time he do. I think he came with me yesterday as it was his overcoat he used to wear" (*i. e.* the relieving officer).

She knows the day when she came. "Friday, or is it Saturday?" (Friday correct.) She knows the month but not the date. The year is "1893 or is it 1894?" (1904.) She hears people talking at night. She has seen "funny-looking things in the beds with horns on their foreheads rolled up," and they look at her all night and she couldn't sleep, and there were funny noises, "sissing" going on (probably from the steam-pipes). When at home she thought that people tried to get into her room and she heard them talking, and they threw things about to drug her and make her go to sleep, and she talked in her sleep. "I wish some one would give me some poison and get me right out of it. I don't want to live, I want to die." She is very depressed and extremely apprehensive.

Patient was discharged "recovered" six months after admission.

The next case is of a different type. The confusion is severe, but simple, in that neither numerous aberrant sensory phenomena nor marked aberrations in the processes of association are present. In this connection it may be noted that an exciting cause existed in the physical illness of the patient, and that the mental confusion, though marked, was not associated with grave pathological changes in the cortical neurones, for the physical and mental conditions improved together. As frequently occurs in such cases, the patient was conscious of her confusion, and during her examination she made distinct efforts, which were often successful, to overcome it. This variety of mental confusion, in fact, much resembles the mental condition which frequently follows the medicinal administration of sedatives to sane individuals.

CASE 6. *Admitted December 21st, 1904* (Hellingly Asylum).—Maternal aunt insane. Exciting cause lactation. Duration prior to admission, one week.

Female, single, domestic servant, æt. 33. Notes taken three days after admission.

A dull, vacant-looking woman, who appears pale and ill. She gives her name and says her age is 32. ("Day?") "I'm confused; I couldn't tell you truly; Thursday. Is it Saturday?" (Correct.) She came at the beginning of the week. ("Date?") "Don't you know? I am so confused, I don't know, but I think someone said the 21st. To-day is the 24th if Christmas Day is to-morrow and falls on the 25th." (Correct.) She knows the nurse, but not by name, and she has, she thinks, seen me before, and says, "It wasn't you that rode with me, was it?" (*i. e.* the relieving officer.) ("Time of day?") "They gave me no breakfast, so I can't go by that, and the winter is generally so dark. If I guessed it I should think it was about—it's no use saying—ten o'clock on a winter morning, don't it?" (9 a.m.)

On admission patient was restless and excited and screamed with the pain from her distended left breast. She is now taking her food and is fairly comfortable. She was wet once last night.

She gets very distressed during physical examination. Hair and eyes dark brown. Pupils normal. Tongue catarrhal. Teeth good, but separated by gaps. Palate very high both back and front. Ears plain and possess abnormally large lobules. Reflexes brisk. Right breast contains milk; left is very distended, hard, and painful. Patient is very pale and anæmic.

Patient was discharged "recovered" five and a half months after admission.

The following case exhibits the preliminary symptomatology of one of the types (usually described under the term "catatonía") of the dementia of prematurity. The confusion is severe. The patient thinks that he is at home. He knows neither the day nor the date. At different times he states that he came here "Just now," "Three years ago," and "Oh, about a week," and he exhibits well-marked illusions of identity. His method of writing his name is very characteristic of that

seen in cases of, or developing, the dementia of prematurity, and differs entirely from the often rapid and always certain mode adopted by the non-confused high-grade ament.

CASE 7. *Admitted May 8th, 1906* (Rainhill Asylum).—The patient was born and educated and served his apprenticeship as a draper in Ireland. He then came over to England and earned his living as barman in a public-house for three years, after which he acted as steward on an American liner during four voyages. He then drank fairly heavily, chiefly of wine, for a month, and required removal to an asylum.

Male, single, steward, æt. 22. Notes taken the day after admission.

A young man who is at times restless and excited and at others quiet. He frequently strikes attitudes, and as a rule his limbs are in a condition of cataleptoid rigidity, and may be placed in almost any position, from which, however, they slowly fall under the influence of gravity. His face is greasy, and his forehead, even during excitement, is quite expressionless.

Since admission he has been very restless, noisy, destructive, resistive, and wet and dirty, and he only slept two hours last night.

He gives his name and age. He came here "Just now," and on repetition of the question "Three years ago." He is now at "18 S— Street, L—." The attendant near him is "like my aunt, she's living there, 18, and my mother, sisters, and brother, brother Jack." The head attendant is "a chap from America, Leonard, that's his name, like him anyhow." He has never seen me before (untrue). The day is Friday (Wednesday). The date is "4th of . . . 1st of May, isn't it, 1906?" (9th May.) Asked again where he is, he says "L—, S— Street, 18, you know, 18, 18, S— Street, L—, England." Asked when he came, he says "Wednesday the 2nd," and how long here, "Oh, about a week." He writes his name and address, and before writing each word twists the pencil in his fingers, makes an elaborate commencement, and doctors up each word afterwards as if he could not leave it alone.

His teeth are good, but irregular. His palate is a mere deep chink. The upper part of the pinnæ of the ears is irregular, owing to deficiency and crumpling up of the cartilage. The deep reflexes are dull and the superficial brisk.

June 14th, 1906.—The mental condition of the patient is unchanged since admission.

The last case of this series is also an example of the dementia of prematurity, but is of the type usually described as "hebephrenia." It is inserted in contrast to the case last described, as it is probable that mild dementia has already ensued, although considerable confusion is still existent. Her method of writing her name is as characteristic as is that of the preceding case, and her knowledge of time and place is greatly deficient. She exhibits a certain consciousness of her inability to think, and a general lively manner which, quite apart from previous history or future development, suggest on the one hand that mental dissolution has not occurred to any great extent, and on the other that the morbid process is still active.

CASE 8. *Admitted November 30th, 1904* (Hellingly Asylum).—Duration prior to admission is about one month, and patient is stated to have had previous attacks at home.

Female, single, domestic servant, æt. 24. Notes taken half an hour after admission.

A simple-looking, smiling girl with horizontal wrinkles on her forehead. Gives her name. ("Age?") "Don't know, I'm sure." ("Think!") "Can't think." She eventually says "Near thirty." She "fancies it is Wednesday" (correct). ("Month?") "December, I fancy" (November). ("Year?") "Don't know. I have no sense at all." ("Where are you?") "At home, I fancy." Then states that she was sent away for "frightful sensitiveness." She replies that she never had a sweetheart. She "fancies" she has nine brothers and sisters, and that she is the fourth. She grins and smirks in reply to questions. She has done no work for three or four years. In writing her name, which she does in a slow, careful, and halting manner, she puts down her surname first and then begins to write the Christian name before it without leaving sufficient room. As a result the latter is partly written on the top of the former. She looks the name up and down and then adds to it "thirty ages." She came with a nurse and the relieving officer half an hour ago, but tells me that she is "supposed to" have come with her mother. She whispers to herself, plays with her fingers, and smiles inanely. Suddenly she springs out of bed, bows to me, seizes the nurse

round the waist, and says that she doesn't mind amusing us and that we may make fun of her.

Hair brown and nitty. Eyes large, grey, and mobile. Pupils equal, dilated, and react normally. She frequently blinks. Mouth and lips large. Palate very high and narrow. Teeth irregular and decayed. Tongue catarrhal. Superficial reflexes normal. Knee-jerks + + p. c. Breasts virginal.

May 27th, 1906.—The patient is still in the asylum in a condition of "chronic mania."

It is hoped that the cases which have been described above, and which are examples of many common types of mental disease, are sufficient to illustrate one aspect of the basis on which the writer has originated the thesis that mental confusion, though not necessarily resulting in mental dissolution, is the necessary precedent to the appearance of dementia. Amongst these cases are examples of mental confusion in senile, presenile, adult, and adolescent subjects. Further, one of the cases illustrates mental confusion produced by alcoholic excess and another that following early lactation and precipitated by severe distension of the mamma.

The cases which exhibit more or less profound simple mental confusion may therefore be placed in three categories. A considerable number recover from this psychic state without obvious mental deterioration; others, perhaps the majority of the cases under consideration, pass into a stationary condition characterised by the existence of mild or moderate dementia; and in the remainder an active and progressive process of cerebral dissolution continues until death in a condition of gross dementia.

From the etiological aspect, the cases in the first group are precipitated by one or other of the first class of exciting or secondary causes of mental confusion referred to on page 431; those contained in the second group arise from similar causes and also from the influence of one or other of the forms of mental or physical "stress" during one of the "critical" periods of life; finally, the cases in the third of these groups develop under the influence of one or other of the second class of secondary or exciting causes of mental confusion referred to on pages 431-433.

In all cases of mental confusion, however, except perhaps in certain of the less severe and recoverable types, the essential

physical basis of the morbid phenomena under description is a deficient capacity of resistance to pathological influences on the part of the neurones of the cortex cerebri, and in all cases which develop dementia a deficient durability of these elements.

(2) *The milder Psychic Phenomena which arise in consequence of Pathological Conditions of the Centres of Lower Association.*
“*Fabulation.*” “*Pseudo-reminiscence.*”

Under this heading the writer proposes to describe and illustrate certain psychic phenomena which occur in many of the less profound types of mental confusion, and which are due to pathological conditions of the centres of lower association, the higher centre of co-ordination, correction, and selection being in a still more marked morbid state.

These phenomena consist in essence in the repetition aloud of certain associated remnants of former experience. Whilst these remnants, to a greater or lesser extent, are combined into a sequence according to the normal laws of mental association, it is common in the severer cases to find that the description is apparently a mere repetition of one or more long past sequences of events. In some examples, in fact, the patient appears to be involuntarily unburdening himself, in a more or less lengthy manner, of all the groups of associated memories which happen, owing to pathological conditions of the particular cortical regions of lower association which are concerned, to rise into the necessary prominence. Whilst such series of associated memories are frequently incited by illusions based on an erroneous recognition of the surroundings of the patient, they certainly in many instances arise in the absence of extraneous exciting causes.

In cases where the confusion is still less profound, and where in consequence recently acquired memories are available, the patients frequently, in a more or less voluntary manner, and often with the aid of illusions regarding the identity of the persons or objects surrounding them, form new groupings of associated memories which, whilst they are individually based on experience, may or may not, when linked into series, be possible as descriptions of experience or of phenomena.

The associative phenomena which are exhibited by the last and mildest type of case gradually and imperceptibly grade

into those occurring in many examples of high-grade amentia, and particularly in certain cases of recurrent insanity during their relapses. They also resemble the associative phenomena which occur during the "dreams" of the normal sane. These phenomena are, in fact, merely the result of wayward and involuntary processes of lower association, which occur in the absence of the selective and corrective control of the centre of higher association.

Fairy tales, which indiscriminately combine the possible and the impossible, delight the young owing to their resemblance to the results of the wayward and uncontrolled processes of association which occur in these individuals. The analogue of both occurs during sleep in the adult in the form of stray memories, which for various reasons arise one by one into consciousness. These stray memories combine, thereby raising into consciousness other dormant memories according to the normal laws of association, and eventually result, in the absence of selective and corrective control, in the frequently grotesque and often impossible sequences of associated memories which are known as "dreams."

These phenomena, when occurring during sleep or "dreamy states," are aberrant but not pathological in nature. They are also aberrant and non-pathological in nature when exhibited during certain types of relapse in cases of recurrent insanity, and frequently also in cases of ordinary high-grade amentia.

When, however, they occur in cases of insanity which exhibit the various phenomena of mental confusion, and particularly when the series of associated memories is induced or modified by illusions of identity, they are due to pathological rather than to functionally abnormal states of the neurones concerned with the performance of the processes of lower association. As the severity and extent of the pathological process increases, the associated memories consist more and more of mere reminiscences of examples or groups of former associative phenomena. Finally, in the severer grades of confusion, the processes of association are in abeyance, the patient is often unable to voluntarily recall even individual and stable memories, and in some cases, as for example that cited on p. 435, a sensory stimulus may even fade away without arousing the usual memorial unit. Such cases are further characterised by the rapid fading of impressions even when these are repeated, and therefore, as has

already been stated (p. 434), by an entire absence of appreciation of time and place.

The first case which will be employed to illustrate the above description is not a case of mental confusion at all, but is one of recurrent insanity. It is inserted with the especial object of giving point to the remarks which have been made on the subject of dreams and allied psychic states in their bearing on the less aberrant psychic phenomena which arise from pathological conditions of the centres of lower association.

The patient describes a "vision" or dream which appears to have been of remarkable vividness. Her description is obviously accurate and bears no traces of the involuntary confabulation for which, in a case of mental confusion, the several questions which were put to her would have afforded as many suggestions. She states the exact night on which this particular "vision" was experienced, and she clearly believes that she is describing what actually occurred to her. Her description of a material Paradise, in which many of the inhabitants wear modern attire, whilst somewhat grotesque, is probably as good an imaginary picture as could be elaborated by any other religious enthusiast of her education and station. It is of interest that during the "vision" she possessed some consciousness of personal orientation, as "I could see as if I could see all over the earth, through the roof, and on each side." In this detail the case again differs strikingly from examples of mental confusion.

CASE 9. *Admitted November 14th, 1904 (Hellingly Asylum).*—The duration of the case is about one year. Patient was discharged "recovered" from the asylum some weeks prior to her present admission, after a residence of some months. The exciting cause is stated to be "religion."

Female, wife of a gardener, *æt.* 60. Present notes obtained on admission.

A dull and very apathetic and phlegmatic woman. Memory and intelligence average. When she had been home a few weeks her strength seemed to fail and she got "low-spirited and down," and felt she had no strength, and slept badly. She says that she has "beautiful visions." "Last Friday" (to-day is Monday) "I was in Paradise quite. It was something lovely. It's real. I don't think it's any delusion." She saw "all the

beautiful saints," but in reply to a question does not know whether they had wings, "and I could see as if I could see all over the earth, through the roof and on each side, lovely marble places, I couldn't describe. It was like heaven." No one spoke to her. She "saw lots of spirits. They've all been round me, and I've never felt frightened. Some were all in white, and some were in colours, as if dressed as they were on earth. Some were women and some were men, dressed men, long coats and hats. All were dressed in beautiful white. Some, of course, were in coloured dress, men too, in clothes, as if you'd wear yourself. I felt happy enough. It was a lovely night, Friday night. Something grand, something beyond describing." Patient apart from the above is quite sensible; she talks sensibly and without emotion, in a manner which is something between preaching and repeating a lesson.

May 27th, 1906.—The patient is still in the asylum and suffers from a mild degree of dementia.

The next case is an example of mental confusion due to alcoholic excess, and exhibits many details of interest. Though the patient is practically or entirely lost to time and place, he states his age accurately, or rather—and this is more important—he gives it wrongly by ten years and then corrects himself. He shows marked illusions of identity, one of which is worthy of note. The mental state was taken after his arrival in a small admission-room, and the uniform of the attendant and the general surroundings of the patient made his conclusion that the attendant "looks like one of the yachtsmen," not at all unnatural. This mistake in identity served as the basis for many of his remarks. His description of the process of admission, namely that he had just been "down and waited on board ship an hour and then his majesty the officer called you, and you told me to lie on my back, and then I was undressed, and then you came here," would be quite unintelligible without the necessary key. The patient was extremely apprehensive, and owing to this became quite insulting to the attendant who removed his shirt: "With a face like that I wouldn't look at an Englishman. . . . You don't look a bad old sort all the same."

In this case the symptomatology is of recent type, and none of the signs of unfavourable import which are present in the examples which follow later are visible.

CASE 10. *Admitted November 30th, 1904 (Hellingly Asylum).—*
Cause, intemperance. Duration prior to admission one month.

Male, married, inn-keeper, æt. 58. Notes taken on admission.

A dull, restless, garrulous man, who at once asks me to let in the woman in the passage who has come to clean up this room and always does it for him. He gives his full name and says that his age is "forty-nine nearly." He then plays with the bed-clothes a little, and adds "Fifty-nine, I said forty-nine, sure, dear." He knows the day and the month but not the date. He has been here over five years. This place is St. Innes. He knows me by sight very well. I live in Leicester Square. He says that the charge attendant "looks like one of the yachtsmen" (apparently from noticing the uniform). ("Business?") "Up and down the cellars and in and out, you know." Before he came to see me he went to Denmark to see a ship (*cf.* the yachtsman). He makes a good guess at the time, namely 4.15 and then 3.45 (correct). He says he hasn't had his dinner yet. He has just been "down and waited on board ship an hour, and then his majesty the officer called you, and you told me to lie on my back, and then I was undressed, and then you came here." (Patient thus thinks from the attendant's uniform that he is on board ship, and he is describing his admission.) He went to sea both yesterday and this morning, when he went to see a ship which is ashore and ought to be got off, and he is ashore to make arrangements to get it off. He has been captain, mate, and master, and has been at sea twenty-nine years or so. Though he came in a cab this afternoon he states that he has not been in one lately.

During physical examination he gets excited and shouts "Murder!" and asks people outside to come and help. He asks the attendant if he wants to give him a smack on the nose. "With a face like that I wouldn't look at an Englishman. . . . You don't look a bad old sort all the same." Suddenly he shouts out, "D'you hear? The King knew I was in Southend to-day. He was a witness that I was in Folkestone to-day," as if to someone he sees or hears.

Pupils normal. Tongue catarrhal and tremulous. Palate high and shelves forward, and has a narrow, deep chink along the centre. Brachial arteries thickened. Plantars dull. Varicose veins on left leg. Knee-jerks present but dull, and L > R. Abdominals present.

Patient was discharged "relieved," five weeks after admission, to the care of his friends. He was a private patient.

The following case has also been precipitated by alcoholic excess, but signs of previous syphilis are present. Though the physical signs suggest that the case may become one of chronic general paralysis, the age of the patient and the consequent improbability that extensive reparative reaction will follow the death of the affected cortical neurones suggest rather that it is one of pre-senile breakdown precipitated by alcoholic excess, in which a fairly stationary condition of moderate dementia will result.

The following details are noteworthy. Contrary to what occurred in the previous case, the patient at different times gives his age as "forty-eight," "forty-six, I've been married twice and have four children," and "I'm turned thirty-eight, sir"; and the decreasing age in the successive replies is probably an analogous, though less grave, psychic phenomenon to those results of uncontrolled mental association which are described later (pp. 458-459). This observation points definitely to the existence of a actively progressing process of neuronic dissolution. Further, the remarks of the patient consist chiefly of semi-voluntary descriptions of his daily work as a scavenger, and are relatively independent, for their incitation, of illusions of identity. Again, though he has been in bed since his admission, "I been out this morning," he has been here "about an hour, not an hour quite I don't think," he went out "about 6 o'clock," "I was in W— Road this morning about 7 o'clock . . . and got back here about dinner-time about 12 o'clock," "I slept in P— Road, I believe," and he came here "this morning about 9 o'clock." These remarks point to the same conclusion as do the different ages he states. He replies that the time is "11," "about 3," and "between 3 and 4 o'clock." Finally, he confabulates on illusions of identity. Though he calls the patient in the next bed by his correct name, he says "I've known that chap a good bit, sir. He's a sailor-man, I think. I've drank with him once or twice," and there is no reason to suppose that this is the case.

The case as a whole exhibits acute mental confusion and also signs of existing dementia, and, therefore, judging by the mental state alone, the patient will not recover.

CASE II. *Admitted October 18th, 1905 (Rainhill Asylum).*— Mother and brother died of phthisis. Duration prior to admission three months. Cause intemperance (beer).

Male, married, scavenger, æt. 53. Notes taken the day after admission.

A determined-looking man with compressed lips. He gives his name and states that his age is forty-eight. (He looks at least sixty years of age.) To-day is Wednesday (Thursday), and he came seven days ago (yesterday). "I been out this morning, I went to H— Street, and up to E—, and then down here again to A— Street and S— Street" (obvious description of part of his daily work). This place is "H— Street, A— Street, skating rink it used to be called at one time, this place." He thinks the head attendant is well known to him. He has often met him in the park, but doesn't know his name. Asked who the attendant near him is, he remarks: "Well, I couldn't call the gentleman by name, sir. I've seen the gentleman about the park for four or five months. I only work in A— Street here" (*i. e.* quite near the park); "I know a lot of folks about the park, but I couldn't call 'em by name, sir." ("How long here?") "In town here? About . . . over thirty years." ("How long in this place?") "This morning, you mean? About an hour, not an hour quite I don't think." ("Time?") "It'll be running after 11, won't it?" (10.45). ("Age?") "Forty-six. I've been married twice and have four children." ("Day?") "Wednesday, isn't it?" ("Where have you come from?") "Betwixt N— Street and D— Street." ("When did you go out this morning?") "About 6 o'clock." ("Where?") "To L— Street first, then past W— Street, and then from there to W— Street, and from there up to M— Road, down L— Lane over as far as W—, and that way back again. I belong to the 2nd L— Militia going on sixteen to seventeen years." He then says that he came from Ireland about 1860, and was only a boy then. (Present year 1905.) ("What time did you arrive here this morning?") "I was in W— Road this morning about 7 o'clock. I stopped in C— a good while, and then I was over in S— Street a bit and down here in A— Street, and I got removed from there to W—, and from there to W— Street, and I was up in W— and got back here about dinner-time about 12 o'clock." ("Time now?") "Oh, about 3, isn't it, 3 or 4?"

On now being asked the names of different objects he at once gives correct replies. After this (considerable) interval, he is asked where he slept last night. "I slept in P— Road, I believe." ("When did you come here?") "This morning about 9 o'clock, and then I got removed up to A— Street and then down here again." ("Time now?") "It'll be about 3 or 4 o'clock, I should think." ("Day?") "Wednesday, isn't it, sir?" ("How old are you?") "I'm turned thirty-eight, sir." ("When did you come to England?") "In somewhere about 1830, I think, sir." He voluntarily recognises the patient in the next bed by name. "I've known that chap a good bit, sir. He's a sailorman, I think. I've drank with him once or twice." Patient states that he works for the Corporation as an ashpit cleaner and receives £1 a week. He, as a rule, drinks beer, and on an average about four pints a day, but often much more.

Ears plain. Pupils absolutely fixed and R. > L. Tongue tremulous. Palate high. Arteries tortuous and calcareous. Knee-jerks and plantars dull. Marked shotty glands in groins. Scar on penis. Numerous punched-out scars on legs and thighs. Dense scar on back of neck.

June 14th, 1906.—The patient is still in the asylum. He shows very little change mentally except as regards increasing dulness. He works out of doors at purely manual labour.

The final case of this series possesses a complex etiology, alcoholic excess, senility, and former syphilis all playing their part. As is usually the case in senile patients, in whom the capacity of the tissues for reparative reaction is relatively slight, none of the characteristic symptoms of general paralysis are present.

The patient is in a condition of marked mental confusion, which is not so profound as to prohibit confabulation. In this case, however, the results of the processes of mental association often differ from those obtaining in the last case in their inherent impossibility. For example, he remarks, "I'll see my mother in a minute and she'll tell me," and "Mother says downstairs she doesn't think she'll rear me. I'm sixty-one."

This particular mode of harking back to the remote past is, as has already been stated, one of the characteristics of active mental dissolution in senile cases. A similar example has

already been given (Case 3), where a patient, *æt.* 74, remarks that her youngest child "just runs alone. She's a picture, and she'll run after any man. Her brothers learned her to run after 'em." As a further illustration may be mentioned the case of a patient, *æt.* 61, who had been in bed since admission, but who stated "I was out at the General Post Office at seven this morning to save my father going out."

In the case under consideration confabulation is readily directed by suitable questions—*e.g.* the past of the case following the remark of the patient that he had been "up to the market twice this morning" and had "bought some fish." By a normal process of association he later changes the subject by speaking of having "five calves to sell," and this matter has evidently a stable memorial basis, as long afterwards he voluntarily returns to it and proceeds to confabulate further on it.

It may finally be added that, as commonly occurs in cases of progressive cerebral dissolution, in contradistinction to a temporary morbid condition of the cortical neurones, certain groups of stable memorial units remain relatively intact—*e.g.* he gives a presumably correct description of the manner in which he acquired his attack of syphilis.

CASE 12. *Admitted December 23rd, 1905 (Rainhill Asylum).*
—No history.

Male, married, hawker, *æt.* 60. Notes taken two days after admission.

A dull-looking, restless man, who grumbles away to himself and then puts out his tongue and coughs. He gives his name and states that his age is fifty-one. He is "living in N— Road, no, not living there. I want to think on a minute, and yet I can go straight to the house. I believe it is N— Road. I'll see my mother in a minute, and she'll tell me." ("When did you come here?") "I came here this day week." The day is Saturday (Monday). He does not know the date (December 25th). ("Month?") "Yes, September." ("Year?") "September, October, November, December. Them months mix one up what with having two Christmases." ("When was the last?") "Why, there was one afore this" (therefore he evidently appreciates that it is Christmas). ("When is Christmas Day?") "21st February." He says he has been "up the market twice this morning," and mutters to himself about having "bought

some fish, and I come straight down home and bought nothing after that." ("How much did you pay?") "I paid eighteen pence a stone for it, that's three-halfpence a pound." ("How many stone?") "Two stone." He bought it for himself, and is going to sell it. "I generally have a fish or two over. Well, I've got five calves to sell. They'll want reckoning up. I've got to go up and get 'em killed, and then sell 'em." He is a hawker. I remark that he cannot make much money, and he replies, "Oh! you can make some out of meat." He is garrulous, and talks so much that it is difficult to get replies from him. He evidently remembers the previous questions in a vague way, for he suddenly remarks, "I feels well and all right. It's February, 25th February," and then talks about February and December. He tells me that I am a doctor, and "I knows you well by sight for many years." "I've knowed your face many long years, since I was a little lad." When asked the time he replies that it is 2.20 p.m. (11.15 a.m.). He, however, says that he has not had his dinner yet. He went to bed at 8 p.m. last night, and got up "just after eleven" (he has not got up since admission). He went to bed so early "because I didn't want to go out and get any more drink. It would be a foolish idea." "Our little Lizzie had her leg broke, and I went to bed to care it. I won't be too drunk to care that child," etc. He then seems to remember his calves, as he remarks, "I mightn't kill them there till Monday. They've plenty of good hay to eat. Three or five? I think five on 'em." I then ask him the day, and he says "Friday" (Monday). When asked the time he says "Getting on for 2.30. I've been up since five this morning." He states that he has been married nine or ten years, and has a child aged ten years. When I ask if it was born before marriage he says, "No, you fellows you pull a fellow to pieces with questions. It's ten years born. I daresay you can remember that." He had "pox" about the age of sixteen. He had a sore "at the proper place," "a brown spot came when I'd been with a girl, but I expect she'd been a bit over-heated. It was servant an' all."

During physical examination he remarks, "Mother says downstairs she doesn't think she'll rear me. I'm sixty-one."

Fixidity of lower face when speaking. Tongue tremulous. Palate high and narrow and shelves forwards. Pupils below medium, equal, react to accommodation and also distinctly to

light. Arteries thickened and tortuous. Plantars very brisk. Knee-jerks brisk. Pigmented scar on dorsum of glans penis.

He is very feeble and shaky, and is restless and rather resistive. Last night he was wet and dirty several times, and destroyed two coir beds.

June 14th, 1906.—Patient is still in the asylum. He is developing dementia, and is unemployed, very shaky on his legs, and in feeble health.

In the above description it has been impossible to avoid referring, as occasion served, to the differences which exist between the psychic phenomena which occur in cases where the pathological conditions of the centres of lower association are recoverable on the one hand, and are associated with more or less extensive destruction of cortical neurones on the other. The latter subject will, however, receive especial consideration both at the end of the present section and during the remainder of this part of the paper.

This mode of treatment, though undesirable from a purely psychological standpoint, is, however, unavoidable. Cases in which mental confusion is slight, transient, and brought about by temporary causes, rarely come under the observation of the alienist, and therefore the detailed consideration of the psychic phenomena which arise in consequence of such purely temporary pathological conditions of the centres of lower association must necessarily be left to other observers. On the other hand, in asylum cases in which the pathological process is more severe but has not such a general distribution as to cause practical abolition of the processes of lower association, a more or less extensive destruction of the neurones of the cortex cerebri is the common result; in fact, the majority of such cases possess an etiology which derives factors from both the groups of exciting or secondary causes referred to on pp. 430-432. The observations of the writer, therefore, necessarily deal rather with the psychic differences between the recoverable and partially irrecoverable types than with the exact psychic phenomena manifested by the former.

From the symptomatological aspect the three cases last cited present differences which enable definite conclusions to be drawn with reference to prognosis. Case 10 exhibits no psychic phenomena which are inconsistent with relatively complete

recovery; Case 11 shows distinct evidence of active mental dissolution, but there is no reason to suppose that temporary arrest of the pathological process, with a stationary condition of moderate dementia, is improbable; and Case 12 is in a condition of active mental dissolution which will steadily progress till death ensues.

(3) *The grossly aberrant Psychic Phenomena which arise from severe pathological conditions of the Centres of Lower Association.*
"Delusion."

Under the above heading it is proposed to consider certain psychic phenomena of grave import which accompany severe and progressive pathological conditions of the regions of lower association and are indicative of an active process of cerebral dissolution.

Whilst the psychic phenomena described under "Simple Mental Confusion" may be, and frequently are, recovered from more or less completely, and whilst those referred to under the subject last considered may also, in their milder and more recent grades, disappear without any very obvious degree of mental enfeeblement, the phenomena which are at present under examination are, except in rare cases, evidence of a process of active cerebral dissolution which ends only at death. Further, in the rare cases in which arrest of the pathological process has occurred obvious mental enfeeblement is a necessary consequence, and the arrest is probably always temporary, the inevitable progress of the case to complete dementia being merely delayed. The writer would, in fact, suggest that such temporary and partial recovery occurs in consequence of the pathological process having been prematurely induced by mental or physical "stress" or by temporary toxæmia, with the result that the vicious circle of neuronc degeneration and active reparative proliferation, which is necessary for inevitable progress to gross dementia, does not at the time develop.

Though the formation of three distinct groups is only desirable for purposes of convenience, and is not entirely justifiable, this division of the subject serves a useful purpose from the etiological aspect, and therefore from that of prognosis.

The group described as "simple mental confusion" contains the bulk of the cases which, being caused by a temporary

toxæmia, are usually recoverable, and also nearly the whole of those cases of insanity which have been precipitated at one of the "critical" periods of life by one or other of the different forms of mental or physical "stress," and in which a certain amount of degeneration of the cortical neurones and a stationary condition of mild or moderate dementia ensue. This group further contains a number of cases of rapid cerebral dissolution and progressive dementia in which the mental confusion is from the first so profound as to prohibit the exhibition of the psychic phenomena described under the second and third headings.

The second group is smaller and contains a proportion of the less profound examples of mental confusion which are precipitated by alcoholic excess, and many of the more slowly progressing cases which arise in consequence of senile and pre-senile degeneration of the cerebral blood-vessels. In such latter cases the causative influence is often itself incited, or at least increased in severity, by previous syphilisation or by prolonged alcoholism. Frequently, also, though by no means necessarily, the characteristic psychic phenomena occur in patients who are suffering both from degeneration of the cerebral blood-vessels and also from the effects of recent alcoholic excess.

The third group, which is about to be considered, contains the larger proportion of the cases which are suffering from progressive and inevitable cerebral dissolution. The characteristic psychic phenomena are as a rule best developed in the cases of dementia paralytica (general paralysis) which occur during adult life, as at this period all the factors which are required to produce the more fulminating types of cerebral dissolution—namely, intense mental and physical "stress" and the different toxæmias, violent and profound pathological changes in the neurones of the cortex cerebri, and intense vascular and neuroglial reparative reaction—are able to exert their maximum influence. The group also contains many cases of progressive senile dementia, a number of examples of juvenile and senile dementia paralytica, and certain of the rarer types of progressive dementia. In other words, the cases which exhibit in the most characteristic manner the psychic phenomena to be here referred to are those in which the pathological process is most complicated and therefore of most severe local incidence, rapid degeneration of cortical neurones being followed by intense reparative proliferation of the blood-vessels and neuroglia,

and this again by further degeneration of neurones and by still further proliferation of blood-vessels and neuroglia—a vicious circle which continues throughout the remaining life of the patient.

Whilst the higher co-ordinating, corrective and selective functions of the cerebrum, which are performed by the centre of higher association, are in temporary or permanent partial abeyance in the cases exhibiting the psychic phenomena hitherto considered, in the group now under description more or less complete dissolution of this centre has already occurred. The pathological basis for this statement has been considered in the last portion of the present paper (*Journal of Mental Science*, April, 1906), and need not be further referred to.

In the psychic state under consideration, not only the phenomena of simple mental confusion, frequently including illusions and hallucinations, but also indications of a morbid activity of the centres of lower association are present. The latter, however, differ markedly from the phenomena which have last been described, and which consist largely, and in many cases entirely, of groups of more or less stable associated memorial units.

Whether as the result of extraneous excitation, or frequently in consequence of actual morbid states of the centres of lower association, memorial units or associated groups of these rise into consciousness. Owing to the morbid condition of the region concerned with the higher co-ordinative, corrective, and selective functions, the patient, except for a consciousness of the ego, which is usually relatively unimpaired, and is, in fact, often abnormally prominent owing to the cessation of higher corrective control, possesses merely such semi-conscious psychic processes as are developed by the morbid activity of his centres of lower association. In consequence, such simple or associated memorial units as arise into consciousness, whether through external stimulation or internal morbid incitation, are unquestioningly accepted as facts connected with himself, however grotesque this conjunction may be.

However aroused into activity, such memorial units or associated memories are limited in number and complexity solely by the actual or excitable content of the mind of the patient. Whether or not he has had actual *experience* of the possession of money, goods, or power, the patient owns, according to his previous *knowledge* of such things, hundreds, thousands, or millions of

pounds, or all the money in the world or universe ; he possesses houses, palaces, cities, or countries, and yachts, ships, fleets, or navies ; he is a baronet, a peer, a king, or the ruler of the world ; he can play any instrument, perform any athletic feat, etc., etc. His capacity is only limited by his knowledge, and whatever subject is brought to his notice or arises in his mind is straight-way elaborated by one or other of the fundamental modes of mental association. He is not bound by the possible, for when the morbid process is well developed mere contiguity of ideas results in the immediate association of these together. If, for example, he is speaking of jumping, he can jump over a house or a church ; if of running, he can run round the world, or at the rate of a thousand miles a second ; if of possessing, he possesses all he thinks of or sees. *Bien-être* is consequently in many cases the prevailing emotional state. The emotional tone is, however, dependent primarily on the normal emotional tone of the individual, and secondarily on the particular associated memory of the moment. The emotional state may therefore vary from minute to minute, and may be as evanescent as are the ideas from which it arises. The actual physical condition or capability of the patient naturally bears no relationship whatever to the psychic state. The performer of wonderful athletic feats may be unable to walk or even stand alone, and the king or God may be patiently washing floors.

According to the activity of the morbid process and to the rapidity and special characteristics of the processes of association, the "delusions" may vary from minute to minute or from day to day ; and when mental association, owing to the destruction of the physical basis of this, becomes impossible, psychic remnants frequently remain as more stable "delusions." Many cases, in fact, at the time of observation have already advanced to this stage, and in others the mental confusion is of so pronounced a character that relatively little capacity for association of ideas exists. Frequently, therefore, instead of the psychic phenomena which have been described being readily elicited and well marked, occasional examples of such associated memories can alone and with difficulty be obtained.

From the above description it will be evident that, in the opinion of the writer, "delusion," as here considered, is an entirely different psychic entity from the systematised and fixed "delusions" of the paranoiac, and the less systematised, equally

fixed, and at times accidentally produced "delusions" of the more marked degenerate.

It differs also from the "delusions" which are not infrequently developed in cases of existent but non-progressive dementia, as the result of aberrant ideation in a maimed cerebrum.

The "delusions," however, which occasionally appear during the mental confusion which precedes the development of non-progressive, mild, or moderate dementia, are of a similar nature to and are evolved in a similar manner as are the "delusions" which have just been considered.

Certain typical illustrations of these psychic phenomena will now be inserted; and, for purposes of comparison, a case of insanity (emotional type of high-grade amentia) which bears a superficial resemblance to these in the psychic phenomena presented, but in which no mental confusion exists, will first be described.

In this case the points of note are the absence of mental confusion and the otherwise general resemblance to an example of early dementia paralytica (general paralysis). Such a case illustrates more clearly than would pages of description how the various types of mental dissolution possess their psychic analogues in the varieties and grades of mental sub-evolution.

CASE 13. *Admitted November 30th, 1903* (Hellingly Asylum).—Paternal uncle died from apoplexy. Duration prior to admission stated to be three weeks.

Male, æt. 23, draper's assistant. Admitted five days ago.

An exalted and excited young man with large staring eyes. He at once begins to tell me that he sent six telegrams the other day, but doesn't think that any of them went. He proposes to summon eight people, including the medical superintendent, for unlawful detention. He smiles at me in a superior way during conversation. He says that he was "put here for jealousy and nothing more." He gives his name and age, the day and the date when he came, how long he has been here, and the name of the asylum. He talks on rapidly and inconsequently. He says that he is the Liberal candidate for Parliament for a neighbouring town, and he offers to bet me £5 that this is the case. He has been here about a week "tanning patients and acting as a keeper." He tells me with pride that he spent

fifteen months in London, and "kept my eyes open." When I remark that I lived there as many years as he did months, he tells me that I must be a fool and have wasted my time. He states that he can "do any trade, carpenter, plasterer, brick-layer, art-furnisher, window-dresser, motor-car driver, zither player, English concertina, singing, and speak French, and boxing." A few minutes later, after further conversation, inquiry elicits the same list of employments. I then ask him to sing, as this is the most available of his accomplishments, and without the least self-consciousness he begins "The Holy City." His voice is decent, and he has an idea of singing, but he has absolutely no idea of pitch, and the performance is, to say the least, grotesque in spite of his evident self-gratulation.

During his residence he continued quite unchanged, and he afforded much amusement to both patients and staff. He fell violently in love with and proposed marriage to one of the officers, and his friends in all seriousness brought him an engagement ring to present to her. They were unable to appreciate that he was insane, and four months after his admission removed him "not improved." He afterwards wrote several letters to members of the staff, and on one occasion actually called at the asylum and requested to be allowed to see his *fiancée*.

The following case affords a typical illustration in their more recent phase of the psychic phenomena under consideration. The case is a recent one, and the pathological process, though extremely active, is not very far advanced. The patient is confused, but it is evident that the morbid process in the cerebrum is active and also recent, as he replies readily to questions, and he is at times able to provide answers to these which at others he cannot supply. Though he is not voluntarily garrulous, he readily elaborates, chiefly by the method of association by similarity, any group of associated memorial units which is aroused by extraneous stimulation. It is worthy of note, as might be expected, that as the investigation continues the usual earlier results of physiological or pathological stimulation appear, the processes of association becoming more lengthy and the results more elaborate. In order to avoid unnecessary repetition certain of the examples of this elaboration which occur in the description are printed in italics.

Whilst the results of his processes of mental association rise at each new attempt to the impossible, it will be observed that they do not, as occurs in the next case to be described, pass into the entirely absurd. The factor, therefore, which is lacking in the existing phase of the case under present description, is the corrective and selective action of the centre of higher association; and the pathological process has probably, so far as regards the centres of lower association, resulted in acute changes in, rather than in extensive dissolution of, the neurones of these regions of the cortex cerebri.

CASE 14. *Admitted August 1st, 1902 (Claybury Asylum).—* No history. Male, married, glass beveller, æt. 37. Notes taken three days after admission.

Patient says he had syphilis twelve years ago. Scar on penis. Palate very high. No lobules to ears. Ordinary physical signs of general paralysis.

Patient is excitable and restless. He jumps out of bed and makes grimaces, etc. He is happy and self-satisfied. During conversation he is at times more confused than he is at others; and therefore he is sometimes able to reply to questions, the answers to which he has been previously, or becomes later, unable to give.

He states that he came here ten months ago (three days) and that his age is thirty-four years. He appreciates that he is in an asylum, but he calls it by the wrong name, that of an institution several miles off. He is not voluntarily garrulous, but readily elaborates his replies to such questions as are put to him. ("Married?") He has been married twelve years, and has one child, aged ten years, a girl (she is adopted and is not his child). She is a professional player on the piano *and the harp and every instrument*. . . . ("Money?") He is worth thousands, *and millions*, and made it by mining in Australia. He would be glad to take me on a sea voyage. He has *three or four yachts of his own, very large ships*. . . . ("Athletic?") He is a strong man and can do "anything, don't matter what. I am a butcher by trade and a beveller and silverer." . . . ("Sporting?") He has done racing, backing Arab horses. He has always backed them for a million. He has *hundreds of horses, wild animals, and everything*. I shall soon see if I come down to his place. He has *the finest house ever built*, all bevelled plates and

embossed work. *It is an enormous size and everything is made of gold*, shoes and everything else but the bricks, and these he could coat with it. . . . He is a runner and jumper, and can jump about six feet, and has got several prizes. *He could run fifteen miles in twenty minutes.*

This patient died of general paralysis two and a quarter years after admission.

The next case differs markedly from the last in the details that the confusion is more profound and that the processes of lower association result in psychic phenomena of a most grotesque and impossible character. A merely cursory examination of these, in fact, at once demonstrates that the centres of lower association, as well as the region of higher co-ordination, correction, and selection, are undergoing an active process of dissolution. The patient is garrulous both in response to extraneous excitation and in the absence of this, he talks and whispers away to himself, at times he pays no attention to questions, and as the examination continues he develops visual and auditory hallucinations. In his descriptions, more or less stable memorial groupings are inextricably mixed with psychic phenomena resembling those of the preceding case, and as the investigation of his mental state proceeds the result of the fulminating morbid processes in his centres of lower association is a mere heterogeneous mass of all kinds of partially associated psychic phenomena, including hallucinations. At this stage his centre of higher association is obviously in entire abeyance, and further extraneous stimulation is needed to arouse this region into temporary partial activity.

CASE 15. *Admitted March 26th, 1902 (Claybury Asylum).—*No history.

Male, married, provision merchant, æt. 49. Notes taken two days after admission.

The patient exhibits definite physical signs of previous syphilis. The left leg is covered on both sides with the punched-out scars of former ulcers. Some of these are pigmented. There are fewer on the right leg, but still a large number. These vary in size from a threepenny-bit downwards, and the larger ones are pigmented. The right testicle is large and irregular and adherent to the skin, on which are several

scars from former incisions. The scrotum on the right side, and the right side of the skin of the penis and of the glans penis are covered with varicose veins due to venous obstruction. The glands of both groins are shotty. There is a chronic sore on the right side of the lower lip, which bleeds. It shows no induration, and there are no enlarged glands.

The ordinary physical signs of general paralysis are well marked.

The patient knows neither the day, nor the date, nor when he came, though it is only two days ago. He is Sir Frederick William M—, the Emperor of the World. Every place in the world belongs to him. He says that he bought this place yesterday for a million millions, and then mutters "Millions, trillions," etc., to himself. ("Know anyone here?") All the officials here are his friends. He and Dr. M— (name unknown) are great friends and are always together. He has seen him in the corridor this morning. ("Married?") He is married, and every child in the world belongs to him and his wife. She is the most handsome woman in the world, a most beautiful lady, Empress of the World, and was a Miller. Her family is very large, as so many were born. They were always taken to Marlborough House. The Princess of Wales, and the Queen, and all the nobility are all his wife. There are thousands of himself and his wife, but only one Emperor of the World—himself. ("Clap?") He got "clap" when eight years old. They had two servants at home, and one of them had the "flowers." He used to cuddle them. He got very sore and had much pain, and couldn't pass water. After that they had a beautiful servant, Kate, and his mother caught him in bed with her. He was taken to St. G. Hospital and treated there, and he was shown to everyone in the hospital as a prodigy. When I remark on his youth he explains that it was not really early, as when children are born now they are born *him*, and are fifty years old and know everything. . . . He then remarks that he earned five, seven, ten shillings a week and was then manager of a cheesemonger's shop. He did £200 a week, and then took in the next door and was paid £1 a week. The takings rose to £400 a week. He lent £200 a week to two men. The money was put in the bank and he didn't get credit for it, so when he bought the world he had £800,000,000,000, and double, double that. . . . He then goes on talking

to himself as if he were replying to questions from somewhere and he looks up as if he could see the speakers. To arouse him, I suggest that he has a good voice, and he replies that he sings on the stage, sings everything, and acts on the stage with every one. He is a Member of Parliament and of the House of Lords. He always calls himself an honorary member. He says that he knows Chamberlain well, and that Gladstone (dead for some time) and himself are always together, as both are very fond of wood-cutting. I suggest that Gladstone is dead, whereupon he calls me an ass. On being asked a question about the sea, he says that he goes round the world every day of his life and owns all the ships. I then ask him, finally, to say "rural artillery." He at once repeats the words as if he did not understand them, and immediately adds that he speaks all the languages in the world.

The patient died of general paralysis sixteen months after admission.

(B) *Psychic Phenomena due to Pathological Conditions of the Regions concerned with the Evolution of Sensation and Recognition, and Allied Products of Aberrant Mental Association.*

(1) "Illusion." "Hallucination."

Under this heading it is proposed to consider certain psychic phenomena which bear a more or less close relationship to the normal psychic products of the processes of sensation and recognition. Whilst the simpler of these phenomena, namely "illusion" and "hallucination," will receive especial attention, certain more complex psychic products, which appear to arise in consequence of an unharmonious action of the centres of lower association under the local influence of the former simpler phenomena, will also be referred to.

Though, at any rate, the less complex of these psychic manifestations usually form part of the ordinary symptomatology of mental confusion, their mode of origin, and the fact that in their milder degrees they frequently occur during the performance of normal mental processes, form sufficient reasons for their consideration apart from the general phenomena of mental confusion, and at greater length than is necessary from the point of view of this condition alone.

Whilst the usual definitions of "illusion" and "hallucina-

tion," which describe the former as a false or imperfect recognition of an actual sensation and the latter as a psychic phenomenon which may be spoken of as a recognition in the absence of an actual sensation, serve a convenient purpose from the point of view of alienistic terminology, it is frequently difficult in practice to decide whether a particular psychic product should fall under the one term or the other. Further, as is clearly demonstrated by Case 18 (p. 477), an illusion may form the basis of an associated memory around which are grouped more complex psychic products which, under misinterpretation, may readily be regarded as "hallucinations" as above defined, though they are in reality merely vivid reminiscences which are more or less modified owing to imperfect reproduction. Again, as is seen in Case 15 (pp. 463-465), a riot of lower associative processes, which is primarily caused by gross pathological changes in the physical basis of these, evolves psychic products which can only be regarded as "visual and auditory hallucinations," though there is no reason to suppose that they are accompanied by actual consciousness of these phenomena on the part of the patient.

It is thus extremely doubtful whether the usual definition of "hallucination" is in any sense a correct description of the psychic phenomena which will be referred to under this term. The writer therefore purposes, whilst accepting the above definition of "illusion," to employ the word "hallucination" merely as a convenient term for the description of certain psychic products, which may be either solitary vivid reminiscences, or the result of aberrant processes of mental association, consequent or not on illusions, and which can rarely or never be described as the equivalents of the normal psychic products of the recognition of sensorial stimuli.

The writer does not wish to suggest that a special "centre" for recognition exists. A sensorial impression may reach its appropriate memorial unit either with or without the cognizance of the subject. In the former case an attempt at, or an actual, recognition occurs, and the new memorial unit can usually be voluntarily revived at a later period. In the latter case recognition does not occur, and the memory of the individual sensorial impression, as superadded on the more stable memorial unit, cannot, as a rule, be voluntarily revived. The necessary precedent to recognition is, therefore, a fixation of

attention on the attempted conjunction of the sensorial impression with the memorial unit. By the term "recognitive field," which will shortly be employed, the writer thus merely wishes to express, in a general way, the seat of the memorial units towards which the attention of the subject is, or becomes, directed.

Illusions, as above defined, are common in sane individuals, and develop after a sensory stimulus which is of sudden occurrence and is also either of short duration or of low intensity, especially when this stimulus is applied to a recognitive field which is in a hyper-excitabile or expectant condition.

As an example of the former may be mentioned the sudden meeting, in a crowded street and under conditions which preclude a second and confirmatory sensory stimulus, of some one closely resembling a known individual. After such an experience either doubt or certainty as to the correctness of the recognition may exist, although the individual seen may really have been a stranger, and in this case at least an illusion has been experienced.

The commonly cited example of the latter mode of development of an illusion is the recognition in a faint illumination of a window-blind or a white object as a ghost, which false recognition is, as a rule, readily corrected by further examination of the source of the sensory stimulus. It is perhaps, however, more common to meet with illusions of this type in the case of auditory stimuli, as when unexpected sounds are heard at night, or when certain expected footsteps or other sounds are being intently listened for. Such illusions are also, as a rule, temporary. They cease if an increasing or a fading away of the auditory stimulus leads to the rejection of the false recognition; but they may persist if a fading away of the auditory stimulus occurs in association with a highly expectant condition of the recognitive centre, and in the absence of additional and corrective visual or other sensory stimuli.

Illusions of pathological origin are similar in their psychic characteristics to the above, and they depend for their definiteness, persistence, and frequency on an aberrant condition of both the physical bases of the act of recognition, namely the mechanisms for the reception and conduction of the sensory stimuli to the particular recognitive fields and these fields themselves.

Though a careful study of the types and grades of illusion suggests that in certain cases of mental confusion—*e. g.* alcoholic confusion with marked tremor, which leads to aberrant visual stimuli, or confusion occurring in association with blocking of the external auditory meatus or with disease or disorder of the middle ear, either of which may lead to the occurrence of aberrant auditory stimuli, etc.—the psychic phenomena are very largely caused by these aberrant sensory stimuli, it is probable that in at any rate a large number of cases a definite part is played by deficiency or aberration of the processes of reproduction of associated memories under the influence of different aberrant sensory stimuli. Further, in many cases the sensory stimulus is probably relatively or entirely normal, but illusions result in consequence of certain associated memories, out of the enormous number of psychic units which may possibly be revived under the influence of external stimuli, being exceptionally liable to recrudescence.

Whilst any of these psychic phenomena come under the definition of illusion, those of the latter type described gradually shade into the phenomena which have been referred to as hallucinations.

Hallucinations may be defined as normal or aberrant groups of associated memorial units which possess such an abnormal vividness as to resemble the psychic products of the recognition of external stimuli, and which, therefore, in patients incapable of exercising the higher corrective and controlling faculty, are to a greater or a lesser extent liable to be confounded with or mistaken for the latter.

In some cases—*e. g.* certain examples of recurrent insanity—these psychic phenomena do not suggest objective reality to the sufferer, who can, according to his degree of intelligence and his command of language, describe their characters and their modes of origin. In other patients, and especially in individuals who have little capacity for or habit of thinking, these phenomena possess a more or less objective reality, although by suitable interrogation it is as a rule easy to determine that the “voices” or experiences differ considerably in character from the normal products of the recognition of sensorial stimuli. This difference is also evident from a consideration of the observation that the sufferers usually endeavour to determine the source of the phenomena, and, in their inability

to do this, refer them to agencies of the action of which they are ignorant—*e. g.* X rays, telephones, cinematographs, etc. Finally, examples of hallucination are common during actively progressing cerebral dissolution, as the result of the consequent riot of the processes of lower association which exists in patients suffering from this pathological condition of the cerebrum. Whilst to the observer these phenomena appear from the actions of the patients to possess an objective reality, it is probable in such cases, owing to the existent extensive dissolution of the centre of higher association, that they are almost or entirely unaccompanied by consciousness.

It is thus evident that, in the opinion of the writer, the psychic phenomena under description grade from, on the one hand, such false recognitions of actual sensorial stimuli as frequently occur in the normal sane individual to, on the other, vivid associated memories, which arise by processes of lower association in the absence of sensorial stimuli, and which, in cases where the capacity of higher co-ordination, correction, and selection of the products of mental association is practically or entirely in abeyance, may present such a resemblance to the psychic results of the recognition of sensorial stimuli as to be mistaken for these and projected externally.

Normal illusions thus occupy one end of the series and the purely psychic phenomena referred to as hallucinations occupy the other, the numerous intermediate types of illusion possessing greater associational and lesser sensorial components until pure hallucinatory phenomena are reached.

As has been stated, and as will be illustrated by examples, the simpler grades of illusion are common in most cases of simple mental confusion, whether this is of a primarily toxic, etc., and recoverable type, or is the forerunner of cerebral dissolution but is of too profound a grade to admit of complex processes of mental association.

The more complex grades of illusion, requiring as they do for their development more or less activity of the processes of lower association, occur usually in the cases of less profound confusion, which as part of their symptomatology exhibit the phenomena referred to under "Confabulation" (p. 445 *et seq.*).

Finally, the purely psychic phenomena described as hallucinatory occur either in cases exhibiting marked hyperactivity of the processes of lower association—especially certain cases of

recurrent insanity during their relapses—or in cases of active dissolution of the centres of lower association, in which occur fulminating associative processes and consequent extraordinary and grotesque complexes of associated memories.

When the psychic phenomena are the result of a pathological process (whether this is of a temporary nature or will result in neuronc dissolution) which is widespread and causes, at any rate, considerable mental confusion, the illusions may occur in association with aberrant sensorial stimuli of any kind, though visual greatly predominate, probably because, in such patients, visual stimuli are the most numerous.

When, however, these phenomena occur in cases in which active pathological conditions of the cortical neurones are slight or absent—*e. g.* cases of high-grade amentia, of recurrent insanity during relapses, and of non-progressive dementia (*i. e.* cases of “mained brain”), etc.—the psychic phenomena as a rule occur at night, and in association with imperfect or aberrant auditory stimuli. The cause of this relative prominence of auditory psychic phenomena appears to be two-fold. On the one hand, in at any rate most ordinary individuals the usual channels for the reception and transmission of knowledge are hearing and speech, sight, except in the case of special psychic acquisitions, occupying a subordinate position; further, the majority of people think in words as spoken rather than in words as seen. On the other hand, fear or apprehensiveness is naturally greater when the subject is alone at night, or in the dark, than it is by day; and hearing, which is then the only sense available, is therefore preternaturally active. It is thus possible to give a simple psychological explanation of the prominence of auditory illusions and hallucinations in these types of case.

Certain illustrative examples of the various psychic phenomena under consideration will now be cited. In the case of the less complex varieties which occur in most cases of mental confusion it is unnecessary to insert special illustrations, as many examples exist in the cases already referred to and described. Certain of these will now be reproduced.

Case 3, a senile patient, *æt.* 74, presents a good example of a simple illusion of identity. On being asked whether she knows the nurse, the patient remarks, “I don’t know her. Oh,

yes, I think I do! Of course I do. How are you?" She then sits up and shakes hands, and adds, "I'm pleased to see you, quite pleased."

Case 4, a woman, æt. 81 years, goes a step farther from the associative aspect. She tells me that she has met me before, "close to home. I knows you by sight." She also knows the nurse, and says that her name is Haverdale, and that she is in a hospital "almost close to the top of the street."

Case 5, a pre-senile patient, æt. 52, who was later discharged "recovered," exhibits a different type of illusion. "Everything seemed to go wrong, work and everything; washing and everything seemed to be all just anyhow. . . . The things I put on the line seemed to be changed, sometimes things with no names on. . . . Sometimes I don't know my husband. I think it is somebody else. Sometimes he don't look like my husband, and another time he do. I think he came with me yesterday, as it was his overcoat he used to wear" (really the relieving officer). She states that she hears people talking at night. She has seen "funny-looking things in the beds, with horns on their foreheads rolled up," and they looked at her all night, and she couldn't sleep, and there were funny noises, "sissing" (probably from the steam-pipes) going on.

In this case the capacity of correct recognition was largely in abeyance, and at night matters were even worse. The patient was a woman who probably did relatively little thinking of any kind, and the earlier aberrant psychic phenomena were naturally those connected with the concerns of her every-day life. Later on, however, and especially at night, illusions of identity of a similar type, but grotesque in character, appeared.

Case 6, a female, æt. 33, in a condition of acute toxic mental confusion, also exhibits a simple type of illusion of identity. She knows the nurse, but not by name, and she has, she thinks, seen me before. She remarks, "It wasn't you that rode with me, was it?" (*i. e.* the relieving officer).

Case 7, æt. 22, an example of adolescent confusion (of the

type usually termed "catatonia") presents illusions of identity which possess more complex associative components than the last. The patient states that he is at present at "18, S— Street, L—." The attendant near him is "like my aunt, she's living there, 18, and my mother, sisters, and brother, brother Jack." The head attendant is "a chap from America, Leonard, that's his name, like him, anyhow."

Case 10, a man *æt.* 58, who is suffering from acute alcoholism, exhibits marked activity of the processes of lower association, together with much confusion. His illusions of identity thus possess complex psychic components. He knows me by sight very well, and tells me that I live in Leicester Square. He states that the charge attendant "looks like one of the yachtsmen." (The attendant's uniform was not very dissimilar from that of a yachtsman, and the examination was conducted in a small admission-room.) He describes the process of admission thus: He has just been "down and waited on board ship an hour and then his majesty the officer" (*i. e.* the "yachtsman" or charge attendant) "called you, and you told me to lie on my back, and then I was undressed, and then you came here." As the patient got more excitable and his associative processes became still more active, he suddenly shouted out as if to some one he saw or heard: "D'you hear? The King knew I was in Southend to-day. He was a witness that I was in Folkestone to-day." This remark apparently occurred in the absence of any sensorial stimulus, and as the consequence of vivid processes of mental association (see Case 15, p. 463).

Case 11, a male *æt.* 53, who is suffering from alcoholic excess and from the effects of former syphilis, exhibits similar psychic features. The pathological process is, however, of a more chronic nature. The psychic phenomena are complex, but are largely based on fairly stable associated memories which concern the every-day work of the patient, and the illusions of identity depend upon an aberrant psychic rather than upon an abnormal sensorial component.

The head attendant is well known to him. He has often met him in the park but doesn't know his name. He remarks, concerning the attendant near him: "Well, I couldn't call the gentleman by name, sir. I've seen the gentleman about the

park for four or five months. I only work in A— Street” (*i. e.* quite near the park). “I know a lot of folks about the park, but I couldn’t call ’em by name, sir.” He voluntarily recognises the patient in the next bed by name. “I’ve known that chap a good bit, sir. He’s a sailor man, I think. I’ve drank with him once or twice.”

Case 12 is of complex etiology, alcoholic excess, senility, and former syphilis all assisting in the production of an active process of cerebral dissolution. The psychic phenomena in this case are based on associated memories of all ages and all degrees of stability, and the groups of memorial units are therefore often impossible as descriptions of fact or experience. He tells me, for example, that I am a doctor and “I knows you well by sight for many years. I’ve knowed your face many long years, since I was a little lad.” As the patient is old enough to be the writer’s father, it is evident that in this case the higher functions of co-ordination and of selective and corrective control of the processes of lower association are practically in abeyance, and that the psychic phenomena exhibited (see also Case 12, p. 453) are due to a semi-voluntary riot of the latter processes.

The above examples of the various grades of illusion illustrate the more important of the simpler psychic phenomena under consideration. The writer will therefore now pass on to the description of certain cases which exhibit the nature and mode of development of those more complex psychic products which are grouped under the term “hallucination.”

The five cases to be referred to fall into two groups. Of these the first contains three cases of recurrent insanity (Cases 16, 17, and 18), and these agree in the important detail that the patients voluntarily give more or less clear indications of the mode of development and general characters of the hallucinatory phenomena. This is probably due to the details that the psychic disturbance is of a temporary and functional nature, and that the phenomena experienced by the patients are therefore more or less capable of interpretation by them the moment that normally controlled ideation becomes re-established. Such examples are naturally very rare, and are obtained by accident, because leading questions, owing to their

suggestive influence, are entirely inapplicable. The remaining two cases (19 and 20) are types of confusion due to acute alcoholism, and therefore fall into a different category.

The first of the cases to be cited is an example of recurrent insanity during an acute relapse, and exhibits the clinical features of "acute mania." There is hyper-excitability of the special senses, and intense reaction to, and rapid mental association as the result of, sights and sounds. The patient vividly sees his own former actions repeated on the slightest suggestive sensory foundation, and develops illusions in consequence of the prominence of certain associated memories. During examination he gradually loses ideational and motor control, and his processes of mental association so fulminate as to render it impossible to fix his attention. In order that unnecessary repetition may be avoided the more prominent features of the case, to which the writer wishes to draw especial attention, are printed in italics.

CASE 16. *Admitted May 8th, 1906 (Rainhill Asylum).—* Brother and maternal uncle insane. Previous attack in 1891. Duration prior to admission three days.

Male, married, labourer, æt. 53. Notes taken the day after admission.

A restless, excited man, who at once says that he was here before in '91, and offers to write his name. He is rather slow of comprehension but gives a good account of himself. At times he hesitates for a reply, puts his hand to his forehead, tries to think, and remarks that he feels confused in his head. He "hears voices using filthy talk and sees them rub their fingers and pull their eyelashes. *I used to do it myself, you know. They do it by telephones, and in the streaks of gaslight and all such as that*" (*i. e.* he associates what he hears and sees with what he happens to recall). He then remarks, "I'm just trying to think of the youngster's age" (a question previously asked him). *He does not know the people, but they are "mostly men in the building, but I came with a couple or three women when I came here"* (correct). He did not see them after they left him here. He then volunteers "*There's nothing to moider me when there's nobody there. Brain gets worried. Knocking and banging and pulling things about. Can't stand it. I've left all them tricks off.*" *I happen at this point to accidentally rub my eyelash, and as I do it he remarks that*

they do it too, and says that what he says they repeat, and as an example he repeats the alphabet and says they do it too. *He then states that the other two patients who are in bed in the dormitory watch his every movement* (correct). He then gradually loses control of himself, and his association of ideas becomes rapid and uncontrolled. He says the red counterpane resembles blood and then passes on to talk of painting. As he gesticulates the bed shakes, so he talks of spring mattresses. Later he mentions prayers, and he thereupon gets up, stands on the bed with clasped hands and uplifted head and eyes, and repeats the Lord's prayer. He then suddenly gets into bed again and says "fish of air, birds and seeds, everlasting life, amen." Then he makes a remark about hell, which arises in consequence of his bumping himself and happening to swear, and he remarks, "I could bear to have my throat cut as that's blood" (pointing to the red counterpane). . . .

He has an old left hæmatoma auris but shows no stigmata of degeneracy.

May 27th, 1906.—Patient is rapidly recovering from his acute attack. He is still excitable and unstable but is improving daily.

The next case is inserted owing to the definiteness with which one important detail concerning the source of purely hallucinatory phenomena is illustrated. The patient states that the "voices" which he hears are "my own family in particular and those I've come in contact more closely with." It is therefore clear that his "voices" are reminiscences of groups of associated memories.

CASE 17. *Admitted November 26th, 1903* (Hellingly Asylum).—Duration prior to admission about three months. Exciting cause stated to be religious excitement.

Male, æt. 26, auctioneer's clerk. Admitted nine days ago.

A neurotic-looking, restless man who appears very depressed and worried. He gives his name and age. He says that he came here last October (November), and that the date is December 4th (5th). He does not know the day of the week (Saturday) but says that it is four days since Sunday. He has not been "acting quite up to the mark," and has been depressed about "some religious matters partly." He is as comfortable

as he ought to be under the circumstances. *He suffers from auditory hallucinations. Voices tell him "to do the right thing," and he hears both men and women speaking to him. They are "my own family in particular and those I've come in contact more closely with."* Whilst talking he fidgets to such an extent that it is painful to watch him, and the intervals between his replies are so long that it is difficult to obtain much information from him.

May 27th, 1906.—Patient was discharged "recovered" on June 28th, 1904. His friends sent him into the country, and he continued well-behaved for five months, though he was distinctly feeble-minded in comparison with his original mental condition. He was re-admitted on November 20th after creating a commotion in a church and attempting to injure the altar furniture. He was again discharged on July 3rd, 1905, and has not since been heard of. He was a private patient.

The last, and by far the most important, of the three recurrent cases is that of a male, *æt.* 35, who gives a remarkably clear account of the mode of development of the psychic phenomena which he exhibits. The mode of origin of the idea that his father is superhuman is extremely interesting, and is presumably correctly stated. The patient was probably vividly impressed by some familiar attitude of the man under the fire escape, and instead of, as an ordinary normal individual would do, noting a resemblance to his father as a temporary illusion of identity, reacted to the sensory stimulus after the manner of a religious fanatic. His description of his nocturnal hallucinations is proof that these are merely elaborations of vivid reminiscences, though the patient obviously finds great difficulty in discovering suitable terms in which to express what he wishes to explain.

CASE 18. *Admitted August 25th, 1905 (Rainhill Asylum).—*Father intemperate and insane. Patient was admitted in May, 1902, and was sent out on trial in September, 1902. He was brought back at the end of a month, and was discharged "recovered" in March, 1903. According to his mother, he relapsed almost at once, but she kept him at home till his present admission.

Male, married, painter, *æt.* 35. Notes taken two days after admission.

A pale man of very worried appearance. His eyes have the strained appearance of a case with acute hallucinations.

His memory is normal, and he gives a good account of himself. When asked what special reasons have brought him to the asylum he gives the following description in an even monotone: "I've been believing in my father to be Almighty God, and if I'd done what I was told I'd not have been here now." . . . "I was told not to believe in my father, but to believe in someone above him, an Almighty God above, our heavenly Father, and I was believing in my earthly father." His wife and his mother told him to believe in a heavenly Father. He gives a vivid description of how he first thought his father to be superhuman. Whilst he was in the asylum the first time, he was working with a party of patients near the administrative block, and "*I thought my earthly father appeared in a flash under the fire-escape at the front. A man I was working with went under it and like as if he appeared to me in that man. That's where the idea sprang from.*" This idea has been "getting more and more strong ever since I went out." Now, however, since he has been in the workhouse infirmary during the past three weeks, he has begun to believe in the Power above. *He hears his father's spirit at night, "my earthly father's, guiding me, not like a voice but a spirit; whether it's a memory of his voice I don't know, like what I've heard him saying, sayings of his,* and he tells me to believe in a God above, a Supreme above, and that he's in heaven, so it 'uld be a good job for me so long as he is safe in heaven—let me be safe, you know."

He has been married over ten years and has six children. His wife has been very good to him in working for their living. He "chucked work just after Easter" (about four months ago) "owing to the ideas I got into my mind."

Patient was discharged "recovered" on April 28th, 1906.

These three cases demonstrate that the simpler type of psychic phenomena which are grouped under the term "hallucination" are the products of vivid association of ideas, and are thus capable of simple psychological explanation.

The next case exhibits phenomena of association which are also readily explicable, but which are of a somewhat different type from those just described. The patient, a woman æt. 39, with a history of intemperance, associates the nocturnal ticking

of a clock, which appears in her case to have been a prominent sensory stimulus, with the products of her psychic processes (*cf.* Case 16, p. 474). Such groups of memorial units as arise into the consciousness of the patient are associated with the ticking of the clock, and thereby projected externally. The resemblance of the "voices" to a telephone is merely a further stage of association by similarity, and such terms as "voices" and the clock "talking" and "saying" are merely instances of the modes of expression which the patient finds available for the purposes of description.

CASE 19. *Admitted December 2nd, 1903 (Hellingly Asylum).—*Cause, intemperance. Duration prior to admission, one week.

Female, *æt.* 39 (?) years; cook. Admitted twenty-four hours ago.

Appearance dull; face expressionless; memory and general intelligence good. No illusions of identity. She states that she has been working in a hotel during the season, and that when she left they could not pay her her wages. This upset her. During the past week she has heard voices at night. She heard the clock talking "a communication from New Cross." "*It was my brother and cousin talking, and like a telephone.*" "*Two nights ago, first the clock said 'Think of me on Wednesday.' I was frightened. My mother-in-law and sister were in the bedroom and she was crying as they are going to the workhouse, and she said that my brother had been keeping another woman during the past seven years. That's what I was told distinctly by that clock.*" Last night she "didn't hear enough to disturb me and I don't remember it now." (There is no clock in the dormitory.)

Patient was discharged "recovered" on June 14th, 1904.

The last case, that of a man *æt.* 60, with a history of intemperance, is a similar example to the previous one, but the psychic phenomena are more complex. The description given by the patient is so clear as hardly to require any explanation. The preliminary symptom developed was a loss of higher control over the processes of lower association, which occurred in consequence of the exhibition of indecent photographs and of the resulting emotions of suspicion and jealousy. Later on, as the case progressed, the patient's processes of lower association acquired an involuntary and uncontrolled prominence which resulted in the psychic phenomena he so well described.

CASE 20. *Admitted January 14th, 1905* (Hellingly Asylum).—Cause, intemperance. Duration prior to admission, fourteen days.

Male, married, no occupation, æt. 60. Notes taken on day of admission.

An intelligent man with rather a heavy appearance about his eyes. He gives a good account of himself and his memory is normal. He does not know why he is here but says that he has had a lot of worry during the past two weeks with his wife, who would not do as he wished, and he has been brooding over this. His wife was a servant, and one day he saw a German waiter show a servant in the establishment a lot of indecent photographs. He thought that these might be shown to his wife so he made her leave, but she persisted in going back again. They then "had words" and she left him. She is his third wife, and he is not married to her, as his second, who is "more like a wild beast than a woman," is still alive. *He has lately heard "voices" at night.* He thinks "the Salvation Army has had a lot to do with it." "*Funny noises in the ears,*" probably due, he thinks, to living near the sea for thirty-five years, "like a man talking like Punch." *A few nights ago it sounded "like the old-fashioned Punch and Judy shows,* and was behind my head through the wall and acting as detective from Scotland Yard, and calling out things about the Duke of Devonshire and the King." In former years he "used to go a lot to market" and meet these individuals at cattle shows, etc., "*so it might have come up again and revived itself.*" "I haven't heard any of these noises to-day since I've been out here." He has only heard them since his trouble two to three weeks ago, and has slept badly during this time. He is a moderate drinker and at times has drunk heavily.

Patient was discharged "recovered" on July 29th, 1905.

In the above illustrations the psychic phenomena described were accompanied by consciousness, and this is the case in the majority of the patients who exhibit these symptoms. As has already been stated, it is rarely difficult to determine, by suitable interrogation, that these phenomena do not possess a true objective reality. Whilst the sufferer is only too vividly conscious of their existence, they are of a different order from the normal psychic products of the recognition of sensorial stimuli,

and are not mistaken for these in spite of their projection externally. They may be described as "voices," or as "interference," or as "torture," or the patient may go a step further and endeavour to determine their source. If he be of low intelligence and poor education, he develops the idea that these phenomena are caused by X rays, cinematographs, electricity, or telephones, or by some other agency he does not in the least understand. If his intelligence and education be considerable, such causes will naturally be unsuitable and even unthought of, and the patient has therefore to fall further back upon the unknown and to appeal for a suitable or possible origin for the phenomena to hypnotism, occultism, theosophy, and various mysterious agencies.

The writer is thus of opinion that many "delusions" may be regarded merely as evidence that the patient more or less clearly recognises that the hallucinatory phenomena from which he suffers are of a different order from the normal psychic products of the recognition of sensorial stimuli.

The last variety of (simple) hallucination to which the writer wishes to refer is of a different nature, and occurs in cases of progressive cerebral dissolution, as one of the phenomena which result from riotous processes of lower association.

An example is given in Case 15 (p. 463). In this patient advanced dissolution of the centre of higher co-ordination, correction, and selection has occurred, and the processes of lower association are in consequence being performed in an almost entirely automatic manner. Fatigue consequent on the stimulation of questions therefore results in a very fulmination of these processes. The psychic products, which arise by aberrant and maimed processes of association in the actively diseased physical basis, are inco-ordinate and jumbled together. The patient mutters away in what is necessarily quite an unconscious manner. He speaks as if in reply to questions and looks up as if he were reacting to external stimuli, in automatic accordance with the recrudescence of such associated memories as resemble the normal psychic products of the recognition of sensorial stimuli.

Such a psychic state is solely due to a riotous action of the processes of lower association in the practical absence of consciousness, which, however, can be temporarily aroused into existence by a further question.

This variety of hallucination therefore completes the types of psychic phenomena which occur in cases of profound mental confusion, and bears a similar relationship to the types of hallucination which have been previously illustrated, to that which the various types of illusion which occur in profound mental confusion bear to the simpler and semi-normal varieties of illusion which were referred to at the commencement of the present description.

(2) *Certain Complex Phenomena of Association which arise under the Influence of Local Disorders of Lower Association.*

The writer will now, in conclusion, refer briefly to certain more complex psychic products which appear to arise owing to an unharmonious action of the centres of lower association under the local influence of the simpler phenomena which have just been considered.

Cases are occasionally met with in which the psychic phenomena manifested appear inexplicable except on the hypothesis that the different centres of lower association are acting independently of, or at least unharmoniously with, one another.

To illustrate the writer's meaning, an example will be cited. A single man, æt. 44, by occupation a clerk, and exhibiting signs of former syphilis, was admitted suffering from apprehensiveness associated with ideas of persecution by his fellow-clerks. He had for some time been failing in his work and had felt doubtful of his capacity to continue to perform his duties as usual. His prominent ideas at the time were that he was falsely accused of sodomy and of uttering forged cheques. After a residence of some months, during which he was quiet and well-behaved but very apprehensive, introspective, and solitary in his habits, he developed certain interesting psychic phenomena. During the period in which the patient was under observation the following progression of phenomena was observed: (1) The words which the patient spoke seemed to him to be repeated inside his head. (2) Later, whatever he read also appeared to be repeated aloud, word for word, by a voice within his head, even when he read silently. This phenomenon worried him greatly as he was afraid of disturbing the other patients, and he therefore became still more solitary in his habits. As a means of describing his symptoms he referred to the "voice" as the "speaker." (3) Later

still, the "speaker" not only repeated aloud what he said and what he read, but also what he thought. He then became still more worried and very depressed when in the presence of others. All kinds of associated memories—dealing, for instance, with actions performed whilst he was a boy, with sexual matters, with everything, in fact, which he most wished to keep secret—were, as they happened to be recalled, repeated aloud by the "speaker" for everyone in the room to hear, and his existence was thereby rendered unendurable.

The order of spread of these auditory hallucinations of words exhibits a correspondence with the order of acquisition of the normal functions of language, in that the hallucinatory phenomenon attaches itself first to the earliest acquired and most stable associate of the auditory word image.

Such a case is readily explicable on the hypothesis that the centre of lower association for the hearing of spoken words was in a condition of hyper-activity, and that vivid associated auditory word-memories were aroused whenever the corresponding vocal or visual word-memories were stimulated by speaking aloud, or by reading to himself, and eventually even by thinking to himself.

An example will now be given in which a hyper-excitability or unharmonious action of the physical basis of auditory associated memories so influenced the centre of higher association as to cause the development of a fixed delusion, which eventually dominated the whole of the processes of mental association.

The patient, a man *æt.* 39, had followed various occupations, including that of a cattle-slaughterer. He was an individual of relatively little education but of considerable, in fact of marked, intelligence, and at the time he came under observation had already been several years in an asylum. Before his admission he had served a term of six months hard labour for assault, and when he was admitted he suffered from severe hallucinations, which were chiefly of a sexual nature, with reference to one of the prison warders. As his case progressed, and his hallucinations became more vivid and numerous, he still continued to refer to this individual as their source. When he came under observation careful investigation of his hallucinations demonstrated that these consisted entirely of groups of associated memories which were not projected externally by the patient. He considered that the prison warder or, as he termed him,

“the mystery,” or “the man underneath,” apparently because he had satisfied himself that the source of his associated memories was certainly not anywhere *on* the earth, had some occult method of putting thoughts into his mind, and not only into his own mind, but into the minds of everyone else. He, in fact, believed that the “mystery” was the source, not only of nearly all the thoughts which arose in the minds of men, but of all the evil which resulted from these. “I am writing you a few lines. The Yankee mystery is shoving things into the butchers’ heads and putting them on to pilfer things to get him into trouble, and he is shoving into my head that I know all about my masters, and said that I seen him pilfering many a time and trying to force lies out of your mouth. My mother in L— can see everything that’s done in the asylum and the doctors of the asylum can see everything that’s done outside if they have one of the cinnamatic machines in the asylum they can see everything but still keep it all to themselves.” The above is an illiterate description of the methods employed by the “mystery.” Occasionally the patient got fellow-patients to write from his dictation. “When I was in Ward —, the patients received tobacco and cigars off the mystery to charge me wrongfully, and they furthermore gave him instructions not to give me justice unless I spoke the truth concerning myself. This is a made-up thing on the patients’ part before I came from prison, and I know that the majority of them are jealous because I speak up for the attendants a little, knowing where all the destruction comes from. . . . When asked by the doctors in the morning as to how they feel they are afraid to tell all that is in their mind lest the doctors might say it was their own.” (Note the distinction made between what the “mystery” puts into the patients’ minds and what they think themselves.) “Also, when saying their prayers it is from the lips and tongue only, whereas the actions of the other man” (*i. e.* the “mystery”) “is on the lips and tongue as well as the mind. All the speeches from men in the side-rooms and dormitories go through my head at night-time, and this is why the patients and the attendants who have left got the mystery to try and knock the truth out of me, and so cause the mystery to shout out everything himself, but I have not done anything that the mystery says, or else the companions whom I used to work and sleep with would have

written to me and told me all. But all this is done to make a liar of me and other people with whom I am acquainted. The mystery puts lies into people's heads in order to do them an injury." One more extract will be given to show how widespread was the influence of "the mystery" or the "other man's mind." The "mystery" interfered with the beef trade between England and South America in order to give Germany the benefit. "The importation was stopped owing to foot-and-mouth disease amongst the cattle, but it was not their own at all, but that of the South American Board of Agriculture under the earth. They are in a position to shove the disease in and take it off again at pleasure. On the arrival of the last cattle-boat in this country there was, according to the statement of the veterinary inspector, no disease at all on board, and I can vouch for this myself, looking after the offal, and finding the heart, lungs, and liver of the cattle quite sound. The German inventor having a spite against this country, caused the cattle to be forwarded to his own country to be divided amongst forty thieves in like manner that they do in this. This would have the effect of bringing all trade to themselves. They would like to obtain all the offal trade if possible, but my advice is to ignore them and say that you are in the know. The German butchers have been trying to ruin this country for years, but we have found them out at last. It is to be hoped that all the English, Welsh, Irish, and Scotch men in and around New York will look after the German inventor, who is the cause of all poverty and starvation, but no one living on this earth ever dreamt of his being underneath the same, and having his big mansion there."

It will be observed that this patient differs from the last in having, after the manner of the group of cases suffering from systematised delusions (*Journal of Mental Science*, January, 1906, p. 14), extended the scope of the imaginary cause of his hallucinations or abnormally vivid associated memories until he applied this cause to nearly all his own personal products of mental association, then to nearly all those existing in other people, and, lastly, to all the intrigues and evils in the world. From an accusation of masturbation by a prison warder he developed the idea that the warder was the real offender, and left the results in his bed in order to substantiate the false charge. He then considered the warder to be the cause of the

prominent auditory associated memories from which he suffered; and later on of nearly all the associated memories of whatever kind which arose into his consciousness. He finally developed the idea that this person, whom he eventually described by such titles as the "mystery," the "South American Board of Agriculture," the "German inventor," the "man underneath," the "other man," the "other man's mind," etc. etc., was the one power of evil.

The case differs from paranoia in an important detail. The patient was able at times to detach himself, so to speak, from the aberrant products of mental association. Thus he frequently, with *his own mind*, originated certain practical ideas—*e. g.* when using ointment for internal piles he invented a tube by means of which the ointment could be neatly applied to the affected region; and he used to speak of "telling the mystery" about such inventions or suggestions in order that they might be put to some general use.

This case, therefore, illustrates how morbid psychic phenomena evolved in the lower centres of association may eventually by introspection result in widespread anomalies involving the whole of the mental functions.

It will be observed that both the cases which have been described suggest a simple and by no means improbable explanation of such phenomena as alternating, double, or multiple consciousness.

Though many similar cases might be adduced, the above are sufficient to illustrate how local lesions of the centres of lower association may eventually, by the persistent influence of the psychic phenomena they excite, result in unharmonious interaction of these regions, and even in a general involvement of the whole of the psychic centres. In the experience of the writer a greater degree of dementia develops in cases of this kind than is found in the primarily non-hallucinatory types of paranoia which were described under "Amentia" in the second part of this paper. It is probable, therefore, that persistent hallucinatory phenomena, when of such abnormal vividness as to acquire a more or less marked degree of objective reality, and therefore to be projected externally by the patient, are indicative of neuronc dissolution in the particular centres of lower association which serve as their physical basis.

The writer would, therefore, draw attention to the difference

which exists between the types of cases under consideration and cases of pure paranoia. In the latter the centre of higher association is the primary region at fault in that it is unable to exercise its normal functions of co-ordination and of corrective and selective control of the centres of lower association. In the former various local disabilities exist in one or more of the centres of lower association, and these lead either to unharmonious action of these centres in relation to one another or to more generally aberrant psychic processes involving also the centre of higher association. In these cases considerable neuronie dissolution and dementia frequently occur: in those relatively little cerebral disintegration may ensue even in cases of long duration.

SEQUELÆ OF MENTAL CONFUSION.

As has already been stated, the sequelæ of mental confusion are recovery, a stationary condition of dementia, and dementia which more or less rapidly progresses till death ensues. In any individual case the particular sequela depends on the cause and the severity of the pathological process of which mental confusion is the psychic expression.

Recovery.—It is doubtful whether any attack of insanity associated with, at any rate, moderate mental confusion ever leaves the patient in exactly his previous mental condition—*i. e.* in the possession of an entirely intact cerebrum. A study of the after-history of cases discharged “recovered,” in fact, only too frequently demonstrates that a certain degree of feeble-mindedness has ensued, although for practical purposes the patient is again “sane.”

This is particularly the case when patients who possess neurones of deficient durability have broken down, usually at one of the “critical” periods of life, under the influence of such a degree of mental or physical “stress” as would have produced no ill effects on normal cortical neurones.

In cases of mental confusion which have been induced by the direct action of toxines (p. 431), recovery is more often relatively complete. In such patients the pathological process in the cerebrum is more general and the confusion is more profound than occur in the former types. It is usual, therefore, to find that either practically no dementia, or else a very

appreciable degree of dementia, is the sequela when the acute neuronc changes have subsided.

In cases of this kind recovery, if it occurs at all, is as a rule not delayed longer than a few weeks or months. From the pathological aspect the subsidence of the acute neuronc changes in the cortex probably resembles that which ensues in "peripheral neuritis," without destruction of nerve-fibres, in other parts of the nervous system.

Occasionally, however, recovery occurs after one or two years in cases which appeared to be hopeless, and therefore, especially in mental confusion following alcoholic excess, experience suggests a guarded prognosis. It is probable that such cases are analogous to severe examples of "peripheral neuritis," in which actual destruction of nerve-fibres has occurred, and which only recover after these have had time to undergo regeneration. In cases of this kind it is at least conceivable that relatively little actual destruction of cortical nerve-cells has occurred, but that severe though more or less reparable damage, which is only recovered from after a considerable period of time, has been done to their fibrillar ramifications. This is at any rate a preferable hypothesis to the alternative one, namely, that "spare" neurones exist in sufficient quantity to take on the functions of those destroyed, for in this case the mental functions would be re-established on a neuronc basis which would be to a large extent a *tabula rasa* as regards associated memories, and also recovery from prolonged mental confusion would be much more common than it is.

A stationary condition of dementia. This is the common sequela in a large proportion of the cases which are precipitated by the causes referred to under the last heading.

The usual condition of the patients is one of moderate dementia, and this is perhaps largely due to the frequency with which patients suffering from the milder grades of dementia are eventually discharged "recovered" or to the care of their friends. A difference is often noticeable between the mental condition of the patients who have developed dementia as the result of the direct action of toxins and that of the remainder. It is frequently observable that the former cases exhibit a greater degree of dulness, apathy, and lack of initiative than the latter, though they are often very useful mechanical workers.

This difference is, however, not so common as to merit description as a constant distinction between the types. It is probably due to the more general involvement of the neurones of the cortex which occurs under the influence of toxins, and to the consequent greater dissemination of the neuronie destruction. It may be added that patients suffering from a stationary condition of dementia, however this has been induced, are, in comparison with any of the types of high-grade amentia, especially prone under the necessary causative agents, the chief of which is senile or presenile degeneration of the cerebral vessels, to develop progressive dementia.

The commoner *symptoms* of stationary dementia which occur in all cases, however induced, will now be briefly detailed. These are general dulness and apathy, a loss of initiative, and an indifference to their surroundings; a marked degree of stereotypism of all the mental processes, and an inability to learn new acquirements; a mechanical method of performance of known acquirements, a general stupidity and inability to understand when an attempt is made at correction of any kind, and a tendency to revert to accustomed modes of speech and action; finally there is a tendency to the repetition of accustomed actions which often shows that these have been performed in the entire absence of intelligent volition. As an example of the last may be mentioned an action of a certain patient who had been accustomed in her previous asylum to go for coals every day. On the morning after her admission she was discovered standing patiently at the door of the ward with a slop-pail in her hand. She could not give any explanation of this, but it was obvious that she had picked up the nearest thing to a coal-pail that happened to be available and had gone and stood at a door which more or less corresponded with that through which she was accustomed to pass on the way to the coal-house.

Progressive dementia.—In very many cases of mental confusion this symptom-complex is the indication of a more or less rapidly progressive process of cerebral disintegration and mental dissolution.

The causes of such progressive dementias are cited on pp. 431-432, and need not here be further referred to. It is, however, desirable again to draw attention to certain details of symptomatology which distinguish such cases from examples of simple

mental confusion which are presumably capable of recovery. These have already been referred to, as occasion served, in the remarks on Cases 3, 12, 14, and 15, etc., but many of them are exceptionally well exhibited in the example now to be described.

The following case, in fact, illustrates, better than would any general description, the chief differences which exist between simple and presumably recoverable mental confusion and the mental confusion of progressive dementia. The chief of these are as follows: The patient does not know the time of year; she gives her first married name instead of her present one; she states that she is "getting on for forty," whereas she is seventy-five; she confabulates readily, but the psychic phenomena evolved are on the whole impossible, and are largely based on groups of memorial units dealing with her early life; she has well-marked illusions of identity, but she continually makes use of the same name, "P—r," in her identifications.

In all these points the case differs from one of presumably recoverable mental confusion, and shows evidence of the mental confusion of progressive dementia.

CASE 21. *Admitted September 22nd, 1904* (Hellingly Asylum).—Exciting cause, intemperance. Duration prior to admission said to be fourteen days.

Female, married, nurse, æt. 75. Admitted four days ago.

A wrinkled old woman, who says that her name is "Sarah C—x; a large family we are." This is her married name, and her maiden name was H—s. She then states that she married again, and that her present name is W—m. ("Isn't your name Mrs. B—d?") "I am, sir, because I was a widow and married Mr. R. B—d?" She recognises the nurse as "Mrs. W—m's daughter. Mrs. P—r it was once, I know. Weren't your grandmother's name P—r?" She then tells me that the nurse is "Mrs. P—r's grand-daughter, isn't it? I know the old lady, and I know your mother." She states that she has seen me before at Bishopstoke. She does not know whether my name is P—r or not. "I know Mr. P—r and Mrs. P—r, and thought you were Mr. P—r." She calls a patient named M—B—d "Mrs. T—r," and another named S—P—x "Mrs. P—r," and a nurse "Mrs. P—r's daughter." She thinks to-day is Sunday (Monday), and that the date is the 25th or 26th (26th). She replies that the month is "Not February, is it?" (September),

and that the year is "I don't know whether it is 101 or 102" (1904). ("Age?"). "I'm getting on for 40. It's a nice little age, isn't it? I suppose *you're* beginning to shave it, aren't you?" ("Out to day?") "Yes, I've been out to see the cricket match to-day." She states that she saw her husband at Bishopstoke this morning. She brought her husband's breakfast home with her—bread, butter, and oysters. I tell her that I don't know a *soul* in Bishopstoke, and she remarks "*A soldier* there, are you?" She replies that she has children at home. The youngest is five or six, and she has twenty-five living, and thinks it likely that she will have another to make twenty-six. When asked where she is she replies that it is "About one mile from Bishopstoke station here." When again asked the same question she remarks "Very nice place. I like it very well. I should think it was a bonny place myself." I then ask her if she is a country-woman, and she replies "Southampton woman." She answers questions quickly and apparently rationally, but as a whole does not volunteer much information about herself. She laughs and looks about slyly from face to face as if she thinks that she is amusing. She has evidently lived a rather dissolute life, as she says, "I went to Bishopstoke this morning. I enjoyed myself, I can tell you. I always do when I go on the spree. I was along with your nephew last time I saw you and with his father this morning." She is very erotic. When I touch her chin to get her to open her mouth she tells me I am a rascal and that "He thought he'd tickle me under the chin." She is wet and dirty in her habits, but is quiet and no trouble and takes her food well.

This patient died two and a half months after admission in a condition of advanced dementia.

For examples of the symptomatology of the more fulminating types of cerebral dissolution which, together with certain of the above characteristics, also exhibit still more markedly aberrant phenomena of lower association, the reader is referred to Cases 14 and 15 (pp. 462-463).

(*To be continued.*)

*On Instinct: A Psycho-Physical Study in Evolution and Dissolution.*¹ By W. H. B. STODDART, M.D., M.R.C.P.,
Assistant Physician, Bethlem Royal Hospital.

THE object of the present paper is to direct your attention to the facts—

- (1) That volitional and instinctive movements are performed by different motor tracts of the nervous system ;
- (2) That the volitional motor system, being evolved and developed later than the instinctive, is earlier and more readily affected in mental disorder ; and
- (3) That when the instinctive motor system is attacked the instincts disappear in the reverse order of their development and therefore of their evolution.

Instinct is usually defined as the faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance. A few instances will make this definition clear.

Butterflies and moths invariably lay their eggs on or near the leaves of that plant which is the natural food of their young. Now, these insects never knew their parents, and they will never know their children ; the butterfly, therefore, has no means of knowing what she is depositing when she lays her eggs near the food-plant of her caterpillar. Why does she do so ? It is just instinct, she cannot help it, and the performance is known as an instinctive act.

The first-year bird that has a fertilised egg in her oviduct starts collecting roots, moss, hair, and feathers, and builds herself a nest ; yet she can have no idea that she is going to lay eggs therein, she has had no previous experience of such a performance, yet she makes almost as much provision for the occasion as a young mother of the human species, with whom the preparation is, perhaps, rather a series of voluntary acts.

And when the bird has laid her eggs there seems to be no possibility that she can have the remotest idea of their nature ; yet she sits, and sits, and sits upon them until they are hatched. Why does the bird go through all this performance ? Simply because she cannot help it, it is the inborn way of the bird, it is instinct. If ever a bird existed that made no provision for

its young, its race has died out ; it is the old principle of the survival of the fittest.

These are but a few examples ; but it may be stated generally that some of the lower mammals, all birds, all vertebrates, and perhaps all animals lower in the scale than birds lead a purely instinctive life. Voluntary action is peculiar to mammals.

This fact is of the greatest interest when it is correlated with the anatomical differences between the motor nervous system of mammals and that of the birds and lower vertebrates. The motor system of birds consists of neurons going from all parts of the cerebral cortex to the optic thalamus, and a further system of neurons from the thalamus to the motor cells of the anterior horns of the spinal cord. This latter tract crosses from the thalamus to the opposite side of the cord, where it occupies a similar position to the pyramidal tract of mammals. The pyramidal tract is peculiar to mammals.

In considering the mammalian nervous system it will be seen that it is not difficult to decide which is the representative of the motor system of the bird ; for there is only one descending mesencephalic tract which crosses to the opposite side of the cord, viz. the bundle of Monakow, which arises, as Held and Probst, Buzzard and Collier have shown, on the ventral side of the red nucleus, decussates in Forel's crossway with the corresponding bundle of the opposite side, and is traceable in the neighbourhood of the lateral tracts as far as the sacral region of the cord. It connects the opposite red nucleus with the ventral horn of the cord.

The cortical portion of this motor system consists of fibres which take origin in all parts of the cortex, but especially in the parietal lobe. Dr. and Mdme. Déjérine, who describe the system, state that the fibres reach the thalamus just above the radiations of the internal geniculate body, enter into the constitution of the fillet, and reach the red nucleus at its antero-supero-external part.

We find, then, that there are in the higher mammals and in man, whom we are especially considering to-day, two motor nervous systems. One is the cortico-rubro-spinal representative of the pristine instinctive motor system ; the other is the pyramidal tract, which is, I submit, the volitional motor system.

I have elsewhere shown reason for the belief that the cortico-rubro-spinal system forms an important part of the physical

basis of emotion (²), and that eminent psychologist, Professor James, has pointed out that emotion and instinct are really the same thing, the only difference being that instinct brings the organism into more practical relationship with the external world than emotion.

EVOLUTION.

Now, it has often been said that the child, in its development, reproduces the history of the race, and this is well shown in the development of the two motor systems now under consideration. The cortico-rubro-spinal system is already fairly well myelinised at birth, but the pyramidal tract is not completely myelinised until the child is about seventeen months old.

Similarly, the child has all sorts of instinctive movements at birth, and more instincts develop during the first seventeen months and after, but true voluntary acts do not make their appearance until seventeen months of age, when the pyramidal fibres have received their myelin-sheaths.

I will now proceed to consider in detail the development of the various instincts, starting from birth, and as I do so I will ask you at the same time to think of the patients under your care in various stages of degeneration, especially your general paralytics. Those of you who have to deal with imbeciles will naturally think of your patients as being in various degrees of retarded evolution.

The following account of the dates at which the various instincts develop has been obtained by striking an average, after collecting information from the works of Darwin, Preyer and Sully, from masters and mistresses of schools, from several observant fathers and mothers of families, to all of whom I now tender my sincerest thanks for their interest and assistance in this research, and from numerous personal observations.

At birth the child resembles the general paralytic in the terminal stage of his disease. It lies on the bed with limbs curled up and eyelids closed, wet and dirty, and quite incapable of appreciating the nature of its environment. It will grasp an object placed in its hand or suck an object placed in contact with its lips. It does not *seek* the breast, but it will instinctively suck when its lips are placed in contact with the nipple.

On the second day reflex movements of the eyes occur, the two eyes moving independently of one another.

During the first few weeks of life further observations are rarely made, partly on account of the sentimental interest attaching to a new-born baby, and partly because the nurse refuses to allow such sacrilege as accurate scientific observation of her charge.

In the third week resentment is sometimes observed.

By the sixth week eye movements are practically complete, and the child will instinctively converge for near objects. Passive attention develops, so that he will turn his head in the direction of a sound and reach out towards an object. Tactual space perception, however, is yet incomplete, for at this age he will perhaps reach for the moon.

The seventh week is characterised by the development of the smile.

In the ninth week the instinct to handle objects is first observed, and by the eleventh week movements, which have hitherto been quite aimless, begin to assume a more purposeful aspect.

The instinct to imitate sounds also makes its appearance about this time. Surprise and fear now begin to develop especially fear of change. This fear of change goes on developing during the fourth month until, in the fifth, we find it crystallised into an instinctive shrinking from strangers.

Laughter first shows itself at the end of the fourth month. During the fifth month the child develops the instinct to sit up and about the end of that month the instinct to carry objects to the mouth.

The idea of distance which a chick has as soon as it leaves the shell does not appear in the human infant until the sixth month of life. The instinct to grasp objects also appears in this month, but the child seems to have no idea of letting go until two months later.

In the eighth month the child begins to take pleasure in making a noise, an interesting instinct which appears to be preserved through life. It will throw things on the floor for the pleasure of thus making a noise.

The instinct of locomotion is usually first observed during the tenth month; this is followed in the eleventh month by the instinct to stand, the child constantly trying to get upon its feet, and during the twelfth month this develops into the walking instinct.

During the ninth month the instinctive basis of language appears for the first time, and such sounds as "kak-kak," "ba-ba," and "da-da" are uttered. These repetitive sounds have probably little or no meaning until about the fifteenth month, when "dada" and "bow-wow" are uttered in association with the respective percepts of a dog and a man. The appellation "dada" is not limited to the child's father until the twenty-first month. But all these sounds are at first instinctive.

Perhaps the sound "kak-kak" or "ack-ack" is the most striking example of instinctive language. It occurs in almost every child belonging to the Aryan race, and is an expression of disgust. The Hindoo word *khaki* means brown, the colour of dirt, dust, or fæces. I have frequently heard the same sound uttered by the young monkeys in the Zoo when they have been in any way annoyed by another monkey. Now, the monkey has no voluntary language; here we have, therefore, an interesting demonstration that this sound is of instinctive origin.

The sixteenth month is of great interest on account of the very earliest beginning of voluntary language. The child will say "ey" (an attempted "yes") for assent; but the word "no" is not used as a verbal negation until some months later.

Language is first learned by instinctive imitation. During this month the child learns to say "ta" when it is given anything; but it does so instinctively, for volition is not yet; and if the child is told to say "ta" or "tata" it does not do so, for the simple reason that to say a word to order is a volitional act.

A similar condition is frequently observed in some patients with motor aphasia, who will answer "no" to a question but who cannot say "no" when told to do so.

The dawn of volition, including voluntary language, occurs in the seventeenth and eighteenth months. Volition continues to develop at least up to thirty years of age, and perhaps through the whole of life. The volitional motor system gradually acquires control of the instinctive from the second year onwards. For the present I will say no more of volition, because I wish to-day to direct your attention especially to instinct.

Instincts still continue to develop. Curiosity makes its appearance about this time, in the eighteenth month.

In the nineteenth month the child shows signs of acquisitiveness by clamouring for its brother's or sister's toys. At this

age covetousness and greediness may cause the parents alarm concerning the character of their progeny.

In the twentieth month the child shows a desire for social intercourse, the beginning of the instinct of sociability.

About the twenty-first month the instinct of cleanliness appears, not active cleanliness but the avoidance of filth, and about the end of the second year the child ceases to be wet and dirty.

The instinct of make-believe and play develops in the later half of the third year.

During the third year the child gets some idea of time, and has a definite concept of past and future. Accordingly, memory, on the one hand, and anticipation on the other begin to appear. The instinct of rebellion also makes its appearance, and the child gains some consciousness of self, the ego concept.

Destructiveness is an instinct which appears in the fifth year. The child often exhibits it by pulling off the legs and wings of flies. Disinterested cruelty is a primitive attribute of our nature. From this year onwards the boy loves to tease others, and he fights others with intent to do bodily harm. Here is the beginning of the instinct to kill, not only the lower animals for food, but even human rivals. When this instinct gets out of hand, murder may result.

Constructiveness develops a couple of years later; if a six-year-old pulls his father's watch to pieces, it is partly for the purpose of giving himself the subsequent pleasure of putting it together again.

Emulation and rivalry appear about this time. Children of this age will, for example, vie with one another in collecting the largest bouquet of wild flowers for their mother.

The instinct to make collections of some kind of thing usually shows itself, at least in boys, about the ninth or tenth year.

The instinct to eat, which develops at a very early age, becomes especially prominent from ten years of age up to puberty. At this age the boy eats everything that is placed before him; there seems to be no possibility of satisfying his appetite, and he takes the greatest interest in the "tuck-shop"; I do not mean the sweet-shop, but the "tuck-shop," where they sell such things as dough-nuts.

The period between twelve and fifteen is characterised by well-marked boastfulness and conceit. This generally develops

into a feeling of power, general *bien-être*, and if it is not soon under volitional control a state of simple mania.

Modesty is a remarkable instinct which develops at puberty. The sexual instinct appears shortly afterwards. Then follow, in man, the instincts of hunting, fishing, and shooting, stronger in man than in woman, for it is the man's natural duty to provide food for his family. In civilised communities these last instincts usually find an outlet in open-air games.

DISSOLUTION.

Now, in the various forms of mental dissolution the first motor system to be affected is the volitional, the pyramidal system which is myelinised at least sixteen months after the instinctive cortico-rubro-spinal system.

The first symptom of mental disorder is loss of voluntary control of the instincts. The pyramidal system is unable to control the cortico-rubro-spinal. Accordingly, we find in the lightest grades of mental disorder, for example, those cases of moral imbecility which we encounter so frequently in every-day life, that the patient has insufficient control of those instincts which were latest developed. The man is unable to maintain interest in his every-day routine occupation; he must be out of doors playing games, at which he is, as a rule, very good. A latter-day exemplification of this out-of-door instinct is motoring. Motoring all day and every day is not uncommonly the first symptom of general paralysis.

When dissolution is slightly more advanced he is a sexual libertine. Boastfulness, conceit, and a general sense of *bien-être* once more become prominent.

The eating instinct next gets out of hand, and the general paralytic (male) bolts whole potatoes and slices of meat without waiting to cut them up. This is so well recognised that all the general paralytics in establishments for the insane are fed on mince.

As dissolution proceeds the collecting instinct once more becomes prominent. The general paralytic orders fifty watches, twenty pianos, and a dozen motor-cars. At this stage the relatives commonly realise the true state of affairs, and the patient is sent to an asylum, where he takes to collecting rubbish.

A few months ago I noticed in the daily paper an account of a man who had been in this stage of dissolution for years ; his house was so full of old newspapers that only a narrow gangway was left between the heaps in each room.

Keeping to general paralysis as the most convenient type of insanity to follow, because of the slow, steady course of the dissolution, we find that the patient now becomes quarrelsome, having lost control of the instinct of rivalry. Constructiveness once more becomes prominent and shows itself in the characteristic schemes, albeit impracticable, of the general paralytic, schemes to make eggs out of oyster shells, to warm the North Pole by a system of hot-water pipes, etc. He next becomes destructive ; his volitional nervous system is in the same condition as at the age of five.

Dissolution proceeds, and the patient, after passing through a well-marked stage of rebellion, becomes social once more ; he becomes friendly with the attendants, calls them by familiar names, and is always anxious to shake hands with the doctor.

He returns to the age of make-believe and play, says that his room is full of valuable pictures, that rugs are heaps of pearls, and so forth.

During the whole of this time the patient's language has become more and more limited. I will not enter into this gradual limitation in detail, but will merely draw attention to the fact that the last word to go was the first voluntary word to come, viz. "yes." The instinctive beginnings of language do not reappear in general paralysis.

Long before the voluntary motor system has reached this stage of degeneration the pristine instinctive motor system has become involved in the process.

The out-of-door instinct disappears, shortly after the patient takes to collecting. The sexual instinct disappears much later, about the time when the patient becomes excessively social.

In their turn modesty, boastfulness, and rubbish-collecting all disappear, and the patient, still destructive, may be compared, so far as his instinctive motor system is concerned, to a child of six. He loses the instinct of cleanliness, and becomes wet and dirty. He is mentally equivalent to a child of two.

As he is losing the instinct to walk, he stands still against the wall in a corner of his room. As the instinct to stand disappears, he sits on the floor ; but he cannot be induced to lie

down. Further, although in a sitting posture, he is in constant movement all over his room ; for he has returned to the age when the instinct of locomotion is dominant.

The instinct to sit up is now lost and the patient takes to crawling about on all fours, reminding us of our quadrupedal ancestry.

About this time the instinct to handle objects becomes dominant, and commonly shows itself in the general paralytic by his constantly polishing the floor of his room with his hands. He is the mental equivalent of a child eight months old.

The rather inane instinctive smile which has up to this stage been an almost constant feature of the patient's expression, now disappears.

The patient lies on his back, incapable of appreciating his surroundings, but his eyes instinctively follow any moving object.

Lastly, his eyelids close, and before death he returns to the state in which he was immediately after birth. His limbs are curled up, he will grasp anything placed in his hand, or suck an object placed in contact with his lips.

This outline, in which only some of the more prominent instincts have been considered, serves to show that dissolution proceeds on the following lines : First, volition gradually loses control of instinct, the instincts becoming dominant in the reverse order to that of their evolution ; then instinct itself undergoes dissolution in the reverse order to that of its evolution. In physical terms :—the volitional pyramidal system is the first to go, then follows dissolution of the instinctive cortico-rubral system.

This principle is applicable at least to most, and probably to all, cases of mental disorder. In some cases dissolution is rapid, in others it is slow. In some cases instinct is preserved long after volitional control has disappeared, in others the latest acquired instincts go before control of the earlier instincts is lost.

You all know how frequently the old man who has hitherto led a most exemplary life becomes, to everybody's astonishment, a sexual libertine, gets into the hands of the police and is sentenced to a term of hard labour, merely because his senile decay has followed the natural laws of dissolution. It is the beginning of his second childhood.

I have at present under observation two cases of intermittent

insanity, men of the third decade, who have returned to the age of twelve. One talks of cakes and buns just like a boy of twelve. All day long he chews his handkerchief or eats paper ; he has lost control of his eating instinct. The other steals food from the confectioner ; he has lost control of the instincts of eating and acquisitiveness.

At the other end of the scale I have a case of intermittent insanity of some thirty years' duration who has not only lost all voluntary control, but he has lost the out-of-door instinct, the sexual instinct, and the eating instinct. There is, in this case, not any revulsion from food, but he has lost the instinct to eat, and the attendants have to constantly remind him that there is a plate of food before him. He does not collect rubbish as he was wont to do years ago. Emulation and rivalry are gone ; he is neither querulous nor sociable. The instinct of cleanliness has gone, and he is wet and dirty. He scarcely speaks at all, but he stands and walks fairly well. For practical purposes he is a child eighteen months old.

I have cases of melancholia which I am endeavouring to treat by prolonged rest in bed. These cases have lost none of their instincts ; but they have lost control of most of them, as far back as the instinct to sit up ; consequently they sit up in bed, they cannot lie down, so strong is their instinct to sit up.

I will not weary you with further details ; these cases are familiar to you all. I merely wish to bring to your notice this mode of regarding mental disorders in the hope that it may prove a guide to the degree of dissolution in any given patient, and hence a help in prognosis.

The distinction between volitional and instinctive acts is of the utmost importance, and in estimating the conduct of any given person they should be considered independently of one another. In criminal cases, for instance, one of our duties as expert witnesses should be to decide whether the crime was an instinctive act performed through the mediation of the cortico-rubro-spinal system, or whether it was a volitional act performed, after a train of reasoning, by the pyramidal system. If the crime was an instinctive act the accused should be held irresponsible ; if it was a volitional act he should, *ceteris paribus*, be held responsible.

(1) Read at the South-Eastern Divisional Meeting at Hill End Asylum, April 25th, 1906.—(2) *Brain*, Winter, 1904.

The Clinical Significance of Indoxyl in the Urine.⁽¹⁾ By
LEWIS C. BRUCE, M.D., District Asylum, Murthly.

THE clinical study of the physical symptoms of mental diseases has of late years been pushed with energy and originality, not only in this country but also abroad. Advances in the general knowledge of physiological and pathological chemistry and the great doctrine of immunity have had their effect upon the views held regarding mental diseases, and particularly with regard to their causation.

The history of past advances in the science of medicine repeats itself at the present day. Advances in knowledge produce new theories and scepticism on the part of the younger members of the profession as to the correctness of the views held regarding the causes of disease, views which the present holders relinquish with reluctance as they are equally the result of past advances in knowledge.

Such is the present position of the science of psychiatry. There is the younger school who say that the majority of mental diseases are secondary to bodily disorders, and there is the older school who assert with equal confidence that the majority of mental diseases are primary disorders of the brain cortex. Certain bodily disorders are, however, regarded by both parties as certainly present in many cases of mental disease, the point in dispute being, Are they cause or effect? By far the most frequent disorder so recognised is that collection of physical symptoms known at the present day as "auto-intoxication," by which is indicated toxins formed within the body as the result of disordered metabolism.

In opening this discussion to-day I will confine myself to remarks upon one of the known autotoxins, "indoxyl," which is formed in the intestinal tract as the result of putrefaction of the albumens of the food, and is excreted largely by the kidneys.

I take for granted that there is no question as to the existence of this substance indoxyl or to the fact that it is a toxic substance.

Indoxyl as it is excreted by the urine is really indican, or indoxyl-sulphuric acid.

When the albumens of the food decompose in the intestines

the first substance to be formed is indol. After absorption indol is oxidised to indoxyl, and then on excretion combines with the sulphuric acid of the urine and is therefore excreted as indoxyl-sulphuric acid.

To detect indican in the urine it is necessary first to break down the sulphuric acid compound by the addition of strong mineral acids and then to convert the indoxyl into indigo by oxidation.

One-third of a test-tube of urine is treated with an equal quantity of strong hydrochloric acid, 1-2 c.c. of chloroform, and a drop of a one half saturated solution of calcium chloride. The test-tube is corked and repeatedly inverted, when the chloroform takes up the indigo and falls to the bottom of the test-tube. Instead of calcium chloride solution very small quantities of calcium hypochlorite may be used instead. Great care has to be taken on adding the oxidising agent that too large a quantity is not used, as an excess of the oxidising agent discharges the colour. Instead of calcium chloride solution or bleaching powder, a 2 *per cent.* solution of potassium permanganate may be employed as the oxidising agent. I have never got satisfactory results when using potassium permanganate.

When indoxyl is present in excess in the urine, the chloroform becomes dark blue, or even black ; when it is absent the chloroform is colourless. Between these two conditions there exists every shade of colour. Judging from the results of testing the urines of persons in health, I am of the opinion that any shade of blue over medium or cobalt colour is a pathological excess.

The questions before us to-day are :

(1) Is an excess of indoxyl in the urine invariably associated with one mental symptom or one form of disease ?

(2) If so, is indoxyl the causative factor of that mental symptom or form of disease, or is it merely an accidental factor or effect of the disease ?

Townsend, in the *Journal of Mental Science* for January, 1905, published the result of work done on this subject, and his conclusions were :

(1) That in depressed states indoxyl is excreted in excess.

(2) That patients excreting indoxyl in excess exhibit symptoms and signs of toxæmia.

(3) That in states of mental elation there is seldom any increase, the amount excreted being normal or less than normal.

(4) That in some states of mental alteration indoxyl is excreted in excess during both the melancholic and maniacal phases.

(5) That the more severe the mental attack the greater the excess of indoxyl.

(6) The greater the excess of indoxyl the more marked are the symptoms and signs of toxæmia.

(7) That mental recovery was in the cases recorded preceded by the reduction to normal of the amount of indoxyl excreted.

For the past twelve months I have made observations upon the urines of patients admitted to the Perth District Asylum regarding the presence or absence of indoxyl in the urine. The results are as follows :

Out of five cases of acute melancholia, by which I mean the disease characterised by apprehension and depression, and which in every one of my cases had an acute onset, during which the patient was confused, as well as depressed and apprehensive, I only found excess of indoxyl in one. The four cases which showed no indoxyl or only a trace had, however, upon admission had the large intestine emptied by enemata. The fifth case suffered from symptoms of acute toxæmia, and she was so confused and difficult to manage that the nurse was unable to administer an enema. The nurse, however, reported that the patient's bowels moved regularly. This state of affairs went on for three days, and on each of these days the urine gave almost a black reaction when tested for indoxyl. I therefore ordered a large enema, the result of which proved that the intestine was loaded. The day following the enema scarcely a trace of indoxyl was to be detected in the urine, and at the same time the patient passed into almost complete sanity. This patient was admitted one day after the commencement of the acute mental symptoms, while the other four had been ill for a considerable time before being treated.

One case of excited melancholia had only a trace of indoxyl in the urine. In four cases of acute mania, by which I mean the condition of excitement with confusion as distinct from the excitement of the folie circulaire type, there was rarely even a trace of indoxyl in the urine.

In two cases of excitement of the folie circulaire type one showed a trace of indoxyl while the other had an excess which

was immediately removed by the use of large enemata. There was no mental improvement.

In three cases of depression of the folie circulaire type indoxyl was present in slight excess but was removed by the use of enemata combined with a purely milk diet. All these patients improved as the result of treatment.

In three cases of hebephrenia indoxyl appeared in the urine of one coincidentally with the onset of an attack of depression, with symptoms of toxæmia. The indoxyl disappeared the day following the administration of a large enemata and the depression passed off.

In three cases of katatonia, all in the stage of stupor, only one showed an excess of indoxyl which was associated with constipation.

In three cases of delusional insanity, in the early depressed stage, all had an excess of indoxyl which disappeared under treatment and the mental symptoms were alleviated.

In three cases of general paralysis there was no indoxyl in the urine. One of these patients was distinctly depressed.

Out of these 27 patients, 13 presented the mental symptom of depression, of whom 5 had a marked excess of indoxyl and 3 had a slight excess.

All of these cases were benefited by treatment which reduced the indoxyl, but in only one was there absolute and sudden improvement.

Out of the remaining 14 patients who were not depressed, only 2 had an excess of indoxyl in the urine, one being a case of *folie circulaire* in the elevated stage of the disease, and the other a case of katatonia in the stage of stupor. That is to say, out of 13 patients who presented the mental symptom of depression, 8, or 61·5 *per cent.*, had an excess of indoxyl in the urine, while out of the remaining 14 patients who were not depressed only 2, or 14·2 *per cent.*, had an excess of indoxyl in the urine.

As the result of these observations I conclude—

(1) That there is some connection between this symptom of the presence of excess of indoxyl in the urine and the mental symptom of depression.

(2) That, to judge by the result of treatment in one of the cases, the indoxyl may have been the chief causative factor in the mental disease.

(3) The evidence is in favour of the indoxyl being the cause

of the depression rather than the depression being the cause of the presence of the indoxyl.

(4) The fact that four typical cases of melancholia had no indoxyl in the urine appears to be evidence that we cannot regard all cases of melancholia as suffering from indoxyl poisoning. We must remember, however, that many toxins may, by linking themselves chemically to the nerve-cells or otherwise altering their functional activity, produce long-continued mental effect after the presence of the toxin can no longer be demonstrated in the excretions of the body. I believe that this is the explanation of our failure to improve the condition of patients who are not placed under treatment sufficiently early.

(5) That the presence of an excess of indoxyl in the urine means a loaded alimentary tract, which should at once be treated by the use of large enemata—two to three pints of normal saline solution by preference—and the placing of the patient on a purely milk dietary or a milk and farinaceous dietary.

The whole alimentary tract can be rendered free from putrefactive processes by seeing that the mouth is kept clean—by the removal of carious teeth and by the use of antiseptic mouth-washes—by placing the patient on small but frequent quantities of milk diluted with aerated water and washing out the large intestine with enemata. The benefit of this treatment is most obvious, especially in patients who show symptoms of alimentary disturbance and toxæmia, and under such treatment indoxyl practically disappears from the urine.

(1) Read at the Scottish Divisional Meeting held at Glasgow March 23rd, 1906.

Industry and Alcoholism. By W. C. SULLIVAN, M.D.

AS a preface to the remarks which I propose to submit for your consideration to-day, I wish to recall to your memory the substance of a paper which I had the honour to read before this Association some two years ago⁽¹⁾. In that paper I endeavoured to establish a distinction between two opposed types of drinking, which, having regard to the chief factor in each form, I referred to as convivial drinking and industrial drinking; and I pointed out that these two modes of drinking differed widely in their relations to drunkenness and to chronic alcoholism, convivial excess producing drunkenness but rarely tending to cause

chronic intoxication, while industrial drinking, on the other hand, though not an immediate cause of drunkenness, led rapidly and fatally to chronic poisoning. And, as an illustration and proof of the reality of this distinction, I drew your attention to the remarkable differences in regional distribution which are apparent when drunkenness is compared with alcoholic mortality, with attempted suicide, or with the several varieties of crime that are known to be most intimately connected with chronic alcoholism. The accompanying diagram, which I have published elsewhere, will epitomise this statistical evidence. It shows the rate per 100,000 of the population in the agricultural districts, the manufacturing towns, the seaports, and the mining districts of arrests for drunkenness, homicidal crime, and assaults taken together, homicidal crime alone, and attempts to commit suicide calculated on the annual average during the years 1891-1900. The figures below the columns are the comparative mortality figures for a number of the occupational groups which are more or less representative of the industrial conditions in each of the composite areas, viz. for the agricultural districts the agriculturists, for the manufacturing towns the textile and iron workers, for the seaports the dockers, and for the mining districts the coal-miners. The fact which I wish to bring out by means of this table is, of course, that drunkenness and chronic alcoholism are largely independent of one another, and that the more serious evils due to alcohol are connected with the chronic intoxication and not with simple drunkenness. This is most clearly seen in the mining districts, where there is more drunkenness than in any other part of the country, but where, at the same time, there is little chronic alcoholism and, therefore, relatively low rates of alcoholic suicide (as measured by suicidal attempts) and of alcoholic crime. And the explanation which I desire to suggest is, as I have already indicated, that the chronic intoxication is, in the main, a result of industrial drinking and has nothing to do with the convivial excess which produces drunkenness.

So much, then, to emphasise the importance of this industrial alcoholism, to the nature and origin of which I desire specially to direct your attention in this paper.

Essentially industrial drinking means drinking as an aid to labour, and its cause is therefore to be sought in the influence that alcohol exerts on nervous and muscular activity—an

influence the character of which has been made clearer to us within the last few years by the researches of the experimental psychologists. Considerations of time and a sense of my own lack of competence in the matter forbid my attempting anything like a critical summary of their results, but I think that one may venture to say that they have fairly well established the following propositions :

(1) That in the large majority of individuals alcohol in moderate doses acts as a real psychomotor stimulant, increasing considerably the output of muscular work.

(2) That this stimulant action lasts only for a short period, and is ordinarily followed by a phase of depressed activity which more than compensates the initial stimulation.

(3) That on sensory function the action of alcohol is regularly depressant, causing a diminished acuteness of sensation and a diminished quickness of perception.

These peculiarities of alcoholic action determine the primary conditions of industrial drinking. In order that such drinking may be established it is necessary that the labour be predominantly of the coarse, muscular sort so that the advantage of the psycho-motor stimulation may be immediately clear to the drinker, and may not be discounted by the accompanying disturbance of sensory function. And, further, the circumstances of the work must allow of frequent renewals of the stimulant influence so that the reactive depression of energy may be avoided. Where these two conditions are satisfied industrial alcoholism is prevalent. Where, on the other hand, either of them is lacking, as will be the case if the work demands skill rather than force, or if, though involving mainly muscular effort, it is pursued under circumstances that forbid free access to liquor, then industrial drinking will be exceptional.

Under these fundamental influences, which, of course, differ enormously from one trade to another but are relatively constant in the same trade, the alcoholic tendencies in each form of industry have become organised into more or less distinctive drinking traditions, the vigour of which finds a fairly exact measure in the corresponding occupational death-rate from alcoholic diseases.

To illustrate this fact I will invite your attention first to two occupational groups which have been already referred to as lying at opposite extremes on the scale of alcoholic mortality, the dockers and the coal-miners.

Dock labour is the type of crude muscular work demanding a maximum of force with a minimum of skill ; it is, therefore, just the kind of work to show the physiological action of alcohol in the most favourable light. And it is carried on, for the most part, with practically no restrictions on the worker's access to liquor during the hours of labour. The natural result is a tradition of industrial drinking more firmly rooted than in any other variety of manual labour. The average dock hand who follows this tradition will take as a "livener" before he starts work in the morning either a half-pint of "four ale" or a tot of rum in ale or in coffee ; with or instead of his breakfast he will have a pint or more of "four ale" ; after his mid-day meal he will take one or two pints more ; and at least once in the forenoon and once in the afternoon, at what are termed the "bever times"—an archaic word which survives only in this connection, and which is thus an interesting indication of the antiquity of industrial alcoholism—at each of these times he will have one or two half-pints without solid food. A couple of pints on knocking off work will close his industrial drinking for the day, bringing it up to a total of something over six pints of "four ale," which, if we take the alcoholic strength of the liquor to be only 4 *per cent.*, would amount to more than four ounces of absolute alcohol, or over double the most liberal estimate of the quantity needed to set up the tissue changes of chronic intoxication. This is the tradition of industrial drinking which gives to the dock worker an alcoholic mortality second only to that of the liquor trade group, and which, with the similar customs current in other industries pursued in these towns, confers on the seaports their striking pre-eminence in alcoholic suicide and in alcoholic crime.

Now let us look at the opposed group—that of the coal-miners. The distinctive character of their work, from our present point of view, is that it is carried on in eight- or ten-hour shifts, during which access to alcohol is practically impossible. The introduction of liquor into the mine is forbidden, and the rigid inspection to which coal-miners are subjected secures that this prohibition is effectual. Hence the only chance of industrial drinking that the miner can have is immediately before he goes down the mine, and since the effect of a single dose of "four ale" is quickly lost in an eight-hour shift, he soon learns that alcohol is unsuitable for his special form of

labour, that, as the mining tradition has it, it is a "muddling" thing to work on. Abstinence from industrial drinking is, then, traditional in coal-mining, and this abstinence, entailing as it does a relative immunity from chronic intoxication, brings the coal-miner's death-rate from alcoholic disease to the same level as that of the agriculturists, and below that of all the other occupational groups, and it keeps the mining districts, despite their enormous addiction to drunkenness, comparatively free from alcoholic suicide and from alcoholic crime.

In like manner, if time allowed us to examine the drinking customs in the other forms of manual industry, we should arrive at entirely similar results; that is to say, we should find in each trade a regular drinking tradition, determined by the special character of the muscular and nervous effort which the work demands and by the facilities which it allows for frequent access to liquor.

The basis of the tradition of industrial drinking is, then, the influence of alcohol on the working capacity of the average individual. And since we know from every-day experience as well as from the experiments of the laboratory that many persons react to alcohol in a manner which departs more or less from this average, we may expect to meet with individuals in every trade who do not follow its drinking customs. And so, in fact, we do. In trades where industrial drinking is the rule there are always a few men who are pure convivial drinkers and never try to work on alcohol, because they find either that it has very little effect as a psychomotor stimulant or that it produces so marked an impairment of sensory function that it interferes with the performance of even unskilled work. And on the other hand, in highly-skilled crafts, where most workers eschew alcohol on account of its disturbing influence, there are often some favoured individuals who are able to get a stimulant effect from it without any appreciable loss of sensory acuteness, and who may accordingly, if circumstances allow them, become industrial drinkers in spite of the contrary tradition of their trade.

Broadly speaking, however, these exceptions—or, to put it more correctly, these special cases of the same physiological rule—are relatively few, and do not appreciably affect the general character of the tradition in each industry.

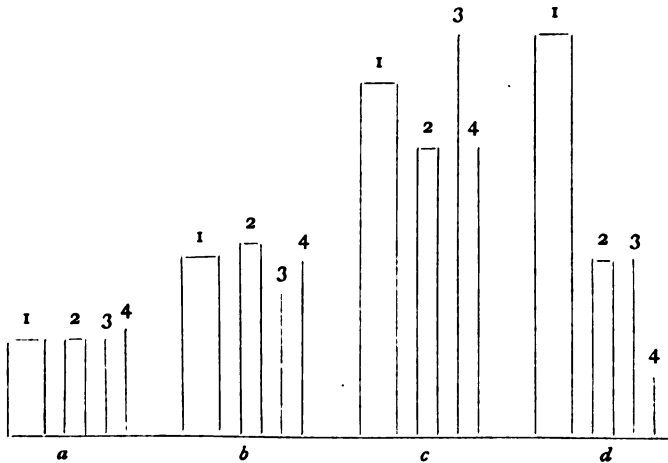
More important variations arise from differences in what we

have seen to be the other factor in industrial alcoholism—namely the facility of access to liquor during the hours of labour. To a large extent this is a matter which depends on the will of the employer. Formerly he had usually no motive for interfering with the drinking of his hands, unless there was some risk of damage to material or machinery from the awkwardness of a fuddled workman ; and dangers of this sort of course rarely arose except in industries where the need for skill and accuracy was already sufficiently clear for the men to minimise the alcoholic bent. As a result restrictions on industrial drinking were imposed for the most part only where they were least needed. The introduction of beer during working hours was rigorously forbidden in the highly skilled industries where the men had very little desire for it, and it was freely allowed in the unskilled occupations which involved most tendency to alcoholism. In such a thirsty form of labour as gas-stoking, for instance, a man might have liquor practically as often as he wished, and it is said, indeed, that some years ago a beer allowance was even issued by the employers when the temperature was specially high.

Latterly, however, this state of things has undergone a considerable change, and the natural relationship which made the facilities of access to alcohol depend upon and vary in the same way as the alcoholic tendency inherent in the work has been upset in several forms of industry. The more extensive use of machinery, and the increased stringency of the Employers' Liability Acts have so strongly stimulated the employers' interest in the sobriety of their workmen, that in many trades where industrial drinking was formerly unrestricted the beverage times have now been abolished and effective measures are taken to prevent the introduction of liquor during working hours. Such measures, as we saw in the case of coal-mining, have a far-reaching influence on the drinking habits of the workers, for as they break the continuity of the stimulant action and allow the development of the secondary depression of energy, they tend to destroy that faith in the strength-giving virtues of alcohol which lies at the root of industrial drinking. From the practical point of view, therefore, the growth of these restrictions and the effect they have on industrial alcoholism are a matter of much interest, because they illustrate very strikingly the way in which the evils of intemperance can be most success-

fully dealt with in the conditions prevalent in this country. For if the views which I have urged in this paper are sound—that is to say, if the graver results of alcoholism, those that are a serious menace to the health and order of the community, are dependent on industrial drinking and not on convivial excess—then it is the repression of this industrial drinking that should be the proper aim of our measures of reform. And the recognition of this fact will probably change our estimate of some of the panaceas for intemperance; it will suggest, for instance, that the late opening of public houses is a vastly more important matter than their early closing, and it will perhaps awaken a little healthy scepticism as to the benefit society gets by imprisoning the convivial “drunk” and mulcting itself for his support and that of his family.

Drunkenness, Homicidal Crime and Assaults, Homicidal Crime alone, and Attempts to Commit Suicide in Agricultural Counties, Manufacturing Towns, Sea-ports, and Mining Districts (Annual Average per 100,000 of Estimated Population).



Comparative Mortality Figures.

	Agriculturists.	Textile workers.	Metal workers.	Dockers.	Coal-miners
Alcoholism	4	7	11	52	4
Alcoholism and liver diseases }	21	30	40	78	21
1. Drunkenness.				a. Agricultural districts.	
2. Homicidal crime and assaults.				b. Manufacturing towns.	
3. Homicidal crime.				c. Seaports.	
4. Attempted suicide.				d. Mining districts.	

(1) "A Statistical Note on the Social Cause of Alcoholism," *Journal of Mental Science*, July, 1904.

DISCUSSION,

At the Quarterly Meeting in London, May 31st, 1906.

The PRESIDENT said the contribution to which members had just listened was one of the most practical which could be expected on such a subject. All well knew the demoralising effect of the habitual absorption of alcohol, an effect which was bad both morally and physically. The last point to which Dr. Sullivan had alluded, the later opening of public-houses, was one which deserved to be fully borne in mind.

Dr. HAYES NEWINGTON said he well remembered Dr. Sullivan's able paper of two years ago, and he congratulated him and the Association on this further contribution. There could be no doubt that eventually an enormous amount of good must be done by a careful study of the habits of the people by one who was so competent to observe and record them. It would be within the memory of members that Dr. Bevan Lewis touched upon the same question, not only from the biological point of view, but also from that of the habits of the people. On each occasion he (Dr. Newington) had ventured to say how very incomplete all inquiries must be until one was prepared to say what was being dealt with under the name "alcohol." Confirmation of this view had recently been supplied by the evidence in the whisky prosecution case. He referred particularly to the character of the inebriation which occurred in a monkey to which pot-still spirit had been given, as contrasted with the result which followed the administration of patent-still whisky to another monkey. He hoped that sooner or later there would be some standard of purity in alcohol, and that people who departed from that standard would be prosecuted. Until there was such a standard laid down he maintained, as he had always maintained, that when speaking of alcoholism one was talking round the whole subject.

Dr. CARSWELL (Glasgow) said he had felt grateful to Dr. Sullivan from the time he read that gentleman's paper, drawing a distinction between industrial and convivial drinking, because it gave one a clearer conception of a somewhat complicated problem—namely, that concerning drunkenness and the habitual drunkard. The only difficulty he had was that he did not know into what category Dr. Sullivan placed the habitual inebriate who did not work and never had worked except casually. He was thinking of one particular class of female inebriate. He had seen a great many such women during his experience as Convener of the Glasgow Corporation Inebriates Committee; and the extraordinary thing about them was that they rarely worked—in fact, many did not know how to work. He remembered a woman in the Home saying to him one day, "We have too much work to do here," and he replied, "If you had worked outside you would never have been here." "But," she said, "I did work outside, only I did not work every day like this." That was the whole point. Those people had never worked day in and day out, and almost all of them were neurotics. They could not be correctly described as the victims of industrial inebriety. Nor were they the victims of convivial inebriety. They were, in fact, persons of unsound mind with the craving for drink and the habit of drunkenness as well as other depraved habits associated with it—not necessarily as cause and effect. But he understood Dr. Sullivan to desire on that occasion to fix attention especially on the question of industrial alcoholics. He entirely agreed with the suggestive remarks with which Dr. Sullivan concluded his paper. He understood the author to say that, from the point of view of tackling industrial alcoholism, closing public-houses at ten o'clock at night, as was done in Glasgow now, did not touch the question at all; but that if public-houses were kept closed in the morning until ten, eleven, or twelve o'clock then, so far as legal measures could affect such habits, one might hope to mitigate some of the evils of industrial drinking. Certainly that aspect of it had not been popularly apprehended, least of all by that class of persons who considered that the promotion of legislation in reference to alcohol was their particular province, namely, the so-called temperance party. He remembered very well a remark by Lord Balfour of Burleigh when Secretary of State for Scotland, which showed that he at least apprehended it. When a deputation went to him asking the Government to accede to a suggestion to close public-houses at ten o'clock—it used to be eleven o'clock—he replied: "I think if

you will ask me to take an hour off the morning and put on two hours at night, I will probably do more for you." He (Dr. Carswell) thought his lordship was quite right in that. In the industrial stretch of Glasgow along the docks, and at Govan, he understood that the early half-hour, from eight o'clock, was probably the best for the publican during the whole day. And a number of publicans, until it was stopped recently, were in the habit, for the purpose of offering extra inducements to drink to the dock labourers and other workers at the port, of supplying boiled potatoes, or cake, or cheese, gratuitously. It was regarded as not at all a bad thing to have a little food with it, but the main business was to keep up the custom and get men to come in early and begin to drink. Undoubtedly Dr. Sullivan had only put into scientific generalisation a fact of experience, that there were certain trades which had their traditions with regard to drinking, and that those traditions were of the most baneful character. He agreed with the remark in the closing part of the paper that it was the convivial drinking which was largely responsible for the noises of the streets and the disturbances which necessitated calling in the police. But he thought "convivial" was too polite a term to apply to it. If it were really conviviality it was a very low grade of it. He did not think that in Glasgow the early closing of public-houses and keeping people out of those houses had resulted in that diminution of the number of cases dealt with by the police which was expected, and he thought Dr. Sullivan had shown why. The convivial drinker would drink, would be noisy and create disturbances, and the services of the police would be required. Yet, whatever restrictions might be placed upon the sale of intoxicants he would get them somewhere. Still, after all, that man was not doing the same grave injury to his nervous system and organs as was the industrial drinker. Glasgow Corporation had gone to the length of framing a Bill for the amendment of the Inebriates Act. It had been submitted to the Government, and a deputation were present at Dover House a short time ago to press their views upon the Lord Advocate and the Secretary for Scotland. The chief point about that amending Inebriates Bill was that in it power was asked for dealing with the non-police offender. The difficulties of legislation were indicated by the Lord Advocate, who recommended that no opportunity should be missed for ventilating public opinion and bringing to bear all the influence possible upon public bodies, to get them to do all they could to bring about such an alteration in the law as would enable the man to be effectively dealt with who was an inebriate but did not come under the control of the police. That was his (Dr. Carswell's) excuse for bringing this subject before the meeting; he desired to act on the Lord Advocate's suggestion to promote on every possible occasion sympathy with such an object.

Dr. ROBERT JONES remarked that one was constantly hearing of two types of drinkers—those who entered asylums and those who went into hospitals. Dr. Hayes Newington had referred to the various qualities of drink sold, and no doubt that had much to do with both the mental and the physical condition of the imbiber. It was an extraordinary fact that one might go round a hospital ward and find in it half a dozen men who would say they had consumed a dozen or two dozen whiskeys a day, yet who had their mental functions unimpaired except for that desire for alcohol. That was the commercial traveller type of drinker. There were certain others, going to the asylum and going to mental hospitals, who indulged to less than half the degree of those who went into hospitals. That fact, to his mind, pointed very definitely in support of what had been advanced, that the drinker in asylums was of a very different mental type—*i. e.* he was a potential lunatic or psychopath. He had taken the trouble to analyse the vocations of all those whose insanity was directly or indirectly connected with alcohol in the last twelve months in Claybury Asylum, and they were found to be of two kinds, mostly those whose work had been heavy and others whose work was done indoors. But there was a large proportion of those whom Dr. Carswell had referred to as more or less unemployed and idle. One might mention those who hung about and were described by themselves as having occasional work. They did a little for a few days, and then drank, and were in and out of asylums frequently. He was sure Dr. Sullivan saw many such people. The Congress which was held at Buda-Pesth had the question of unemployment definitely under discussion, and it was pointed out that there was three times as much drink consumed during the period of idleness—*i. e.* between Friday and Tuesday—as as during the rest of the week. Patients received into Claybury because of drink,

either directly or indirectly, formed almost 30 *per cent.* of all admissions, and it was difficult to know what was the proper treatment for those people. If there should be any change in lunacy or temperance legislation, he was not sure that some of these people ought not to be kept in some intermediate place and compelled to work in a colony. Dr. Sullivan had referred to industrialism, and it was an extremely interesting subject. Every industry, apparently, had its traditions, and those traditions were very well brought forward at the Leeds meeting by Dr. Bevan Lewis. He was reminded of a very interesting article by Dr. Harry Campbell on the secretions of the body. That authority's view was that there were certain secretions in the body which tended to stimulate and others whose tendency was more or less to destruction. Dr. Campbell pointed out the necessity for keeping the mind fully occupied and the body well exercised so as to keep the stimulating secretions of the body in proper order. It was well known that the effect of thyroid, for instance, was to stimulate practically every organ in the body. Alcohol had a very definitely stimulating action, but if one kept oneself in a good mental and physical condition there was no need for the use of alcohol.

The PRESIDENT said the Association was much obliged to Dr. Sullivan for calling attention to the casual drinker. The difference between such an one and, for instance, the coal-miner was one of the greatest possible importance. The casual drinker could not be a coal-miner; he would be unable to do the work. If by altering the conditions of occupation one's fellow-creatures could be prevented from absorbing alcohol from morning till night, it would be taking a great step forward towards relieving our asylums of something like 30 *per cent.* of their inmates.

Dr. SULLIVAN, in reply, said he was particularly pleased to find himself in agreement with such a high authority as Dr. Carswell, whose interesting remarks agreed with what he (Dr. Sullivan) had himself seen in London. It was well recognised in public-houses in London that in houses doing a low class trade fully half, or at least one third, of the trade was done before eight o'clock in the morning, at a time when houses of what was regarded as "the better class" would not have the shutters down. That was also true of that part of the North of England that he knew. Dr. Carswell had commented on the idea of advocating the late opening of public-houses, and the importance of the matter was fully borne out by statistics; because the results of the difference between the hour of opening of public-houses in London—where it was five o'clock—and in the provinces—where it was six o'clock—and in Scotland, the hour of opening in Scotland being eight, were seen in the mortality. He felt himself to be in entire sympathy with Dr. Hayes Newington in regard to the need for a standard of purity in alcoholic beverage; the matter was one of utmost importance. Dr. Jones' remarks also were most interesting as bearing out the same view, and his patients were probably drawn from the same class of people as his own. He also fully agreed with Dr. Carswell's remarks concerning the neurotic drunkard, but he thought their numbers were comparatively small, certainly small in comparison with the energy with which they obtruded themselves upon public notice. Though they constituted an interesting class, they did not enter much into the broad question of the influence and distribution of the mortality from alcohol.

A Serum Reaction occurring in Persons suffering from Infective Conditions. By LEWIS C. BRUCE, M.D.,
District Asylum, Murthly.

WHILE making observations upon the opsonic indices of the insane I noticed that the serum in many of the cases under observation when mixed with the red blood corpuscles of a healthy person agglutinated them.

Dr. Shaw, my colleague, independently made the same observation and further noticed that the agglutinative reaction was increased after the injection of tuberculin.

I therefore made observations upon the serum of all recent admissions to the Perth District Asylum, using my own red blood corpuscles as the passive agent.

The technique employed was as follows: .25 c.c. of blood was taken from the pulp of my finger and mixed in a small test-tube with 0.5 c.c. of a 1 *per cent.* solution of sodium citrate in normal saline solution. The test-tube was then centrifuged, the supernatant fluid pipetted off, and the red blood corpuscles washed twice in normal saline solution. A sufficient quantity of the last washing of normal saline solution was left to form an emulsion of red blood corpuscles measuring about .5 c.c.

The blood to be tested was drawn into a small glass pipette holding roughly .25 c.c., and was allowed to stand until coagulation took place, when the serum was separated from the clot by centrifuge. With a capillary glass tube one part of the serum to be tested was mixed with two parts of the emulsion of red blood corpuscles in the well of a hanging-drop slide. Within a few minutes, if the case is an infective one, the red blood corpuscles run into clusters which in many cases are visible to the naked eye, in others the low power of the microscope (lens one-third, eyepiece three) is all that is necessary to examine for the reaction.

I have found that the serum of all cases of mania with confusion, mania without confusion (*folie circulaire*, manio-depressive insanity), katatonia, hebephrenia, the depression of *folie circulaire* or manio-depressive insanity, epilepsy with excitement, without exception give this agglutinative reaction. Cases of insanity due to other causes than bacterial infection, such as melancholia of metabolic origin, systematised delusional insanity, insanity the result of exhaustion, brain anæmia, etc., do not give this reaction.

I have further found that the red blood corpuscles of a patient who gives this agglutinative reaction are protected against the action, not only of the agglutinine in the patient's own blood, but also against the agglutinine in the serum of another patient. That is to say, if the red blood corpuscles of a patient suffering from acute mania were to be used in testing the serum of a patient suffering from *folie circulaire* no agglutination would occur.

This reaction is not diagnostic of insanity, as the same reaction can be obtained in chronic rheumatism, pernicious anæmia, typhoid fever, etc., so far as I have been able to test such serums in patients who did not suffer from insanity.

The following experiments made upon rabbits throw some light upon this agglutinative reaction.

The sera of five rabbits were tested against the red blood corpuscles of each other. No agglutination was obtained in any of these serum observations. Rabbits Nos. 1, 2, 4, and 5 were infected—Nos. 1 and 2 by subcutaneous injections of broth cultures of a streptococcus, No. 4 by intra-venous injection with a broth culture of *Staphylococcus aureus*, and No. 5 by intravenous injection with *Bacillus coli communis*.

Rabbits Nos. 1 and 2 were injected with 1 c.c. doses of the streptococcus every second day for a week, and the reaction of their serum to the red blood-corpuscles of rabbit No 3, used as a control, were tested every second day. On the tenth day after the first injection and three days after the last injection rabbit No. 1 gave a distinct reaction by agglutinating the red blood corpuscles of the control rabbit No. 3. Rabbit No. 2 gave no reaction. On testing the bacterial agglutinative reaction of the sera of these two rabbits (Nos. 1 and 2) to a broth culture of the organism with which they had been injected, it was noted that No. 1 agglutinated the organism in a dilution of 1 in 20 in fifteen minutes, while rabbit No. 2 did not agglutinate the same broth culture, in the same dilution of 1 in 20, in one hour. One week later the power of agglutinating the red blood corpuscles of the control rabbit had disappeared from the blood-serum of rabbit No. 1, while the power of agglutinating the infecting organism in a dilution of 1 in 20 was much increased. By the end of the week the serum of rabbit No. 2 was also able to agglutinate the organism in a dilution of 1 in 20 in less than an hour, but no serum reaction to the red blood corpuscles of the control rabbit was noticed.

Rabbit No. 4, injected intravenously with a broth culture of the *Staphylococcus aureus*, three days after injection gave a very slight reaction to the red blood corpuscles of No. 3, the control, but there were no agglutinines in the blood-serum to the infecting organism in a dilution of 1 in 20. Five days later the serum of this rabbit gave a definite reaction with the red blood corpuscles of rabbit No. 3, the control. There was also

present a definite agglutinine to the *Staphylococcus aureus* in a dilution of 1 in 20 in less than an hour.

Rabbit No. 5 three days after the injection gave a slight reaction to the red blood corpuscles of No. 3, the control. There were no agglutinines to the *Bacillus coli communis* present in the blood-serum.

The substance which causes this agglutinative reaction of the red blood corpuscles is thermostable, as after heating the serum to 65° C. for thirty minutes I still obtained a definite reaction. It is certainly not the same substance as the agglutinine, as it disappears from the serum, though the agglutinine is present in good quality and quantity, as in the case of rabbit No. 1. It is also a substance which gradually disappears from the serum in some cases. The reaction may be quite definite in a serum recently obtained from a patient, while the same serum six hours later will give a very indifferent reaction.

It is hardly necessary to point out that the knowledge of this reaction can be made of practical value. By means of this simple test it is possible to diagnose between melancholia of metabolic origin and the depression of manio-depressive insanity, which is an infective disorder. Further, it is possible by means of this test to divide our cases of insanities into two great classes, infective and non-infective.

The Clinical Measurement of Fatigue. ⁽¹⁾ PART I—*The Measurement of Mental Fatigue.* By WILHELM SPECHT, of Tübingen University. (From Prof. Kraepelin's Psychological Laboratory in the Heidelberg Lunatic Asylum.) With twenty-four figures in the text. Authorised Translation from the German, revised by THOMAS JOHNSTONE, M.D.Edin., M.R.C.P.Lond.

Introduction.

AMONG the characteristics which we agree with Kraepelin in regarding as the essential mental features of the personality, varying degrees of capacity for acquiring skill by practice and of liability to fatigue are by far the most important. The effects of practice and fatigue on the course of mental work are

such as absolutely to determine the amount that can be done and the mental capacity for work. They differ, however, in their relation to the amount of work done, not only in the antagonistic direction of their effects, but also in other features which clearly show their kinship with the corresponding phenomena on the physiological side. While the effect of practice hardly ever extends beyond the sphere of the work that has been practised, and acts on other functions, even of a similar nature, only in a limited degree, fatigue has a far more extensive effect and reduces the general mental capacity for work (³). There is much in the common experience of daily life which seems to contradict this statement. Thus, change of work seems to have a favourable influence on our working capacity when we are fatigued. This appearance has led even eminent physiologists to assume that fatigue acts within the same narrow limits as practice. Thus, Mosso (³) says, in his book on *Fatigue*, "Apparently fatigue is localised in a particular region of the brain, for we often see that people who have become incapable of thinking over a certain subject, or considering a particular piece of business, find relief in thinking about something else, or free themselves from the sense of dulness in their heads by fixing their attention intently on other and different things—for instance, on a game of chess." Richter, (⁴) too, ascribes a restorative effect to change of work in education, and thinks that he has thus discovered why school children do not show more fatigue.

These assumptions are, however, founded on an error. Weggandt's (⁵) experiments on the influence of change on continuous mental work have revealed the fact that the fatigue produced by any particular mental work affects other kinds of mental activity, even when they are qualitatively different, and that the effect of one kind of work on another does not depend on their psychological similarity, but purely on the amount of fatigue produced (⁶). Indeed, the physiological attributes of the idea of fatigue would in themselves lead us to expect its effects to be thus general. We know of the fatigue produced by physical work, that its effect is not confined to the particular groups of muscles which have been employed, but that the whole physical and to a certain degree also the mental capacity for action is affected (⁷). This is explained by the ascertained fact that in muscular fatigue certain materials necessary to the

functioning of the organ are spent faster than they can be brought to the spot or formed there, and that the muscle throws off poisonous substances, which are carried in the blood to the organs of the whole body. But even before the point is reached at which such products of fatigue are thrown off the drain on the general store of energy caused by the expenditure of material is enough to produce general fatigue⁽⁶⁾. As mental work also involves the expenditure of material, we may assume that here, too, corresponding processes take place, from which general fatigue results.

There are also other respects in which fatigue differs essentially from practice. When, for instance, we cause anyone to add up a series of figures of one place, for about ten minutes every day for several days together, we observe that the amount of work done from day to day increases considerably at first, but that after a few days the difference in amount becomes very small, and, indeed, is hardly perceptible. From this we see that skill or practice increases rapidly at first, but that after a comparatively short time it reaches a degree beyond which its growth is very gradual. Fatigue, on the other hand, increases continuously from its very first beginning, and, finally, unless it is checked in time by intervals of rest, passes into a state of exhaustion, in which mental capacity for work is completely annihilated.

As fatigue does not only make itself felt when mental work is directed to a particular object, but even the simple activity of consciousness of our waking hours involves mental work and therefore is tiring, fatigue has a continuous influence on the apprehension and utilisation of all the external and internal impressions which come and go in the course of the day.

This deep and comprehensive effect of fatigue shows us at once how great a part it plays in the sphere of mental existence, and helps us to understand the special importance of personal liability to fatigue—*i. e.* the greater or less readiness with which an individual becomes subject to its effect.

The numerous problems that the study of fatigue presents to scientific research are of much theoretical interest, yet their very special importance depends rather on the fact that only when they have been solved can questions of great practical moment be answered, possessing an interest which far transcends the bounds of psychological speculation.

It is evident that psychology itself not only has before it the theoretically important task of showing how the whole complex of intellectual functions is influenced in detail by the effects of fatigue, but is also directly obliged to take its influence into account in interpreting the results obtained whenever any sort of exact estimation is made in the sphere of mental existence. Apart from all this, there are special educational and clinical interests which make as exact an estimation as possible of the amount of fatigue seem indispensable.

Within the sphere of education it is the question of over-pressure in schools which is most closely connected with that of fatigue. The numerous investigations that have been made within the last few dozen years, especially from the educational point of view, have shown that the demands made by schools in the present day on the children who attend them go far beyond all permissible bounds (⁹).

Kraepelin sums up his experience on this subject by saying that: "Our young people would inevitably be reduced to a state of complete dementia if they were really compelled to work with fully strained attention for at least forty minutes in every hour of school-time. That very few of them do, in fact, sustain serious mental injury from over-pressure at school is entirely owing to those subjects of teaching and those teachers that allow them an opportunity of relaxing their wearied attention and forgetting the stern realities of their position."

It is obvious that the solution of the problem of over-pressure is one of the most important tasks of practical pedagogics. It does not, however, seem possible to give a really satisfactory answer to the question until both the amount of fatigue produced by particular lessons and the liability to fatigue of particular individuals have been determined. On both these sides of the question of over-pressure—the material and the personal, as Kraepelin calls them—the necessity of some method of measuring fatigue is immediately evident.

Closely connected with the value of the measurement of fatigue in many questions of great theoretical and practical moment which come within the sphere of normal mental life is the importance it possesses in the province of morbid psychology. Great liability to fatigue is a symptom found in the most various forms of mental disturbance. While, as far as we can tell to-day, there are many affections in which it

only plays a subordinate part, there is a large number of diseases or morbid conditions in which the measurement of fatigue is of the greatest assistance to the diagnosis and prognosis. Among these are the milder forms of congenital feeble-mindedness, the initial and convalescent stages of many psychoses, nervous exhaustion, and, above all, the manifold nervous and mental disturbances resulting from accidents which are included under the general name of traumatic neuroses.

We have seen that fatigue has a great influence on the working up of external and internal impressions, and consequently on mental development. Unfortunately, we have little accurate knowledge of the possible extent of the influence of congenital abnormally exaggerated liability to fatigue in this particular direction. We cannot come to any conclusion on the point until we know more about the effect of fatigue on the separate elementary processes which enter into the complex functions of the mind. Yet we may count on the possibility or even the probability that great liability to fatigue may have a very serious influence on the development and course of all the disturbances we include in the category of congenital feeble-mindedness, and even that milder forms of this affection may be simulated by the profoundly injurious effects of permanently exaggerated liability to fatigue. But apart from this more scientific interest, the measurement of fatigue in the milder cases of congenital feeble-mindedness is of great practical importance, especially when, as in the erethic forms, the exaggerated liability to fatigue is combined with an increased power of developing momentum in work, and so is easily overlooked. If the exaggerated liability to fatigue is not discovered in time, the result may be permanent mental over-exertion leading to exhaustion and to very serious injury to the patient.

The diagnostic value of the measurement of fatigue in the developmental stage of psychoses is shown, among other evidence, by the fact that it may be used to facilitate the often extraordinarily difficult distinction between the early stages of general paralysis and simple neurasthenia. In convalescence, on the other hand, its usefulness depends on the fact that great susceptibility to fatigue is seldom absent, and that its disappearance generally keeps pace with the patient's recovery.

This is more especially the case in nervous exhaustion, in which the degree of liability to fatigue may actually be an index to the amount of disturbance remaining. In both cases the measurement of fatigue may be of use to the prognosis, as has already been proved by Weygandt (¹⁰).

Finally, the measurement of fatigue is of very special importance in traumatic neuroses. The great difficulty of diagnosis existing here arises from the fact that the disturbances are, to a great extent, purely subjective, and that the various symptoms which it was once supposed might be relied on as objective signs of the existence of the disease have proved to be quite inadequate. It must be admitted that, as a rule, an experienced physician will be able to convince himself of the actual existence of the illness from the history of the case and the general clinical picture. But the necessity of making a positive arithmetical estimate of the degree of incapacity to earn a living, caused by the disturbances present, is proved by universal experience to be a fundamental difficulty in the way of his decision. Even from this point of view there are certainly many cases, especially those which have run a course of unusual severity, about which there can hardly be a difference of opinion; yet in the great majority of cases the want of an objective standard by which the degree of the disturbances may be measured leaves a wide field for arbitrary interpretation, and it often occurs, as everyone knows who is acquainted with the subject, that the opinions of the various experts consulted differ in the most various ways.

These diagnostic difficulties exist in a certain degree even where there is no reason to doubt the truth of the patient's statements, because the patient himself is seldom in a condition to pass an objective judgment on the severity of his illness and the degree of inability to earn his own living which it has produced. Of course they are very greatly increased when there is a possibility that the subjective complaints are simulated or exaggerated. The only system of estimation applicable, whenever there is a question of measuring psychical quantities, is the psycho-physical method, and by no other means can anything like an exact determination of the amount of the disturbances in traumatic neuroses be made. Neurological methods of investigation are quite inapplicable here, as experience has long since shown.

The measurement of fatigue is of special value in illness of this kind, because a high degree of liability to fatigue is very seldom absent from the picture of disease, in spite of the multiplicity of forms it may assume, and also because, in a number of cases, it is this disturbance which inflicts the most serious injury on the mental capacity for work.

Since we always have to reckon with the possibility of simulation or exaggeration in complaints of great susceptibility to fatigue, the only method of measurement which can claim to be satisfactory will be one which is able to take account of simulation as a source of error.

Development of the Method of Measuring Mental Fatigue.

Since the importance of fatigue in the sphere of mental existence has been recognised efforts have been made to discover a reliable method of easy application for determining the amount of its effects. The determination of the minimum distance at which two separate impressions on the skin can be distinguished is the method which has been most often employed by educationists. On the assumption that fatigue reduces the sensibility of the skin to impressions of space and therefore increases the physiological circle of sensation, Griesbach⁽¹¹⁾ thought that he had discovered a method of measuring fatigue by testing the sensibility of the skin with a pair of callipers, used as an æsthesiometer. His investigations, which were repeated by Vannod⁽¹²⁾ and Wagner⁽¹³⁾ had the result of convincing him that it was possible by this method to determine the fatiguing effect of any particular mental work and the amount of individual liability to fatigue in an easy and unequivocal way. If this were so, the difficult problem of measuring fatigue would at once be solved. Unfortunately, it is not the case. Further and very careful tests applied to Griesbach's method by Bolton⁽¹⁴⁾, at Kraepelin's suggestion, have proved that an accurate determination of this special sensibility of the skin is an extremely lengthy and laborious operation, and that no invariable relation between the extent of the sensibility and the degree of mental fatigue can be discovered⁽¹⁵⁾. In addition to the determination of the sensory circles of the skin, the amount of work done on the ergograph has lately been employed to measure fatigue, in reliance on the fact, first recog-

nised by Mosso and his school, that muscular strength is sympathetically affected by a high degree of mental fatigue⁽¹⁶⁾. The truth of this assumption must be admitted, but Kraepelin and his school have been able to show that the effect of mental fatigue on muscular strength is complicated by other powerful influences acting simultaneously with it, obscuring its effects and sometimes even increasing the amount of muscular work which is done, so that it is impossible to draw any definite conclusion as to the degree of mental fatigue from the performance on the ergograph.

In opposition to this and other systems ⁽¹⁷⁾ it has been Kraepelin's aim to introduce the method of measuring fatigue by means of continuous work, and more especially of the continuous addition of figures of one place. For the present this method seems the best fitted to solve the problem of the exact estimation of fatigue.

"Generally speaking, the higher the aim of mental work and the greater the variety of the activities it employs, the more complicated are its conditions. Hence it is the simplest forms of mental work, such as learning numbers or syllables by heart, or adding together figures of one place, that are most suitable for the analysis of those processes which affect the course of mental work" ⁽¹⁸⁾. The method of continuously adding together simple figures is distinguished from other methods of continuous work, such as learning numbers of several places or meaningless syllables by heart, by its being psychologically very much simpler. Experience has shown that certain mental aids are employed in memorising, which are used by different people in different ways. In this connection Wundt ⁽¹⁹⁾ distinguishes two associative tendencies of markedly different character, the acoustic-motor and the visual. "The visually inclined represent their ideas, in their own minds, exclusively as mental pictures, while those with acoustic-motor tendencies represent them by means of articulate sounds and movements of articulation, though the latter may entirely take the place of the former." The addition of columns of units, on the contrary, consists entirely of the reproduction of connections of ideas already learned, and ideas of speech and movements of articulation play only a subordinate part.

In the solution of the separate uniform and mutually exclusive problems involved in the continuous addition of units, there is

more than the pure associative computation of new amounts, for the numerals must be recognised and understood. But the time spent on this process is so very short compared with that required for the association of ideas, that it does not affect the speed of the addition. The time taken up in writing down the sums arrived at is also far exceeded by that required for the association, so that it is almost exclusively the duration of the central process which is affected by the influences acting on the course of mental work. It is true that the muscular fatigue of writing may have some influence on the work, but that can only happen when the speed of the addition is exceptionally fast, and each experiment is continued for a long time. In short experiments of a quarter of an hour or so such fatigue is without effect, even when the addition is most rapid.

The general principle of the method of measuring fatigue by means of continuous work rests on the simple consideration that the speed of the work is reduced by fatigue and that the degree of reduction in a fixed time may be taken as a standard of measure. To measure the effect of fatigue the speed at the beginning of the work must be compared with the speed at the end of a fixed time, and to compare the liability of fatigue of two different people, who work at different speeds at the beginning, the loss of speed at the end may be expressed as a percentage of the speed at the beginning.

We do in practice proceed on this principle, but such a procedure would be very inexact and quite inapplicable to finer measurements. Besides the result of progressive fatigue, a number of other influences determine the course of the work, all having absolutely dissimilar effects and showing the widest variations in different people, as the expression of their personal dispositions. The complicated and apparently inextricable entanglement of individual processes is the principal obstacle to the measurement of fatigue, which only becomes possible when the nature and extent of these influences have been recognised and their effects on the course of the work have been distinguished.

If a table is constructed to show the course of the work when the addition is carried on for some little time, the divisions of time being marked off by vertical lines while the number of units added in each division is shown by horizontals, we get a "work-curve" (³⁰) showing the changes undergone by

the mental work in the course of the experiment. The general course of this curve is determined by the conflicting action of practice and fatigue. If the units of time are made comparatively short—*e. g.* about five minutes—it is seen that the general course of the curve has an upward inclination at first, but then alters its direction, generally rather suddenly, and sinks more and more if the work is continued long enough.

We at once recognise the effect of practice as the cause of the upward direction. Until the highest point is reached the effect of practice prevails over that of fatigue, but from that point onwards the latter acquires an increasing preponderance and causes the curve to sink lower and lower. As the position of the highest point is determined by the conflict between practice and fatigue, it is obvious that its situation must vary according to the amount of their respective effects. The result of these two influences, however, depends on circumstances, partly determined by the personality of the subject and partly by the special conditions of the experiment. If the work has never been much practised, the influence of practice will be all the more favourable, and the highest point of the curve will move farther towards the end of the time. But where the work has been practised a great deal we often see the curve sink near the beginning, in consequence of the absence of any great effects of practice. In addition to the degree of practice with which the work was begun the effect of practice also depends on the subject's personal capacity for acquiring skill. From a large number of experiments which have been made, we have learned the important facts that the capacity of different people for improving by practice may vary to a wide extent, and that it forms an essential feature of the personality. Thus, Amberg⁽²¹⁾ found that his subject of Experiment C showed from twice to three times as great an increase of skill as the subject A. Hence even a considerable degree of fatigue may be outweighed and escape detection where there is great capacity for practice and improvement by it. Again, the course of the work will be no less determined by the degree of fatigue with which the subject has begun his experimental work and by his personal liability to fatigue than by his personal capacity for improvement. If the degree of practice already acquired is high, the curve may sink from the beginning, even where there is little liability to fatigue. Of course this

may happen even when the subject is fresh and untired, if this susceptibility to fatigue, which also forms an essential mental feature, is particularly great. Great liability to fatigue, however, is often associated with great capacity for practice, and in that case the effect of the fatigue may be completely concealed. But since the effect of practice, as Amberg has already shown, grows less under the influence of increasing fatigue, great liability must finally assert its influence on the course of the curve if the experiment is carried on long enough.

Besides the general course of the curve, which is determined by the antagonistic relations of practice and fatigue, we have to account for fluctuations that cannot be referred to either of these influences. Oehrns (23) observed that in many cases the curve did not rise immediately, but fell at the commencement, before the continuous upward tendency began. As the effect of practice must outweigh the effect of fatigue at the beginning of the work, and the amount done at the beginning ought, therefore, to be exceeded by that done later on, Oehrns sought to explain this result by supposing that an active exertion of the attention at the beginning was followed by its relaxation a little later. "Thus, the individual in question is only gradually able to attain to that concentration of attention which is demanded by long-continued work." Oehrns called this period of initial fluctuation the "adaptation time" of the attention, because it was required for a sort of adaptation of the attention to the occupation newly begun. This observation, first made by Oehrns, was confirmed by other authorities in a large number of experiments. Rivers and Kraepelin (23) comparing the amounts of work done by different people in periods of five minutes, discovered an invariable reduction of the work-values from the first to the second five minutes in the case of their subject R—, while such a reduction was seen only now and then in their subject H—. Rivers and Kraepelin have looked for the explanation of this temporary increase of values at the beginning of the work in the assumption that the subject begins with a voluntary exertion of his strength, which he cannot keep up continuously. To distinguish the special interference of the will from the general influence of practice and fatigue, they have proposed to give the name of "impulse" (*Antrieb*) to this brief increase in the amount of work performed. As Voss (24) and Heumann (25) afterwards pointed out, this impulse at the begin-

ning of work is extremely fugitive, and can only be maintained for a minute at the most. The tendency to impulse is developed to a different extent in different people. On the whole it is common, but it appears most often in short periods of work and when the person is fresh and untired. Where the divisions of the work are long, impulse may be overlooked, on account of its fugitive effect; in short divisions of about a minute each we may assume that it is present if the performance of the first minute is greater, or at any rate is no less, than that of the second. When there is great fatigue from the beginning the effects of impulse may be entirely concealed by those of fatigue. It is not only at the commencement of work that we see the results of impulse, which are to be explained by the interference of the will in the course of the work. Kraepelin has already pointed out that when fatigue is increasing the feeling that the work is growing harder often drives the worker to a fresh exertion of his strength. Accordingly, we meet with signs of impulse in the state of fatigue, with which a sense of the growing difficulty of work is associated. We also observe them, by no means infrequently, at the end of a period of work, when the wish to make the best possible use of the time still remaining excites the worker to a final exertion of his strength. Possibly this excitement may also be due to the agreeable prospect of the speedy termination of the work. We see, then, that the effects of the impulse have this in common, that they all imply an interference of the will in the course of the work, but that in individual cases this interference may be due to different causes. Lindley⁽²⁶⁾ distinguishes initial from final impulses, with reference to their physiological meaning. In the former he sees either a reckless expenditure of strength, or an exertion of the will indispensable at the beginning of work that is monotonous or unattractive in itself, or perhaps the expression of a quickly failing interest in the special occupation. The final impulse he similarly regards either as the flinging away of the last reserve of strength, when it is no longer needed, or as the bringing into action of the last available resource, in order to reach the goal with the best possible effect.

While the initial impulse always acts on the very beginning of the work, the final impulse need not always occur at the very end. Often enough, especially when short divisions of time have been chosen, we see the curve rise before the last

division and generally fall again abruptly. Here the subject has spurred up his working powers some time before the end, but has flagged again in the last section.

As a general rule the effects of impulse are incapable of making any lasting impression on the work as a whole, because they are almost invariably followed by a falling off in the amount of work done. When an estimation is made of the work-values of short periods of time they may, of course, have a considerable effect. The insertion of periods of rest of varying length has a most important influence on the course of the curve. If its general direction has been downward, as a result of the preponderating effect of fatigue, and the work is then interrupted by a pause, we see that, when it is recommenced, the curve starts afresh from a point considerably higher than the last previous work-value. Indeed, under some circumstances, the whole work done after the pause gives far better results than the work before it. Both these results are explained by the fact that the disabling effect of fatigue partly or entirely disappears during the pause, while the favourable after-effect of practice remains. Thus the effect of practice is felt, not only during the first part of the experiment, but also when it is recommenced after an interval. Traces of practice may persist for an extraordinarily long time. Kraepelin found distinct evidence, after the lapse of three months, of the practice gained in two hours' experiments in addition. But part of the practice gained is always lost again. For instance, if half an hour is spent in addition on two consecutive days, the work done on the second day will show a considerable increase compared with the work of the first day. But if we now let a day pass the increase on the third working-day is not so great; there has been a loss of practice. The extent of the loss generally grows with the pause, but it does not increase uniformly. The greater part of the practice is lost rather quickly, but the remainder disappears very gradually and almost imperceptibly. The increase of practice from day to day is thus equal to the gross gain of practice less the loss of practice in twenty-four hours. The idea of practice resolves itself into the ideas of the gross increase of skill, which is entirely under the influence of practice, and of the loss of skill, or, in other words, of the pure faculty of acquiring practice and of the faculty of retaining it. Both may exist in absolutely different amounts in different

people, and in one and the same person great capacity for acquiring practice may coexist with little power of retaining it, or the converse may be the case. Thus Lindley found that his subject C possessed little capacity for practice but great retentive power, while in the subject A great capacity for acquiring skill was combined with little power of retaining it. Such a combination need not always exist, but a number of subsequent experiments have shown that it is the rule. This is all the more important because great capacity for practice and little power of retention are generally associated with great liability to fatigue, a relation which points to the common origin of these two idiosyncrasies in increased instability of the mental constitution.

As the course of the work is essentially determined by the combined effects of fatigue and practice, it is very important if we would measure the amount of the fatigue to discover the amount of the simple effects of practice. The increase of skill which may be determined in a long series of experiments by a comparison of the values at the beginning of each day's work gives us no help because of the error due to loss of skill which is inherent in it. On the other hand, we know that the loss of practice during a short pause is relatively small, and that it cannot therefore have any great influence on the amount of work done after the pause. On the hypothesis that the result of a pause is to eliminate the influence of fatigue, while the effect of practice remains, we ought first to discover the length of the interval after which the performance of work shows the greatest excess over the performance before it. The effect of practice would appear most clearly in the result. Supposing, for instance, it were discovered in the case of two sections of work of the length of half an hour each that the greatest increase took place after an interval of ten minutes, we should be justified in concluding—on this same hypothesis, that fatigue disappears very much more quickly than practice, and that recovery is thus almost exclusively master of the field during the pause—that the termination of the most favourable interval marked the point at which fatigue had almost disappeared. The length of the most favourable pause would thus be a practically useful measure of the speed of recovery from the previously existing fatigue. Moreover, a comparison of the last results obtained before the pause, which of course come under

the influence of both fatigue and practice with the first results after it, which are almost exclusively subject to the influence of the latter, would plainly show the amount of the effects of fatigue. Finally, to obtain an approximate idea of the loss of practice, the performance after the most favourable pause might be compared with the performance after a still longer interval, which would show a greater or less inferiority in accordance with the amount of practice lost. According to our premises it is to be expected that during the pause the capacity for work will increase from the beginning of the pause onwards, pass the point at which the remains of fatigue and the remains of practice balance each other, and continue to increase until the lapse of the most favourable interval. From that time onwards it will gradually decrease on account of the preponderating influence of loss of practice.

On the basis of considerations such as these Amberg has investigated the effect of intervals of rest on the mental capacity for work. His special object was to examine the dependence of this influence on the kind and duration of the work and the length of the pause. He made the unexpected discovery that "The effects of pauses of different lengths not only vary in degree, but have fundamentally different results on the capacity for mental work. Moreover, the kind and duration of the work have an important influence on the nature and extent of these results." Amberg found that, after an hour of addition, a pause of five minutes generally had a slight but favourable effect on the capacity for work, while under otherwise identical conditions the effect of a pause of a quarter of an hour was decidedly bad. But if the working time was extended to two hours a pause of fifteen minutes was beneficial. On the other hand, in learning figures by heart a pause of fifteen minutes had a good effect after even an hour's work.

These results obtained by Amberg agree very well at first with the discoveries made by others. The favourable effect of the pause becomes more and more evident with the increasing length and difficulty of the work, and its effect is the more favourable the higher the degree of fatigue that is present. But it is remarkable that, under some circumstances, pauses should not only fail to have any good effect, but should even have an unfavourable influence on the course of the work. This is a fact which cannot be explained by loss of practice, for it would still

be incomprehensible why the loss of practice, which was more than balanced by the recreative effect of five minutes' rest, should suddenly prevail over the recreative effect during the longer pause, in which recovery must be far more complete. Amberg has, therefore, assumed that, independently of the effects of practice, influences facilitating work are developed during its progress, and are still active after a pause of five minutes, but disappear in a quarter of an hour. Amberg compares these influences, to which he gives the name "momentum," to the easier working of a machine after it has once been set in motion. "In the machine the greater ease of working depends on the overcoming of its inertia, and, conversely, the machine remains in motion, also as the result of its inertia, though with quickly decreasing energy for some time after the actual impulse that set it working has ceased." In this way Amberg explains the facts, which may often be observed, that the amount of work done at the beginning of an experiment is often small but afterwards increases rapidly, and that the impetus to be acquired from the work itself is absent for a short time after it has begun, but has the effect of making it easier when it is taken up again.

Amberg's results were afterwards confirmed by Rivers, Kraepelin, Lindley, Heumann, and others. All their experiments showed that the pause not only results in the disappearance of fatigue and the loss of part of the practice, but may sometimes have an unfavourable effect on the course of the work owing to the cessation of the momentum. Thus, Lindley found, on inserting pauses of five, fifteen, thirty, and sixty minutes between two sections of work of half an hour each, that his subjects A and B gave a better result in those experiments where there was no pause at all than when a pause of five minutes followed the first half hour, and that the most favourable pause, for them, was one of from fifteen to thirty minutes. From this it appears that the useful effect of the pause of five minutes was outweighed by the loss of momentum, that this prejudicial influence was more than neutralised by the greater restorative effect of the fifteen minutes' rest, and, finally, that the results of loss of practice overpowered the restorative effect of the pause of sixty minutes. On the other hand, in the case of the subject C, who was very susceptible to fatigue, the work performed improved with every increase of the length of the pause up to the full sixty minutes. Here

the restorative effect of the pause was greater than the unfavourable effect of loss of impetus and practice.

The effect of impetus is seen even more clearly in some experiments made by Hylan and Kraepelin⁽²⁷⁾ than in those of Lindley. Hylan and Kraepelin inserted pauses of varying length, up to thirty minutes, between two sections of work of five minutes each. Here the general rise of the curve, after pauses of increasing length, was interrupted by a deep fall lying between the pauses of ten to twenty minutes. This can only be explained by supposing that an influence, which had previously helped on the work, disappeared about that time. This influence is no doubt to be identified with the "momentum" of Amberg. It is remarkable, however, that the momentum produced in this case by work of five minutes' length should have persisted for about a quarter of an hour after the work had ceased. Amberg, who compared such a momentum with the overcoming of inertia when a machine is set in motion, regarded it as a more or less mechanical force, but it is hardly conceivable that the mere *vis inertiae* after work of only five minutes' duration could facilitate the subsequent work after so long an interval. Kraepelin has therefore assumed that "momentum" is a matter of some special mental process, perhaps of a peculiar concentration of the ideas on the work in hand, and a tension of the will by which disturbing influences are kept away—a certain "preparedness for work"⁽²⁸⁾. This preparedness for work persists, more especially if the pause is short, and the worker knows when he will have to begin again. During longer pauses the tension of will and the ease of working, which depends on it, are lost and must be acquired afresh after the work has been recommenced.

We see in any case that loss of momentum may very seriously affect the influence of a pause on the performance of work. As a general rule the interruption caused by a pause through loss of momentum will have the greater preponderance the less the fatigue has been resulting from the work already done. Again, the greater the fatigue the more will the restorative effect of the pause make itself felt in opposition to the loss of preparedness for work. This influence of the degree of fatigue on the effect of the pause, which we have already met with in the case of Lindley's subject C, with his great susceptibility to fatigue, is shown very clearly by the experiments

made by Heumann, who allowed a uniform pause of one minute after experimental work lasting from one to sixty minutes. While the pause had a bad effect after work lasting from one to five minutes, after longer working periods of ten minutes and upwards it resulted in a progressive increase in the work performed as compared with the work that was done at the beginning. Here, then, the fatigue was so slight at first that the loss of impetus outweighed the restorative effect of the rest. It was only when the longer periods of work had caused greater fatigue that the mutual relations of the two influences altered in favour of the restorative effect, until finally, in one case of Heumann's subjects, the difference between the effect of the pause after periods of work of one and of sixty minutes amounted to 25.6 *per cent.* of the average performance before the pause. Here, however, it must be remembered that the performance during the first minute was greatly under the influence of impulse, and that this would seriously affect the comparative value of the work done after the pause. Heumann did indeed point out that signs of impulse could be seen even after the pause, but they are generally very much less than those to be found before it. A comparison of the effect of the pause after work lasting five minutes, of which the amount would be practically uninfluenced by impulse, with its effects after an hour's work, gives a difference of 14.9 *per cent.*, which at once shows the important influence of the degree of fatigue on the effect of the pause.

All the facts we meet with in considering the work-curve show that the course of the work is extremely complicated even in so simple an operation as the addition of figures of one place. Practice, fatigue, momentum, and impulse all intervene, and every one of these factors may, under some circumstances, exercise a decisive influence on the amount of work done. It may be possible to recognise the special operation of particular influences in the direction of the work-curve and to draw the conclusion that at various times the course of the work has been chiefly determined by the preponderance of one or another of them. But of the true amount of these influences it is impossible to form even an approximate idea in the case of continuous work, unbroken by any intervals, even though it is carried on for hours. It must be admitted that in dealing with continuous addition, say for an hour, it may sometimes be possible to

draw certain conclusions as to the amount of fatigue from a comparison of the values obtained at the beginning and at the end, especially if the difference between the performances of different people at the beginning and end be extraordinarily great, or if the amount of work done in the separate divisions of time decreases continuously from the beginning onwards, as is the case, for instance, in nervous exhaustion⁽⁸⁹⁾. But the utility of such experiments for the purpose of measuring fatigue must, of course, be very limited, as it is only where there are extraordinarily great differences in personal liability to fatigue that they could produce anything like a serviceable result, while the great expenditure of time that they demand would make it very difficult to carry them out in practice. In any case, the procedure would be very rough and inexact, and the possibility of distinguishing between the antagonistic influences of practice and fatigue would be a complete bar to any satisfactory conclusion as to the amount of the fatigue.

On the other hand, we have seen that the insertion of a pause in the course of the work makes it possible to distinguish between the antagonistic and mutually destructive influences of practice and fatigue. The value of experiments with pauses depends on the fact that recovery from fatigue takes place far more quickly than loss of practice, and so we are able to discover the amount of the fatigue by comparing the amount of the work done under its influence with the work done after it has ceased⁽⁹⁰⁾. But the effect of the pause is also complicated. Besides the disappearance of fatigue and the gradual loss of practice, part or whole of the momentum is also lost. Thus the effect of the pause on the work performed may be diminished by loss of momentum, and we have seen that, under some circumstances, it may even be directly unfavourable. It may happen that the performance of work after the pause is relatively small, not because any great remains of fatigue are present, but because the loss of momentum has outweighed the restorative effect.

But this very example shows the great importance of the degree of fatigue on the effect of the pause. It was perfectly plain, in the experiments of Lindley, Kraepelin, Heumann, and others, that the interruption caused by the pause only outweighed its restorative effect when the degree of fatigue was small, while the favourable effect of the pause was all the stronger the greater the fatigue. We have everywhere met

with evidence of the same fact, that the effect of the pause chiefly depends on the degree of the fatigue, and we are therefore justified in using it as a measure of the effects of fatigue for the practical purpose of comparison.

It is obvious that, for practical reasons, in selecting from the methods we find suitable for our object of measuring fatigue, we will choose those which demand the least expenditure of time and trouble without giving less accurate results. One would naturally suppose that accidental fluctuations in work would neutralise each other more and more completely as the length of the working period was increased, and that the amount of the fatigue produced would be more and more evident. On this account it was formerly the rule to make use of rather long periods of work in studying the processes that influence the course of mental work. Hylan and Kraepelin, however, who, in their study of the effect of short periods of work both "had before them the desire to prepare the way for the practically useful measurement of fatigue," were able to show that spells of work lasting five minutes, divided by short intervals of rest, were no less suitable for the measurement of individual mental quantities than longer periods. In single experiments chance may presumably have a considerable influence on the result, yet this presumption has not on the whole held good in the experiments of Hylan and Kraepelin. Besides, the error arising from accidents can be neutralised by the multiplication of the single experiment. At all events, Hylan and Kraepelin come to the conclusion that "the reliability of the observations is better secured by making a large number of experiments than by increasing their length."

These experiments of Hylan and Kraepelin, which agree in their results with independent experiments made by Krauss and Röder, made it seem advisable to employ periods of work of five minutes' length, separated by short pauses, for the practically useful measurement of fatigue. As we have seen, Hylan and Kraepelin discovered that a pause of five minutes, after such a period, had an invariably favourable effect on the performance of work, only falling short in a slight degree of the effect of the most favourable pause of thirty minutes. We may therefore assume that the recreative effect will clearly be seen after the pause of five minutes, and that it will be possible to ascertain the the amount of the fatigue by comparing the work

values immediately before and after the pause. The effect of the pause will, of course, be especially clear if the experiments with pauses can be compared with others, in which the work is quite continuous, and allows of no recovery from fatigue. A comparison of the corresponding performances of work in the two series of experiments makes the effect of the pause, which depends almost entirely on the degree of fatigue, quite clear.

Arrangement of the Experiments.

The subject of this work is formed by some experiments made in the year 1903 in the psychological laboratory of the Heidelberg Asylum. In most cases each series comprised twelve daily experiments, but a few were continued for eighteen days. The work done each day took ten minutes, interrupted every second day by a pause of five minutes after the first five minutes' work. Thus each twelve-day series consisted of six experiments with a pause introduced and six in which the work was continuous, all made on the same person.

The procedure itself was very simple. The arithmetic books introduced by Kraepelin were used, the sum of every pair of consecutive figures in each column being noted down continuously, with the omission of the tens (⁸¹). To make it possible to follow the increase or decrease in the amounts of work done in the separate periods of one minute the subject of the experiment was made to draw a line under the last figures added together at the end of each minute, which was announced by the ringing of a bell. All the daily experiments in each series were begun at the same hour. During the whole time of the experiments the subjects were made to follow a most minutely regulated mode of life.

We had in the first place to test the practicability of the method and to collect material for comparison, with a view to the clinical measurement of fatigue, from healthy subjects. It was desirable to experiment on the largest possible number of people of different sexes and ages and of various degrees of education. Unfortunately, the condition necessary to the experiments could not be continuously observed in a large number of the subjects, and we have omitted these experiments as unfit for use. There remain twelve series of twelve days and five of eighteen days, in which no disturbance whatever

occurred. Among the subjects of experiment is one who cannot be counted as "healthy" because he complained of great liability to fatigue. We shall describe the results obtained from him separately.

*Results of the Experiments on Healthy Subjects.
Series of twelve Days.*

Fig. 1 shows the work-curve of Subject 7 with the figures belonging to it. This curve is given first as an illustration of the way in which we calculate work-values with the object of measuring fatigue.

FIG. 1.



On the vertical lines of Fig. 1 are marked the minutes occupied by the experiments. The horizontal lines show the average number of figures added in each minute in each of the two sets of six days. Curve *a* shows the course of the work done on the days when there were pauses, Curve *b* the work done on the days without pauses. There is a pause of five minutes between sections 5 and 6 of Curve *a*, represented by the dotted line.

The upper part of Table I shows the work-values of the experiments with pauses (the first, third, fifth, seventh, ninth, and eleventh days). The lower part shows the work-values of the experiments without pauses (the second, fourth, etc., days). The two vertical rows of figures belonging to each experiment show the number of additions made in each minute (one to five minutes and six to ten minutes).

We see in Fig. 1 that curve *a* takes a downward course from

the first to the fifth minute. As its course is determined by the conflicting effects of practice and fatigue the effect of fatigue must have outweighed that of practice. The first work-value after the pause is not only considerably higher than the value of the fifth minute, but is also higher than the value of the first minute. This shows, first, the great restorative effect of the pause, and secondly, the persistent effect of practice. If the work of the first five minutes had not been affected by fatigue, but only by practice, the curve must have taken an upward course, and the work-value of the fifth minute would have been about the same as that of the sixth minute, if we neglect the

Table I.

1		3		5		7		9		11	
48	61	72	69	73	76	77	80	74	76	82	77
44	55	64	66	67	72	74	72	74	75	77	81
43	51	57	66	70	70	74	67	75	74	74	79
44	47	63	64	67	69	70	70	73	72	76	74
44	50	59	64	68	69	70	70	72	74	74	75
223	264	315	329	345	356	365	359	368	371	383	386
2		4		6		8		10		12	
63	54	75	66	73	69	75	73	78	75	77	76
56	52	69	67	71	66	70	71	73	71	74	76
58	56	64	68	69	67	70	72	75	66	73	70
53	52	68	66	70	68	72	74	73	66	72	72
54	52	68	62	73	68	73	70	71	65	74	70
284	266	344	329	356	338	360	360	370	343	470	364

loss of practice and momentum during the pause. It must be remembered, however, that the work done in the sixth minute was influenced by the practice gained in the previous five minutes' work, while that of the fifth minute only had four minutes' work behind it. But the effect of one minute's practice would be relatively small, and we must consider that a part, however small, of the practice has disappeared during the pause. At all events, the difference between the work-values immediately before and after the pause plainly shows to what degree fatigue has acted on the course of the work. We may therefore draw a conclusion as to the effects of fatigue on the degree of improvement in the amount of work done after the

pause. We calculate the improvement from the table as follows :

44	61
59	69
68	76
70	80
72	76
74	77

$$387 - 439 = 12.9 \text{ per cent. increase after the pause.}$$

The restorative effect of the pause comes out particularly clearly if we compare the work-values of the fifth and sixth minutes, on the days with pauses, with the corresponding values on the days without pauses. We see in curve *b* that the work-value of the fifth minute is on the same level as the work-value of the sixth minute. While recovery from fatigue has produced a very considerable increase in the amount of work after the pause, there is no improvement in the sixth minute in the experiments where there has been no pause. The curve, which shows a downward tendency in its general course, indicating the preponderance of the effect of fatigue over that of practice, rises a little in the fifth minute and remains at the same height during the following minute. The rise in the fifth minute, however, is not due to the preponderance of practice over fatigue, nor must we assume that the two influences balanced each other during the short time that the line remained horizontal. What we have here is the effect of an effort of the will, such as we learned to know during our discussion of the effects of impulse, which appears fairly often in the fatigued phase of the curve as an impulse due to fatigue. This effect of impulse has acted on the level of the work-values of the fifth and sixth minutes. Without the interference of the will in the course of the work both these values would be lower, and that of the sixth minute would necessarily be lower than that of the fifth, on account of the increase of fatigue. But even so, a comparison of the corresponding values, on the days with and without a pause, plainly shows the restorative effect of the pause. In this case their difference is—

$$\begin{array}{r}
 + 12.5 \text{ per cent.} \\
 \pm 0.0 \text{ ,,} \\
 \hline
 12.5 \text{ per cent.}
 \end{array}$$

In addition to a comparison of the work-values of the fifth and sixth minutes, we may also make use of the total performance of work in the first and second five minutes on the days with and without a pause, in estimating the effect of the pause. According to the table, the figures for the days with pauses are—

223	264
315	329
345	356
365	359
368	371
383	386

$1999 - 2065 = 3.3$ per cent. increase after the pause.

This increase in the total performance which is seen after the pause is due to the persistent effect of practice. If we might assume that there had been complete recovery from fatigue during the pause, the increase would afford us a picture of the amount of the subject's capacity for practice. But whether or to what extent the fatigue has disappeared in the pause we do not know. For the moment all we can conclude from the increase after the pause is that, if there were any fatigue left, the effects of practice have overcome those of fatigue. The fatigue remaining may have been considerable and yet have been concealed by the effect of a great increase of practice, while it is just possible that the subject may have recovered from the fatigue almost entirely during the pause, and that his capacity for practice was comparatively small. We can only obtain an answer to this question by comparing the corresponding work-values on the days when there was no pause and consequently no recovery. We calculate the following value for the recovery from the table :

284	266
344	329
356	338
360	360
370	343
470	364

$2084 - 2000 = 4.1$ per cent. decrease in second five minutes.

We see that the absence of a pause results in a decrease in

the work done amounting to 4.1 *per cent.* We cannot estimate the effects of the fatigue from these figures either for the present. It is evident that fatigue has the preponderance in the second five minutes, but we cannot tell to what degree the amount of the work has been influenced by the simultaneous and opposite effect of practice. It is conceivable that the decrease would have been much smaller if the subject had possessed a greater capacity for practice. We cannot form an idea of the amount of fatigue until we calculate the difference in the work performed, when there has been a pause and when there has not. The work of the second five minutes was done with about the same degree of practice, on the days both with and without a pause, but there was recovery from fatigue in the experiments with pauses, while the work of the second five minutes was still affected by fatigue on the days without a pause. Hence the amount of the effects of the fatigue is indicated by the difference between work done on the days with and without a pause. This difference is—

$$\begin{array}{r}
 + 3.3 \text{ per cent.} \\
 - 4.1 \text{ ,,} \\
 \hline
 7.4 \text{ ,,}
 \end{array}$$

Thus two groups of figures are available for the measurement of individual liability to fatigue: (1) a comparison of the difference between the amounts of work done in the fifth and sixth minutes on the days with pauses, with the corresponding difference on the days without pauses, and (2) a comparison of the difference between the total amounts of work done in the first and second five minutes on the days with pauses, with the corresponding difference on the days without pauses. If our reasoning is correct, we may expect that the two groups will agree to the extent that high figures resulting from the comparison in the one group will correspond to high figures in the other.

Table II gives a general view of the results of the experiments on healthy subjects.

In Column *a* of Table II the difference between the work-values of the fifth and sixth minutes on the days with pauses is calculated as a percentage of the work-values of the fifth minute. We see, in the first place, that the pause has had a good effect on the course of the work in all the subjects. There

are increased results after the pause in every case. Secondly, we see that the differences in the effect of the pause in different subjects are extraordinarily great; they range between 25.4 and 3.5 *per cent.* In the column of experiments without a pause (Column *b*), the values of the sixth minute are lower than those of the fifth minute in six cases. In Subject 7 the values of both minutes are equal, while in four other cases there is an increase in the sixth minute. Compared with the figures in Column *a* the personal variations are small, varying from + 3.1 *per cent.* to - 2.7 *per cent.* But we cannot tell for the moment whether the increase in the sixth minute is owing, in any individual case, to the effect of impulse or to the preponderance of practice over fatigue. We shall see later on when we examine the individual work-curves how far we must assume

TABLE II.

Subject.	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i> *	<i>e</i> *	<i>f</i>
	5' ~ 6'. With pause.	5' ~ 6'. No pause.	Difference.	I ~ II. With pause.	I ~ II. No pause.	Difference.
I	+ 25.4	- 1.4	26.8	+ 1.3	- 7.0	8.3
II	+ 22.9	- 2.7	25.6	- 0.4	- 8.9	8.5
III	+ 17.8	+ 3.1	14.7	+ 12.3	- 0.5	12.8
IV	+ 19.3	+ 1.5	17.8	+ 3.9	- 5.0	8.9
V	+ 17.4	- 0.5	17.9	+ 10.3	- 0.8	11.1
VI	+ 16.5	- 0.7	17.2	+ 5.8	- 6.2	12.0
VII	+ 12.9	± 0	12.9	+ 3.3	- 4.1	7.4
VIII	+ 10.0	- 3.8	13.8	+ 2.4	- 7.3	9.7
IX	+ 9.0	+ 0.2	8.8	+ 5.6	- 2.4	8.0
X	+ 4.9	- 2.6	7.5	+ 1.9	- 5.1	7.0
XI	+ 3.5	+ 2.1	1.4	+ 2.5	- 6.3	8.8

* I ~ II = the difference between the first and second five minutes.

the effects of impulse in each particular case. Their influence on the course of the work will be of special importance in view of our estimate of the effect of the pause, where the increase after the pause is comparatively small, as in the case of Subject II, whose work seems at first sight to be but little affected by the absence of the pause. In all the other subjects the effect of the pause is obvious, even when an increase is shown in Column *b*. Still, we are not justified in concluding as to the effect of the pause, and consequently as to the degree of fatigue, from the difference between the values in Columns *a* and *b*,

until we know to what extent the values in Column *b* are influenced by impulse.

In Column *d* the difference between the whole work done in the first and second five minutes of all the experiments with pauses is stated as a percentage of the work done in the first five minutes. Except in Subject 2, there is invariably an increase of work in the second half of the experiment, which must be attributed to the victory of practice over fatigue. In Subject 2 the pause has not been sufficient to remove the fatigue caused by the preceding work so far as to insure its being overcome by the fresh practice gained during the second five minutes together with the practice remaining from the previous work. In the remaining subjects the effect of practice has overcome that of fatigue. We cannot draw any further conclusions from the results of the experiments with a pause alone, as we cannot separate the effects of practice and fatigue in them. The effect of the fatigue on the course of the work only comes to light when we compare the work done under its influence with the work done in the experiments with pauses. Column *e* gives the difference between the work done in the two periods of five minutes on the days without pauses, and Column *f* gives the difference between the values in *d* and *e*. Under *e*, Subject 3 at first sight shows the least decrease in the second period, and the absence of the pause seems to have had but little influence on the amount of work he did. But when we consider that he showed an increase of 12·3 *per cent.* in the experiments with pauses, the decrease of 0·5 *per cent.* acquires a very different meaning. Compared with the result of the experiments with pauses, it amounts to a decrease of 12·8 *per cent.* in the work done. In Subject 2, on the contrary, the work has fallen off 8·9 *per cent.* in the second five minutes, the greatest decrease shown by any subject. But there was a decrease of 0·4 *per cent.* even on the days with pauses, so that the difference of 8·5 *per cent.* in the work, according to the presence or absence of a pause, is considerably less than the difference in the work of Subject 3. The course of work is therefore influenced by the effect of the pause in a higher degree in Subject 3 than in Subject 2. As the effect of the pause chiefly depends on the degree of fatigue, we may conclude from the difference of the work of the two subjects that Subject 3, in spite of the smallness of the decrease he shows in Column *e*, is more liable to fatigue

than Subject 2. The highest value in Column *d*, which is + 12.3 *per cent.*, is explained by the fact that the subject has also a great capacity for practice, a fact in perfect agreement with what we have learned elsewhere about the relation of capacity for practice to liability to fatigue.

This is how we might classify the subjects of experiments according to their liability to fatigue, if we were to confine our attention to the values shown in Columns *d*, *e*, and *f*. We should then discover that Subject 2, who seemed, according to the values shown in Columns *d* and *e*, to be the most liable to fatigue of all the subjects, proves to be one of the least liable when the difference in his work-values in Column *f* of 8.5 *per cent.* is taken into account.

But if we now compare the figures in Column *f* with those shown in Column *a* we make the unexpected discovery that they do not correspond to each other at all. Subject 1 heads the first column with an increase of 25.4 *per cent.* after the pause, while in Column *f* he would be last but three, with a difference of 8.3 *per cent.* Subject 11, who seems, from Column *a*, to be the least liable to fatigue, appears more liable than several other subjects according to the difference in Column *f*. Of course we could not have expected to find an invariable regularity in the relations between the values in Columns *a* and *f*. As we have not allowed for the loss of practice and impulse, and the effect of accidental influences on the course of the work cannot be excluded, in spite of the comparatively large number of the experiments, it seems probable that the order of the values in the two columns will not be absolutely the same. Yet we might have expected that, on the whole, high values in the one column would correspond to high values in the other. That is not the case, and we are confronted with the question how this fact, which seems at first to contradict our premises, is to be explained, and to what extent we are justified in concluding as to the degree of fatigue present from the values in Columns *a* and *f*.

In discussing the values shown under *b*, we pointed out that the increase in the work of the sixth minute might possibly be explained as the effect of impulse. In Subject 7 we noticed the influence of impulse on the values of the fifth and sixth minutes. As we have already seen, the impulse is more especially apt to affect the beginning and the end of a piece of

work. It is true that we know the impulse after a pause to be generally less than at the beginning of the work, but it may still have a very great influence on the amount of work done. In the same way the impulse at the end may considerably increase the rate of work. It is therefore quite possible that the relation between the values of the fifth and sixth minutes on the days with pauses may be influenced by the effect of impulse. If that is so, we cannot use the values shown under *a* as a measure of the effects of fatigue without some further consideration. It is questionable, however, whether the assumption that impulse has acted on the work is sufficient by itself to explain the reversal of our expectation that the values shown under *a* and *f* would agree, or if there is not an error attached to the figures worked out in *f* to which we have not yet given proper attention. The whole work done by Subject 2 in the second five minutes of the days both with and without pauses is much less in amount than that of any of the other subjects, and, according to this, he seems to be very liable to fatigue. Are we justified in concluding merely from the difference shown in Column *f* that his liability to fatigue was not great? Let us suppose, as an example—we shall meet with such a case later on among the patients with great liability to fatigue—that we found values under *d* and *e* which were quite inconsistent with good health, say — 10 *per cent.* on the days with pauses and — 20 *per cent.* on the days without pauses. We might safely assume that there was great liability to fatigue, and yet the difference of 10 *per cent.* in Column *f* would fall within the limits of perfect health. In such a case we should have no hesitation in saying that we ought not to judge of the degree of fatigue from the difference. We must rather assume that the difference between the comparative rates of work in the second sections of the days with and without a pause depends on some other influence than that of fatigue. This influence is undoubtedly that of recovery. If the fatigue resulting from the work that has been done is great, but the subject recovers quickly during the pause, the amount of work done after the pause will be comparatively great as the result of practice, and so will the difference between the amounts done when there has been a pause and when there has not. But with the same degree of fatigue the difference will be comparatively small, if the patient recovers slowly and there is a great amount of fatigue remaining after the pause.

In two subjects equally liable to fatigue but with different powers of recovery the proportions of the work done in the first and second five minutes of the days without pauses would under similar circumstances be the same, but the amount of work done after the pause would be greater in one than in the other.

We have also to consider that fatigue does not increase at a uniform rate. We know that it advances rather quickly at first, but proceeds more slowly after it has reached a certain point. Thus we can understand how it is that in a person who is very much fatigued by the end of the first five minutes the work-curve does not continue to sink in the rest of its course to the same extent as it did at first. When the curve falls quickly from the first to the fifth minute in consequence of great liability to fatigue, comparatively little work will be done in the first five minutes. The curve will then change its direction and fall less quickly as the result of the slower increase of fatigue, and thus the comparative falling off in the work during the second five minutes will be less than it would have been if the effects of fatigue had not been felt until the second part of the work, as occurs in the case of people who are not easily tired.

These two influences, incomplete recovery and slower increase of fatigue afterwards, enable us to understand how the influence of the pause on the difference between the work of the first and second five minutes may be comparatively small in spite of great liability to fatigue. Hence it follows that we cannot always judge of the degree of fatigue present from the amount of the difference shown in Column *f*. We must rather argue in this way: If the difference between the differences in the two five minutes of work on the days with and without a pause is great, as, for instance, in the case of Subject 3 (+ 12.3 *per cent.* and - 0.5 *per cent.*) or Subject 6 (+ 5.8 *per cent.* and - 6.2 *per cent.*) we may undoubtedly estimate the amount of fatigue from the amount of the difference. But a trifling difference is not inconsistent with great liability to fatigue. If the increase after the pause is small, or if there is even a decrease and the work has fallen off very considerably on the days without a pause as in the case of Subject 2 (- 0.4 *per cent.* and - 8.9 *per cent.*), it is most probable that the subject is highly susceptible to fatigue, although there is but a

trifling difference shown in Column *f*. The subject has made little recovery from fatigue during the pause, and therefore the work done after the pause is still under the influence of great fatigue. Again, fatigue, as has been mentioned, advances only slowly when once it has reached a certain degree. For these reasons the difference in the course of the work depending on the presence or absence of the pause may actually be less considerable where the subject is very easily tired than in a case where recovery is more complete and the work done in the first part of the time has not been affected by great fatigue.

All this makes it sufficiently obvious that the values in Columns *a* and *f* need not correspond with one another. In Column *a* the work-values may be affected by impulse, while in Column *f* we can form no precise estimate of the influence of recovery and of the advance of fatigue. Whether or no we may neglect both these sources of error for the practical purpose of the clinical measurement of fatigue we shall see later on. Recovery from fatigue is generally all the more complete the less fatigue there was before the pause, while the greater the fatigue itself has been, the greater will be the remains of it persisting after the pause. Hence we shall be justified in concluding that there has been great fatigue where the work done after the pause shows a great diminution, and the decrease is considerably greater still on the days without a pause. But as, for the reasons already discussed, we cannot use the values in Column *a* for comparison without misgiving, it seems desirable, in the first place, to take account of the error due to impulse, and secondly, if it be at all possible, to find a further standard for measuring the amount of fatigue. The results of our experiments will, of course, be all the more satisfactory the more we allow for sources of error and the greater the number of work-values we can employ for comparison.

The work-values in Column *e* are free from the error due to the influence of recovery. Here the difference in the amounts of work done in the two sections of five minutes depends entirely on the effects of practice and fatigue, and if it were possible to determine the amount of the practice, we could calculate the amount of the fatigue by itself. The advance in practice from day to day, shown by the work of the first five minutes, seems at first to give a basis for estimating the subject's capacity for improvement by practice. With this object we

might calculate the average daily advance in practice and state it in terms of the rate of work in the first five minutes of the first day. But the co-efficient of practice found in this way would have the serious error due to loss of practice between one day and another inherent in it, so that we could not correctly estimate the amount of the subject's capacity for practice by this means. We shall see later on that consideration of the average daily advance in practice may lead to valuable conclusions as to the amount of a patient's ability to retain the fruits of practice, but it cannot be used to decide in what degree the course of the work in the different experiments is affected by this particular influence. Could we assume that the loss of practice after a pause of five minutes was trifling, and that, after the pause, the fatigue had so far disappeared that the work-value of the first minute after the pause was exclusively determined by the practice gained in the preceding work, we might estimate the amount of the subject's capacity for practice more or less correctly from the proportion between the work-values of the first and sixth minutes. The objections to this assumption are that complete recovery from fatigue does not take place during the pause, that the remains of fatigue may be different in amount in different people (we have already gone into this question), and that the work-values of the first and sixth minutes may be affected by impulse.

On the other hand, it seems possible to eliminate the error due to impulse, to a certain extent, in calculating the capacity for practice. We know that, as a rule, the effort of will with which the work is begun is not maintained for more than a minute, and that it is usually considerably less after the pause than it was at the beginning of the work. Assuming that the work-value of the second minute is free from the influence of the effort of the will, and that the fatigue is still slight at that time, the error due to the impulse at the beginning may be avoided by comparing the values of the second and sixth minute. The effect of the impulse after the pause is not taken into consideration here, but the course of the curve will afford grounds for deciding whether the work-value of the sixth minute has been influenced by impulse or not.

A further error in our calculations arises from our not knowing how great is the fatigue remaining after the pause. In Subject 2 we found that less work was done in the second five minutes

than in the first even when there had been a pause. Here, then, the pause had not been sufficient to allow of recovery from fatigue. On the other hand, the work-value of the sixth minute is so much higher than that of the second even in this subject, that we may assume that the work of the sixth minute is influenced in a high degree by the persistent effect of practice. We shall meet with the circumstance that the work-value of the sixth minute is unusually high, considerably higher, indeed, than the value of the first minute, later on in patients who are very susceptible to fatigue. In these cases the effect of the recovery is not generally lasting; the curve which has started from a high point after the pause soon falls abruptly. At all events, there can be no doubt that of all the values the first work-value after the pause is most exclusively influenced by practice.

Still, we must not forget that the relations of the work-values of the second and sixth minutes can give us, at the best, only an approximate idea of the capacity for practice. But it is less important for the purpose of the clinical measurement of fatigue to make an accurate arithmetical determination of the degree of personal liability to fatigue in each separate case than to find a standard of comparison by which to measure the work done by our patients. For this reason it is possible that we may be able to make use of results calculated with the help of these co-efficients of practice, at least for the purpose of comparison and as supplementary to the other work-values which are at our disposal.

To form an opinion as to how far the work-values of the sixth minute are influenced by an effort of the will we shall have to consider the course of the work-curve in each individual case. At the same time, we will try to discover whether the relations of the values for the fifth and sixth minutes in both series of experiments are influenced by the effect of impulse or not.

The Work-Curves of Healthy Subjects.

We will first discuss the curves of Subject 7 given on p. 538.

SUBJECT 7.—B— Phil. D., æt. 25.

It is clear, from the course of the two curves *a* and *b*, that

the work of the first minute was done under the impulse of an effort of the will, for the work-values of the first minute are conspicuously higher than those of the second. Curve *a* falls abruptly after the second minute, but then follows a more level course. Yet it still sinks continuously under the influence of fatigue until the fifth minute. No final impulse can be seen in the fifth minute, neither are there any signs of a special exertion of the will after the pause, for the curve falls evenly from the sixth to the ninth minute.

Co-efficient of practice—*i. e.* difference between the work of the second and sixth minutes = $400 - 439 = + 9.7$ per cent.

Additions made in the first
five minutes on the days
without pauses . . . = 2084.

Corresponding work done in
the second five minutes . = 2000.

If we assume that the increase of work in the sixth minute as compared with the work of the second minute (+ 9.7 per cent.) may be regarded as a measure of the subject's capacity for practice, and that the whole of the work done in the second five minutes, on the days without a pause, would have increased in the same proportion had the course of the work been exclusively influenced by practice, we should expect that the following number (*x*) of additions would have been made in the second five minutes :

$$2084 : x :: 100 : 109.7$$

$$\therefore x = 2286$$

The actual number of additions made in the second five minutes was only 2000. We therefore have a difference of

$$\begin{array}{r} 2286 \\ - 2000 \\ \hline \end{array}$$

$$286 = 12.5 \text{ per cent. (a reduction).}$$

As the course of the work on the days without a pause is determined by the antagonistic effects of practice and fatigue, the figure - 12.5 per cent. would mean that the work we might have expected to be done under the exclusive influence of practice has been reduced by the effect of fatigue to the extent of 12.5 per cent. We will call this difference, which is expressed as a percentage of the work that might have been expected, the "co-efficient of fatigue."

As we shall see later on, there are considerable differences between the actual amounts of work done by different people. Two curves, belonging to different people, may be very similar in their general course and their separate fluctuations, and yet we should have to attach two entirely different values to them if we considered the difference in the actual amount of work done. In order to be able to compare the curves of the individual subjects directly with one another and to judge correctly of the amount of the fluctuations, we might take the work-value for the first minute of each subject on the days without a pause as = 100, and calculate the work of the tenth minute as a percentage of this. But as the work of the first minute is generally much under the influence of impulse, it is more correct, for the purpose of comparison, to express the work-value of the tenth minute as a percentage of that of the second. We shall do this in the case of all the subjects, and will also calculate the whole amount of work done in the first five minutes of all twelve days. In this way we shall get two fresh work-values, of which the first may be used as an auxiliary in estimating the effects of fatigue, while the second will enable us to judge of the capacity for work.

Total additions. I 5' = 4083.

2' ~ 10' (no pause) = - 6.3 *per cent.*

5' ~ 6' (no pause) = ± 0 (³²).

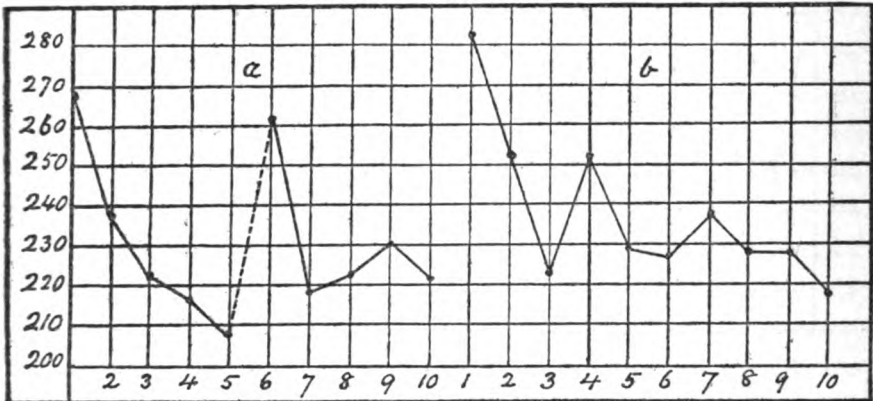
We have already discussed the work-values of the fifth and sixth minutes in this subject (Subject 7).

SUBJECT 1.—E—, medical student, æt. 22.

The disproportionately great fall of the curve from the first to the second minute, the final impulse in the ninth minute, and the great fluctuations of curve *b* show that the subject worked with an exertion of the will. It is therefore probable, in view of the great difference between the work-values of the sixth and seventh minutes in curve *a*, that the work of the sixth minute was influenced by an exertion of the will. But if the impulse after the pause was great, it seems strange that the work of the sixth minute should be less than that of the first. It ought in such circumstances to be greater on account of the persistent effect of practice. We are obliged to assume, either that the subject has very little capacity for practice, or that a great amount of fatigue remained after the pause. Perhaps the work

of the sixth minute was also affected by loss of momentum. It is impossible to resolve this doubt, and we must leave it an open question in what degree the work of the sixth minute was determined by other influences besides an effort of the will. In the fifth minute the work was not affected by impulse, and it

FIG. 2.



seems probable that the increase of work in the sixth minute (+ 25.4 per cent.) has come out too high as the result of an impulse after the pause. In that case we shall also obtain too large a co-efficient of practice from the difference between the work of the second and sixth minutes. In curve *b* there is no appearance of impulse in the fifth and six minutes.

Co-efficient of practice = $236 - 261 = + 10.5$ per cent. (probably too high).

Additions in I 5' (no pause) = 1216.

„ II 5' „ = 1132.

Co-efficient of fatigue = $- 13.2$ per cent. (probably too high).

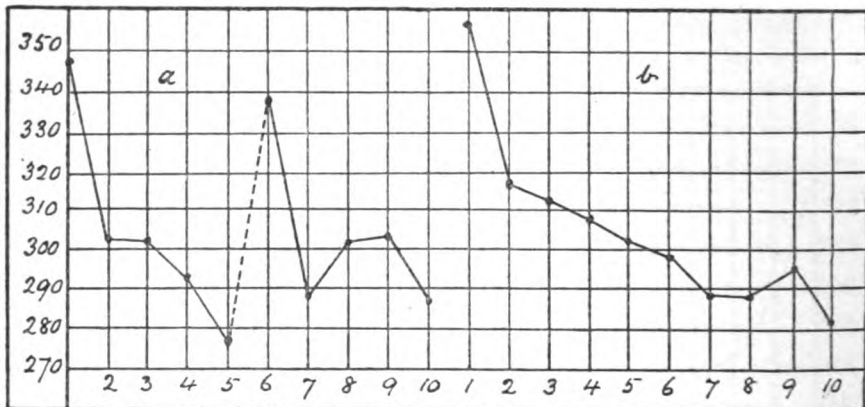
Total additions = 2366.

2' - 10' = $- 14.4$ per cent.

SUBJECT 2.—K—, student of phil., æt. 21, nervous temperament. The work-value of the sixth minute (curve *a*) is evidently affected by impulse. There is no final impulse to be seen in the fifth minute, neither are there any signs of impulse in the fifth and sixth minutes of curve *b*. The comparatively abrupt fall from the first to the fifth minute in the experiments

with a pause, and the equivalent fall in curve *b*, indicate great fatigue. The increase of work in the sixth minute may have come out too high, as the result of impulse.

FIG. 3.



Co-efficient of practice = $304 - 338 = + 11.1$ per cent. (probably too great).

Additions in 1 5' (no pause) = 1590.

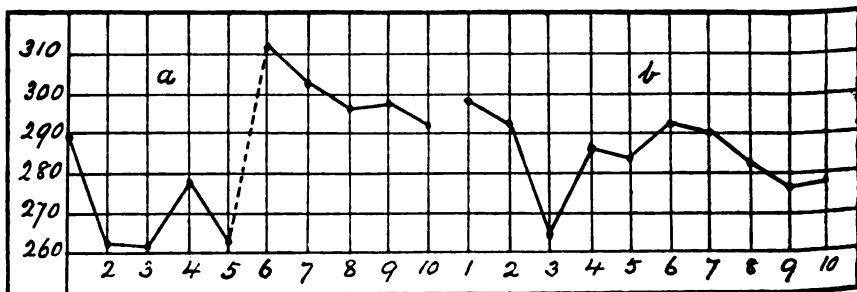
„ 11 5' „ = 1449.

Co-efficient of fatigue = $- 17.95$ per cent. (probably too great).

Total additions = 3112.

$2' - 10' = - 13.9$ per cent.

FIG. 4.



SUBJECT 3.—F—, male attendant, æt. 23. The great increase in the work after the pause shows great capacity for practice. Signs of impulse cannot be pointed to with certainty in the fifth and sixth minutes of the experiments with a pause, but

the work-value of the sixth minute (curve *b*) is evidently influenced by an effort of the will.

Co-efficient of practice = $264 \sim 311 = + 17.8$ per cent.

Additions in I 5' (no pause) = 1429.

„ II 5' „ = 1422.

Co-efficient of fatigue = $- 15.52$ per cent.

Total additions = 2781.

2 ~ 10 = $- 8.5$ per cent.

FIG. 5.



SUBJECT 4.—S—, lady student of phil., æt. 26. The rise in curve *a* from the first to the second minute is remarkable. Curve *b* shows that the subject began work with a great impulse on the days without a pause, and the work-value of the first minute after the pause is also clearly influenced by impulse. We must, therefore, explain the rise of curve *a* from the first to the second minute by supposing that the impulse with which the work was begun grew even greater in the second minute. A deep fall of the curve follows, with a slight final impulse in the fifth minute. Although the work-value of the sixth minute is under the influence of impulse, we may still compare it with the value of the second minute, in calculating the co-efficient of practice, because that value is also affected by impulse. In the sixth minute (curve *b*) the subject has worked with an increased exertion of the will.

Co-efficient of practice = $417 \sim 456 = + 9.3$ per cent.

Additions in I 5' (no pause) = 2106.

„ II 5' „ = 2001.

Co-efficient of fatigue = - 13.4 per cent.

Total additions = 4087.

$z' - 10'$ = - 8.5 per cent.

FIG. 6.



SUBJECT 5.—W—, male attendant, æt. 22.

Unlike the curves we have discussed hitherto, this shows no signs of impulse at the beginning of the work. On the other hand, it is obvious that the subject has worked with an exertion of the will after the pause. In curve *b* there are evident signs of impulse in the ninth minute, and they have raised the last value but one to a level higher than that of any before it. On the whole, however, the course of the work is even, the variations in both curves being small, considering the absolute amount of work done. Even supposing that the work is affected by impulse in the first minute after the pause, and allowing for its influence, there is a great difference between the work before and after the pause. There are no signs of impulse to be found in the fifth and sixth minutes of curve *b*.

Co-efficient of practice = $406 - 457 = + 12.5$ per cent.

Additions in I 5' (no pause) = 2115.

„ II 5' „ = 2100.

Co-efficient of fatigue = - 11.7 per cent.

Total additions = 4127.

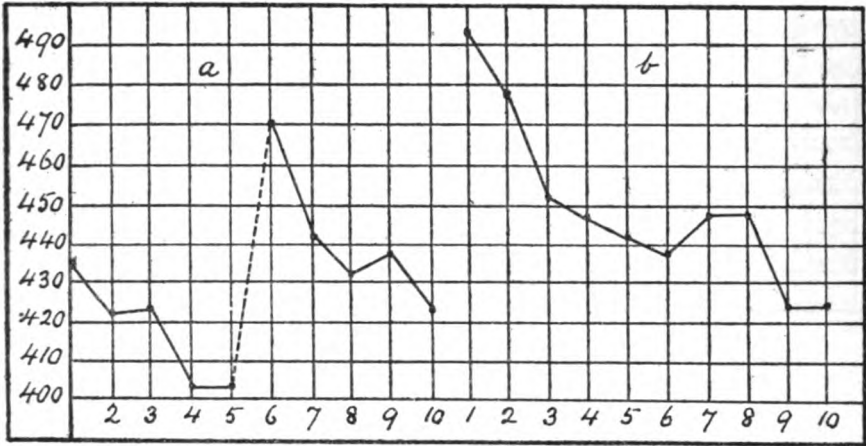
$z' - 10'$ = - 1.7 per cent.

SUBJECT 6.—F—, female attendant, æt. 25.

The work of the first minute, in curve *a*, has come under the influence of an effort of the will. The subject also seems to

have worked with impulse after the pause. No obvious signs of impulse can be found in the fifth minute of the experiments with a pause, and there are certainly none present in the fifth and sixth minutes of curve *b*. The generally downward course of the curves indicates great fatigue.

FIG. 7.



Co-efficient of practice = $418 - 465 = + 11.1$ per cent.

Additions in 1 5' (no pause) = 2286.

„ 11 5' „ = 2147.

Co-efficient of fatigue = $- 15.5$ per cent.

Total additions = 4348.

2' - 10' = $- 11.3$ per cent.

SUBJECT 8.—B—, M.D., æt. 28.

The work was begun with great impulse in the first minute of both series of experiments. In curve *a* it is evident that the effort of the will was considerably less after the pause. The work-value of the sixth minute hardly seems to be affected by impulse, neither are there any signs of impulse in the fifth and sixth minutes of curve *b* nor any final impulse before the pause.

Co-efficient of practice = $336 - 354 = + 5.3$ per cent.

Additions in 1 5' (no pause) = 1840.

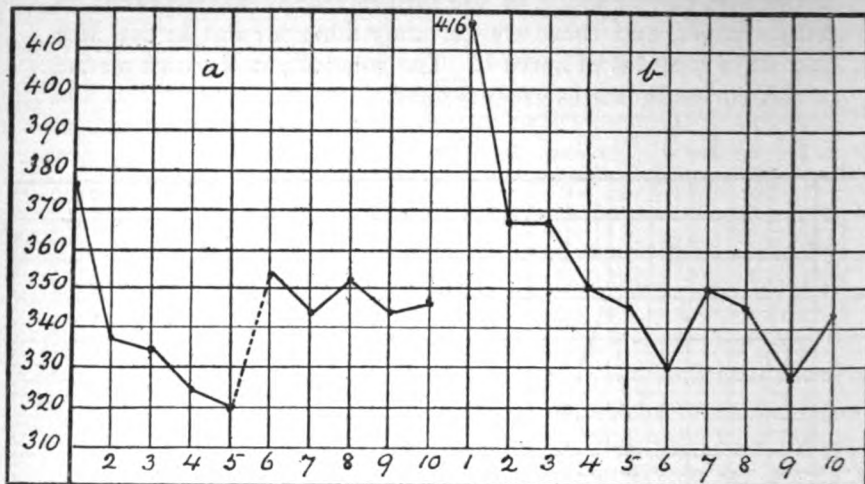
„ 11 5' „ = 1707.

Co-efficient of fatigue = $- 11.8$ per cent.

Total additions = 3545.

2' - 10' = $- 6.6$ per cent.

FIG. 8.



SUBJECT 9.—S—, lady student of phil., æt. 24.

It is evident from curves *a* and *b* that work was begun with great impulse in the series without a pause, and that there was also an effort of will in the first minute after the pause. Yet the work-value of the first minute in curve *a* is considerably

FIG. 9.



lower than that of the second minute. The record of the experiments with this subject shows that the increase of work in the second minute is due to the remarkably small amount done in the first minute of the ninth day. While the subject usually added up more figures in the first than in the second

minute, she made, on this day, twenty-eight less additions in the first minute than in the second. There is a note to the account of the experiments: "Nasal catarrh on the ninth day." The whole amount of the work done in the first and second five minutes of the ninth day is, however, not at all diminished, as compared with that of the previous and following days. On the eighteenth day the subject made 354 additions in the first five minutes, 368 on the ninth day, and 383 on the tenth day. We must therefore suppose that, under the influence of the catarrh, the subject approached her work on the ninth day with disinclination, and that the feeling that the work was unusually difficult led to an increased effort of the will in the second minute.

The work of the fifth minute is affected by impulse. As the subject also worked with impulse in the first minute after the pause, we may safely judge of the effect of the pause from the difference in the work-values of the fifth and sixth minutes. In curve *b* the work-value of the sixth minute is influenced by an effort of will,

Co-efficient of practice = $396 - 433 = + 9.0$ per cent.

Additions in I 5' (no pause) = 2077.

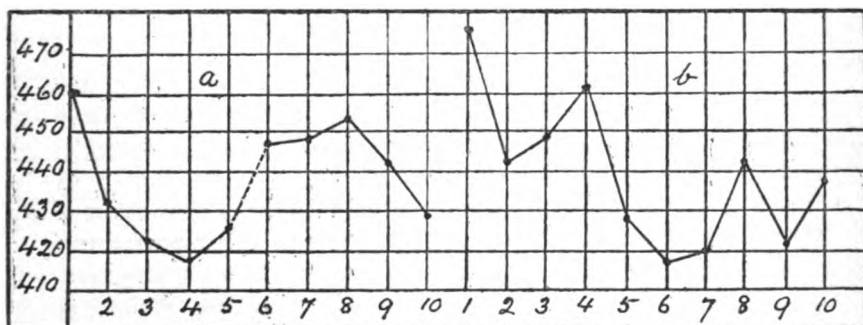
Additions in II 5' (no pause) = 2027.

Co-efficient of fatigue = $- 8.8$ per cent.

Total additions = 4039.

$2' - 10' = + 0.9$ per cent.

FIG. 10.



SUBJECT 10.—Z—, M.D., æt. 24. Nervous temperament, vacillating and undecided; exaggerated suggestibility; instability of mood.

Curve *a* shows evident signs of impulse in the first and fifth minutes. Unlike the curves previously discussed, this curve rises after the pause from the sixth to the eighth minute, so the subject certainly did not work with an increased effort of the will in the sixth minute. The great fluctuations in curve *b* are remarkable. It is evident that an increased effort of the will can never be maintained beyond a short time; every considerable rise in the curve is followed by a deep fall. This seems to confirm what has been observed on other occasions, that efforts of the will have no permanent effect on the amount of work done. It is doubtful whether, in this case, the great fluctuations should be regarded as a sign of fatigue or as the expression of great psychological instability. At any rate, the course of curve *b* plainly shows that the subject was incapable of working uniformly, a circumstance which is of importance to the characterisation of the individual and points on the whole to small working energy.

As the work of the fifth minute, in the experiments with a pause, has been influenced by the final impulse, the difference between the work immediately before and after the pause has come out too small. The work-values of the fifth and sixth minutes in curve *b* are not affected by impulse.

Co-efficient of practice = $431 - 447 = + 3.7$ per cent.

Additions in I 5' (no pause) = 2255.

„ II 5' „ = 2142.

Co-efficient of fatigue = $- 7.2$ per cent.

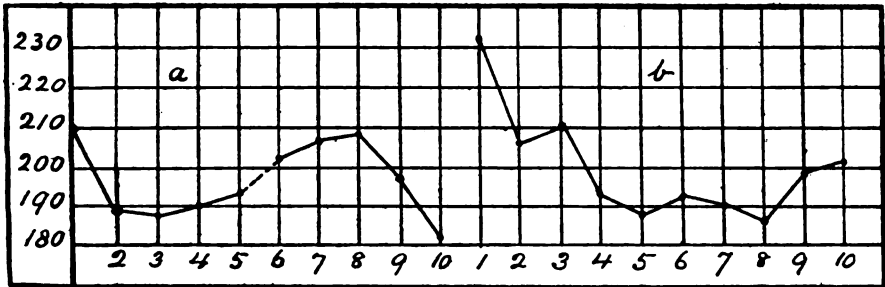
Total additions = 4412.

$2' - 10' = 0.5$ per cent.

SUBJECT 11.—D—, railway employee, æt. 45. As in the previous case, we see that the curve rises after the pause, from the sixth to the eighth minute, and then falls rather abruptly. The work of the first minute has evidently been affected by impulse; the curve rises from the third minute until the pause. The rise before the pause is probably a sign of impulse, but it is also possible that momentum, in the act of being acquired, produced some effect. The comparatively trifling difference between the work done in the fifth and sixth minutes might, then, perhaps be explained on the hypothesis that the influence of the momentum on the rate of work was lost during the pause, and that the restorative effect of the pause had only a

slight preponderance over the effect of the interruption it caused. It is not likely that the effect of fatigue was simply outweighed by that of practice in the fourth and fifth minutes. Such an idea is contradicted by the decrease in the work of the third minute, and more especially by the fact that curve *b* shows a great preponderance of the effect of fatigue over that

FIG. 11.



of practice as early as the third minute. In any case, we may assume that influences have acted on the course of work in the fifth minute which cannot be called results of fatigue, and that the difference between the work-values of the fifth and sixth minutes has therefore come out too small. The work-value of the sixth minute in curve *b* is influenced by an exertion of the will.

Co-efficient of practice = $189 - 303 = + 6.8$ per cent.

Additions in I 5' (no pause) = 1031.

„ II 5' „ = 967.

Co-efficient of fatigue = $- 12.1$ per cent.

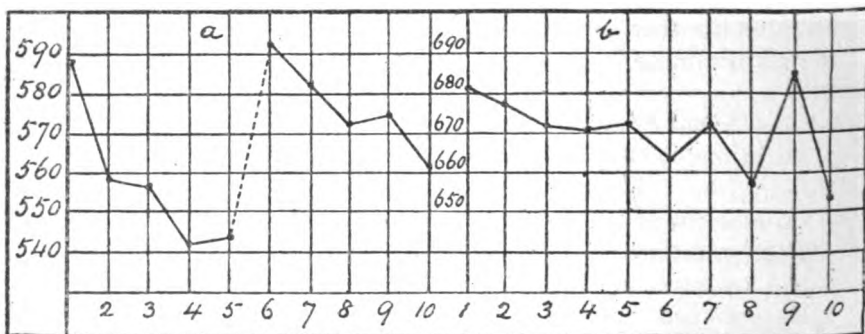
Total additions = 2003.

2' - 10' = $- 2$ per cent.

Besides the twelve-day series of experiments we have five series of eighteen days, carried out in accordance with a different and older arrangement. They differ from the twelve-day series in beginning with six days, during which the work was interrupted by a pause *every day*. To enable us to compare these experiments directly with the twelve-day series we have taken the average values of the separate periods of a minute for the days with a pause, not from all the twelve days on which there was a pause, but from the first, third, fifth, seventh, ninth, and eleventh days, just as was the case with

the twelve-day series. In the case of the experiments without a pause the values are necessarily taken from the eighth, tenth, twelfth, fourteenth, sixteenth, and eighteenth days, and begin from a point at which practice was considerably advanced. This is important because, with increasing practice, the effect of any further practice is, on the whole, diminished and so the effect of fatigue more easily outweighs that of practice. For instance, in Subject 13 the increase in the work of the second five minutes over that of the first five minutes on the days with pauses amounts to fifty-two additions on the first day and only to six on the thirteenth day. On the other hand, we know that work causes the less fatigue the more it has been practised. Yet it is probable that of the two influences (the decreased effect of practice on the one hand and diminished fatigue on the other) the former will have more effect on the course of the work. Hence we may expect that the effect of fatigue will, on the whole, be more evident in the eighteen-day series, where practice was farther advanced, than in the corresponding experiments of twelve-day series. Bearing this in mind, we may safely compare the two series.

FIG. 12.



SUBJECT 12.—S—, M.D., æt. 29.

Curve *b* starts from a considerably higher point than curve *a*. This is the effect of the higher degree of practice with which the subject began the experiments without a pause, owing to their position in the series. In the experiments with a pause the values of the first and fifth minute are affected by impulse. There are no evidences of impulse after the pause. Curve *b* has a very level course from the first to the fifth minute; from

the sixth minute onwards the work has been done with increasing effort of will, so that the work-value of the ninth minute is higher than any preceding value. Considering the high absolute performance of the work, the fluctuations are small, the performance of the tenth minute being only 2.6 per cent. less than that of the second minute. The final impulse in the fifth minute of the experiments with pauses has had no important influence on the difference between the work-values of the fifth and sixth minutes. There are no signs of impulse in the fifth and sixth minutes of curve *b*.

Co-efficient of practice = $559 - 594 = + 6.2$ per cent.

Additions in I 5' (no pause) = 3372.

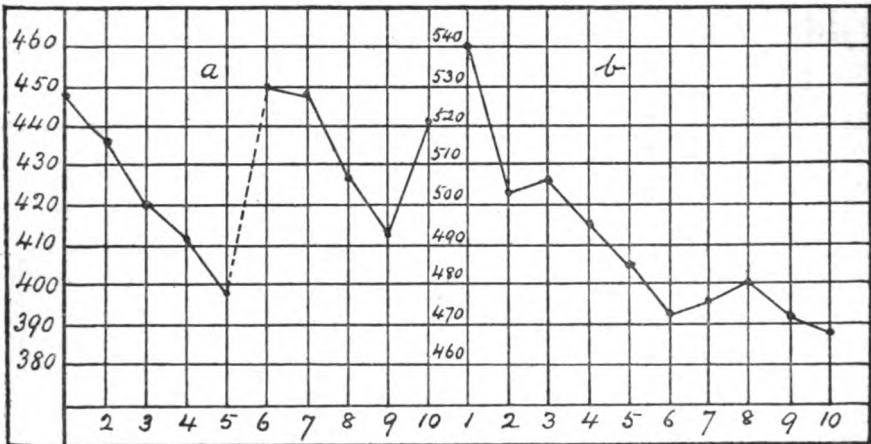
„ II 5' „ = 3334.

Co-efficient of fatigue = $- 6.8$ per cent.

Total additions = 5749.

2' - 10' = $- 2.6$ per cent.

FIG. 13.



SUBJECT 13.—St—, M.D., æt. 27.

Curve *a* falls uniformly and continuously from the first to the fifth minute. But considering the course of curve *b*, which shows evident signs of impulse in the first minute, it is probable that the work was begun with an impulse in curve *a* as well. Possibly the impulse remained effective in the second minute also, so that the work-value of the second minute is comparatively high. After the pause the subject seems to have worked without

much impulse. In curve *b* there are no signs of impulse in the fifth and sixth minutes.

Co-efficient of practice = $435 - 450 = + 3.4$ per cent. (possibly too little).

Additions in I 5' (no pause) = 2529.

„ II 5' „ = 2366.

Co-efficient of fatigue = $- 9.4$ per cent.

Total additions = 4344.

$2' - 10' = - 6.6$ per cent.

FIG. 14.



SUBJECT 14.—W—, female attendant, æt. 26.

Curve *a* falls with great uniformity from the first to the fourth minute. The work of the fifth minute has been done under the influence of impulse, while that of the first minute after the pause is not affected by any effort of the will. Curve *b* shows a very even course, especially considering the absolute amount of work done. On the days without a pause the work-value of the sixth minute seems to have been a little affected by impulse. In curve *a* the proportion between the values of the fifth and sixth minutes is affected by the final impulse in the fifth minute, and the increase in the sixth minute has therefore come out too small.

Co-efficient of practice = $329 - 346 = + 5.1$ per cent.

Additions in I 5' (no pause) = 2174.

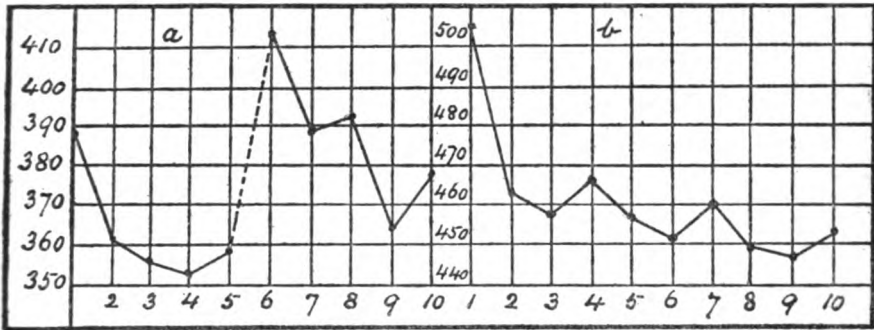
„ II 5' „ = 2130.

Co-efficient of fatigue = $- 6.7$ per cent.

Total additions = 3488.

$2' - 10' = - 3.0$ per cent.

FIG. 15.



SUBJECT 15.—N—, M.D., æt. 28.

There is a final impulse in the fifth minute of the days with a pause, and the first work-value after the pause is also affected by a special effort of the will. In Curve *b* it is once more very clear that the special interference of the will in the course of the work has hardly any effect on the absolute amount of work performed. If a line were drawn through the highest points of the separate fluctuations, and another line through the lowest points, the two would be almost parallel. The work-values of the fifth and sixth minutes on the days without a pause are not affected by an effort of the will.

Co-efficient of practice = $361 - 415 = + 14.9$ per cent.

Additions in I 5' (no pause) = 2367.

„ II 5' „ = 2256.

Co-efficient of fatigue = $- 17.0$ per cent. (too great).

Total additions = 3797.

2' - 10' = $- 2.2$ per cent.

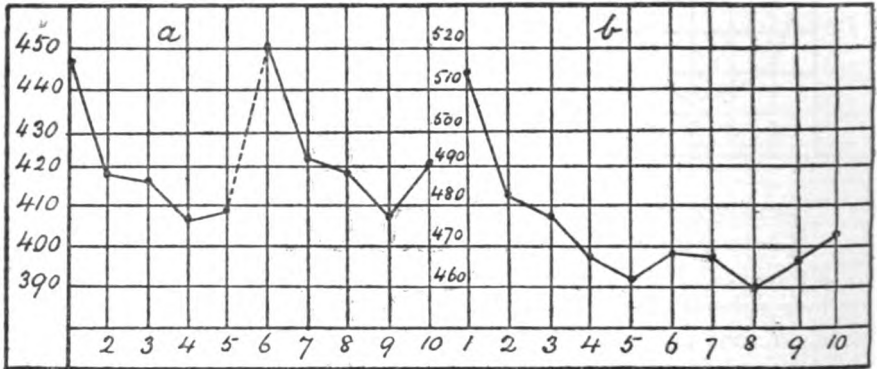
SUBJECT 16.—H—, M.D., æt. 27.

In both series of experiments the subject has begun his work with impulse. He has also worked with an increased effort after the pause. In spite of signs of impulse in the fifth minute, the proportion between the work-values of the fifth and sixth minutes seems to be considerably affected by impulse. The same is true of the work-values of the fifth and sixth minutes in Curve *b*.

Co-efficient of practice = $417 - 450 = + 7.9$ per cent. (too great).

Additions in I' (no pause) = 2391.
 " II' " = 2333.
 Co-efficient of fatigue = - 9.5 per cent.
 Total additions = 4298.
 2' - 10' = - 1.7 per cent.

FIG. 16.

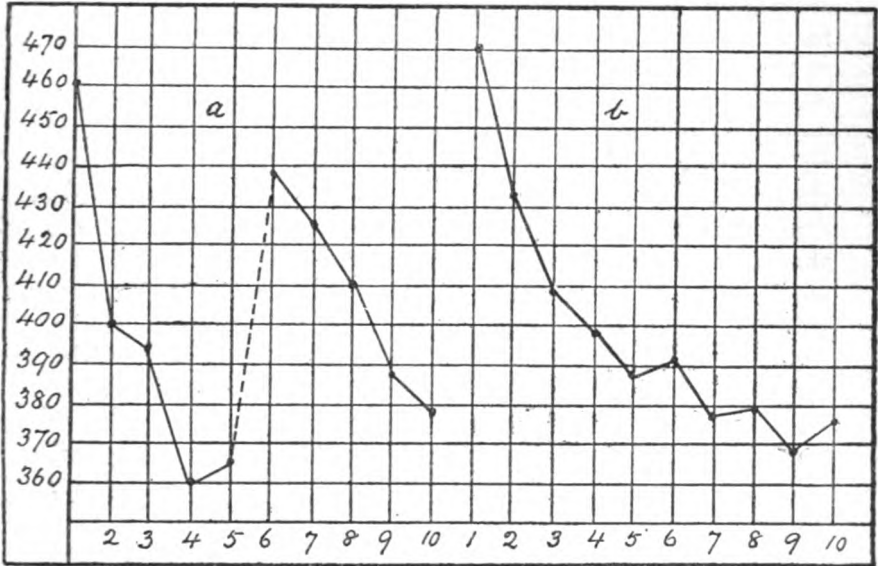


To the work-curves we have given we shall now add one that calls for special discussion, because it is quite impossible to regard the subject as healthy on account of his morbidly exaggerated liability to fatigue. In the cases of two previous subjects we have pointed out certain directions in which their mental phenomena differ from normal mental behaviour. These subjects, however, might be considered healthy for our particular purpose, because, so far as could be seen, they were fully able to meet the demands made by their occupation on their mental capacity for work. Subject 17, on the other hand, felt that his mental capacity for work was impaired by his great liability to fatigue.

SUBJECT 17.—K—, medical student, æt. 25. Said to have been formerly healthy. For the last two terms, during which he has overworked himself, the subject has complained of loss of sleep, and shown moroseness, ill-temper, forgetfulness, and inability to keep his attention continuously fixed. Grew worse during the state examination, and mental activity in particular grew more difficult as the result of his increased liability to fatigue.

In curve *a* we are already struck by the rapid fall from the first to the second minute. The subject has begun his work each day with a great impulse, followed in the second minute by a remarkable reduction in the speed of the work. The loss in the second minute amounts to 12.9 per cent. The speed of work continues to diminish, and it is not until the fifth minute that the subject is able to increase his performance of work a little by an effort of will. The work-value immediately after

FIG. 17.



the pause is lower than that of the first minute, yet the restorative effect of the pause is clearly seen, for the work-value of the sixth minute is 20 per cent. higher than the value before the pause. There are no signs of impulse to be noticed after the pause; the curve continues in the same general direction from the sixth to the tenth minute, falling with remarkable rapidity. Curve *b* is very similar to curve *a* in its general course. It falls rapidly until the fifth minute, and only shows a transitory improvement in the sixth, eighth, and tenth minutes under the influence of fatigue-impulses.

Co-efficient of practice = $401 \sim 433 = + 20$ per cent.

Additions in I 5' (no pause) = 2098.

Additions in II 5' (no pause) = 1887.

Co-efficient of fatigue = 17'6 *per cent.*

Total additions = 4076.

2' - 10' = - 13'0 *per cent.*

We may point, as an important result of our investigations, to the fact that we have been able, on the strength of the work-curves of the individual subjects, to show that the work-values of the fifth and sixth minutes were influenced to a greater or less degree by impulse in a number of cases. Of course it was obvious from the first that there could not be any prospect of accurately measuring the degree of these influences. Yet we have attained to a standpoint on which to decide whether the figures set down in Group *a*, which must serve us to estimate the amount of fatigue, really correspond to the fatigue of the individual subject, or are affected by impulse, and so have come out too great or too small. The course of the curve has also enabled us to decide in many cases whether the work of the fifth and sixth minutes, on the days without a pause, was affected by impulse or not. We knew beforehand that the amounts of the co-efficients of fatigue, which we have found with the help of the co-efficients of practice calculated from the work-values of the second and sixth minutes, could not be considered a reliable measure of the extent of personal liability to fatigue. In those cases more especially where the work of the sixth minute has been affected by a great effort of the will the co-efficient of practice, and with it the co-efficient of fatigue, will probably come out far too high. Yet the results which we have obtained make it seem possible to employ the latter co-efficient as an auxiliary for the practical purpose of comparison, especially if we examine the work-curves in each individual case, to see if the amount of the co-efficient of practice has been influenced by impulse. The amount of the coefficient of fatigue varies in the twelve-day experiments between - 7'2 and - 17'9 *per cent.* or, if we include the eighteen-day series, between - 6'8 and - 17'9 *per cent.* From this it would appear that Subject 2, with the co-efficient of - 17'9 *per cent.*, was the most susceptible to fatigue. The reduction of work in the second five minutes of the days without a pause, amounting to 8'9 *per cent.* of the work done in the first five minutes, is in favour of the great liability to fatigue of Subject 2. On the other hand, it seems probable, as we saw when we were

discussing the work-curves, that the work done by this subject in the first minute after the pause was influenced by impulse, and that the co-efficient of practice, and with it the co-efficient of fatigue, had come out too high. On this assumption Subject 17, with a co-efficient of fatigue of -17.6 per cent., would be the most liable to fatigue. This is the result which we should have expected from the first, in the case of this subject, and it agrees with the rest of his work-values⁽³³⁾. In Column *a*, however, of Table III Subject 1 shows an increase of 25.4 per cent. and Subject 17 an increase of only 20 per cent. But the great increase in the case of Subject 1 is explained by the fact that he worked with impulse after the pause. It is difficult to decide if Subject 2 is much less liable to fatigue than Subject 17. Even when we consider that his co-efficient of fatigue may have come out too great, the high figures in Columns *a* and *h*, and more especially the reduction of work done in the second half of the experiments both with and without a pause, point to great liability to fatigue. The rapid fall of curve *b*, very similar in its course to the curve of Subject 17, and the reduction of work in the tenth minute to 13.9 per cent. below that of the second minute, also show that Subject 2 was very liable to fatigue.

Confining our attention, in the first place, to the twelve-day series, we find the next highest co-efficients of fatigue in Subjects 3 and 6, with the corresponding high figures 12.8 and 12 per cent. in Column *f*. These two subjects also show very high figures in Column *a*, which are not, or at all events are not perceptibly, affected by impulse. Thus we see that the different work-values which we may employ in measuring fatigue correspond exactly in these two subjects.

In the case of the eighteen-day series we may compare a part of the work-values obtained directly with those of the twelve-day series. But in dealing with the experiments without a pause we must remember that they were begun after some practice had already been acquired. We must expect the effect of fatigue to come out more plainly, on account of the diminished effect of practice. A comparison of the figures in Columns *d* and *e* with the values of the twelve-day series shows, however, that, on the whole, the difference is no greater than that between Subjects 1 and 11. The co-efficients of fatigue also fall within the compass of the values obtained in

the twelve-day series. Only Subject 15 has the high fatigue co-efficient of 17.0 *per cent.* ⁽³⁴⁾, and we can prove that, in this case, the work-value of the sixth minute of the days with a pause is strongly influenced by an effort of the will, so that the co-efficients of practice and fatigue have come out too great.

We find the smallest co-efficients of fatigue in Subjects 12 and 10 with the corresponding low figures + 9.1 *per cent.* and + 4.9 *per cent.* in Column *a*. In Subject 10 the difference between the work-values of the fifth and sixth minutes of the days with a pause is influenced by the effect of impulse on the work of the minute before the pause, and has come out too small. Nevertheless, this extraordinarily low figure is a sign of little susceptibility to fatigue. In agreement with these figures is that trifling difference between the differences in the work of the first and second five minutes on the days with and without a pause. This difference, however, is even less in Subject 12. The lowest figure in Column *f* belongs to Subject 16, who would, therefore, seem the least liable to fatigue. His co-efficient of fatigue has come out too high, but is small in spite of that. The same is true of the difference between the work-values of the fifth and sixth minutes on the days with a pause, which is apparently affected by a great effort of the will in the sixth minute, but nevertheless is small.

(To be continued.)

⁽¹⁾ *Archiv für die Gesamte Psychologie*, Band iii, Heft 3, published by Wilhelm Englemann, Leipzig, by whose kind permission this article now appears.—⁽²⁾ Wundt, *Phys. Psych.*, 5th edit., vol. iii, p. 618.—⁽³⁾ Mosso, *Die Ermüdung*, original German edit., 1892, p. 120.—⁽⁴⁾ Richter, *Unterricht und geistige Ermüdung*, Halle, 1895.—⁽⁵⁾ Kraepelin's *Psych. Arb.*, vol. ii.—⁽⁶⁾ Cf. Kraepelin, *Arch. f. d. Ges. Psych.*, vol. i, Part I, p. 14.—⁽⁷⁾ Cf. Wundt, *Phys. Psych.*, 5th edit., vol. iii, p. 618.—⁽⁸⁾ Verworn, *Allgem. Phys.*, 2nd edit., p. 473.—⁽⁹⁾ Kraepelin, *Ueber geistige Arbeit*, 4th edit., p. 18.—⁽¹⁰⁾ *Die Behandlung der Neurasthenie*, 1901.—⁽¹¹⁾ *Energetik und Hygiene des Nervensystems in der Schule*, 1895.—⁽¹²⁾ *La fatigue intellectuelle et son influence sur la sensibilité cutanée*, Genève, 1896.—⁽¹³⁾ *Unterricht und Ermüdung*.—⁽¹⁴⁾ Kraepelin's *Psych. Arb.*, vol. iv.—⁽¹⁵⁾ Cf. also Meumann *Entstehung und Ziele der experimentellen Pädagogie. Die deutsche Schule*, v, Part II, 5, 1901.—⁽¹⁶⁾ Kemsies, *Arbeitshygiene der Schule auf grund von Ermüdungsmessungen*, 1898.—⁽¹⁷⁾ Ebbinghaus, "Über eine neue Methode zur Prüfung geistiger Fähigkeiten," *Zeitschr. für Psych. und Phys. der Sinnesorgane*, vol. xiii.—⁽¹⁸⁾ Wundt, *Phys. Psych.*, 5th edit., vol. iii, p. 615.—⁽¹⁹⁾ Wundt, *Ibid.*—⁽²⁰⁾ Cf. Kraepelin on "Work-Curves," in Wundt, *Phil. Stud.*, vol. xx.—⁽²¹⁾ Kraepelin's *Psych. Arbeiten*, vol. i.—⁽²²⁾ *Ibid.*, vol. i.—⁽²³⁾ *Ibid.*—⁽²⁴⁾ *Ibid.*, vol. ii.—⁽²⁵⁾ *Ibid.*, vol. iv.—⁽²⁶⁾ *Ibid.*, vol. iii.—⁽²⁷⁾ *Ibid.*, vol. iv.—⁽²⁸⁾ Kraepelin, "Die Arbeitskurve," *Ibid.*, p. 28.—⁽²⁹⁾ Cf. Weygandt, *Die Behandlung der Neurasthenie*.—⁽³⁰⁾ Kraepelin, *Arch. f. d. ges. Psychol.*, vol. i, Part I, p. 25.—⁽³¹⁾ As Kraepelin and his pupils have pointed out, mistakes in addition may safely be ignored in these experiments.—⁽³²⁾ Total additions in I 5' = total number of additions made in the first five minutes of all twelve days together. 2' ~ 10' = Difference between the values of the second and tenth minutes.—⁽³³⁾ Cf. also Table III.—⁽³⁴⁾ Subject 17 is excluded from this comparison (Translator's note).

Clinical Notes and Cases.

The Pathology of Four Cases of Epileptic Idiocy. By HARVEY BAIRD, M.D.Edin., Assistant Medical Officer, London County Asylum, Colney Hatch.

THE following cases of gross cerebral lesion occurred in epileptic idiots :

CASE I.—S. J— was admitted to Leavesden Asylum in December, 1897, æt. 17. He was then noted to be a confirmed epileptic idiot. He died in March, 1904, of ulcerative colitis. During his residence there he had frequent severe fits.

Post mortem.—The skull-cap was very thick and soft. There was rusty staining on the inner aspect of the dura mater. The pia-arachnoid was thickened and very opaque, with large excess of fluid in the sub-arachnoid space. There were no erosions on stripping. The cerebrum weighed 48 ounces. The middle portion was occupied by a large cyst containing 8 ounces of clear fluid, which entirely replaced the corpus callosum, fifth ventricle, and adjacent structures. Anteriorly it extended to the tips of the frontal lobes. Posteriorly the two lateral walls met in the great longitudinal fissure, about $1\frac{1}{2}$ inches from the extremity of the occipital lobes; above it was adherent to the dura mater. The base rested upon the antero-inferior part of the right frontal lobe, which curved over to the left. Behind that it lay upon the structures forming the floor of the third ventricle. There was an unusual width between the optic thalami occupied by parts of the crura. Laterally, on the right, the frontal lobe was bulged out in a semilunar fashion by the cyst, the central part being $1\frac{1}{4}$ inches from the middle line. The tip of the right frontal lobe extended to the left of the middle line. The left lateral wall was straight. The cyst was continuous with each lateral ventricle. On looking at the base, the under surface of the right frontal lobe projected to the left, the left olfactory bulb lying on the right frontal lobe. The left olfactory tract was thicker and shorter than the right. The optic nerves and structures behind, including the cerebellum, were of the usual arrangement. The left frontal lobe was of whitish-yellow tissue like white matter, but firmer. No fissures were present in this, except one ascending $\frac{3}{4}$ inch in front of the fissure of Rolando, and another $1\frac{1}{4}$ inches anterior and parallel to it.

Microscopically, the nerve cells of the right frontal lobe were of imperfect development. Their processes were few and small. The Nissl bodies were very indistinct, the nuclei deeply stained. There was no pigmentary change. Many of the cells were of the small, round type described by Lewis.⁽¹⁾ On the left side, in the sclerosed area, very few nerve cells remained. A few degenerated large pyramidal cells were seen, only one or two showing processes. The section almost entirely consisted of a dense meshwork of neuroglia fibres and nuclei.

sometimes the body of the cell being also seen. Vessels were fairly numerous.

In this case it is evident that the nerve-cells of the frontal brain as a whole were of an imperfectly-developed type. In the left frontal lobe the absence of almost all the sulci indicates an abnormality from the first, but probably more nerve-cells were at one time present, as some of those remaining showed degeneration as well as defective formation. There appears to have been a slowly progressing gliosis, and some of the larger pyramidal cells were the last to resist the overgrowth of neuroglia.

The cyst was evidently one of the third ventricle, a not uncommon site. The connection between the two lesions is not obvious. Probably the presence of the sclerosed area accounted for the peculiar displacement on the right side, the softer tissue there yielding to the pressure of the fluid, while the left resisted it.

CASE 2.—H. V— was admitted from Darenth Asylum in 1898, æt. 21. It had been recorded that he had dentition fits at 11 months, "rheumatism" at 6 months—after which he "seemed vacant." On admission there was paralytic flexion of left arm and hand, and slight talipes of left foot. He had frequent severe fits, and died in May, 1904, of status epilepticus.

Post mortem.—The skull was thick, the left half the larger. There was a subdural false membrane. The subarachnoid space contained excess of fluid. The pia-arachnoid was opaque and thickened. The left hemisphere weighed $23\frac{1}{4}$ ounces, the right $13\frac{1}{4}$. The right half was much narrower, and slightly shorter, than the left, but the same height in the middle line. The transverse diameter of the base of the right frontal and temporal lobes was only half that of the left. On its outer aspect the right hemisphere appeared normal from posterior extremity to supra-marginal gyrus, also most of the superior frontal gyrus, the middle and inferior temporal. The remaining convolutions on the outer aspect were of a whitish-grey gelatinous appearance, and very soft. Most of the softened gyri were only half the thickness of the normal ones on the opposite side. The most marked gelatinous transformation occurred at the posterior end of the inferior frontal gyrus and the lower end of the ascending frontal. There the outline of the gyri was lost. The right lateral ventricle was much dilated laterally and anteriorly, there only being $\frac{1}{2}$ to $\frac{3}{4}$ inch of the gelatinous tissue between its cavity and the outer surface of the brain. The dilatation thus corresponded to the softened part of the brain. The posterior cornu stopped abruptly at the level of $2\frac{1}{2}$ inches from the tip of the occipital lobe, while on the left it tapered back in the normal manner. The left brain was normal to the naked eye.

Microscopically, the nerve cells were fairly well developed on the left side, showing a mild grade of the imbecile type of cell. There were changes in the cells and vessels due to the mode of death. On the right side, in a section from an area only partially degenerated, nerve cells were observed in all parts of the section, but were most numerous at the level of the larger pyramidal cells. They were ill-formed, had very poorly developed processes, if any; the nucleus stained deeply, the cell body faintly in many cases. There was well-marked proliferation of neuroglia, especially towards the surface. In a section from a markedly degenerate area no nerve cells are seen. There was a narrow strip of fairly dense tissue on the surface, beneath which was a very loose tissue. The strip of relatively dense tissue could be subdivided into three layers; first, a narrow layer with comparatively few glia cells, but densely fibrous; then a layer with numerous glia cells and fewer fibres; then a layer with both cells and fibres very numerous. There was next an abrupt transition into a very loose tissue of myxomatous type with few glia cells, and many spaces. Vessels were numerous. The pia was thickened and very vascular.

The condition is one of a gliomatous infiltration of a portion of the brain, the tissue subsequently undergoing a myxomatous degeneration. It will be noticed that again the deeper pyramidal cells are the latest of the nerve-cells to disappear in the advancing gliosis.

CASE 3. M. A.—died in June, 1904, æt. 26, of status epilepticus. Pulmonary tuberculosis was also marked. There was marked contraction and wasting of left upper and lower limbs, with left talipes equinus. On the right side the upper limb was not more wasted than would be expected from the phthisis, but the lower limb, though but little contracted, was more wasted than the left. There was right talipes equinovarus.

Post mortem.—The skull was small. The dura mater was thick, especially over the right frontal area, where osseous plates had formed, and were adherent to the pia-arachnoid. The latter was much thickened, opaque, and adherent over the degenerated area about to be described. Elsewhere it was somewhat thick and opaque; non-adherent.

On removing the brain much fluid escaped from the right hemisphere, causing a marked depression and shrinking inwards on its outer aspect. The left hemisphere weighed 18½ ounces, and appeared normal in structure to the naked eye. The right hemisphere weighed 5¼ ounces; the hollow left on the right side after the fluid escaped corresponded to the middle three fifths of the fissure of Rolando, and the convolutions in front of and behind it. The lining wall of the ventricle and the pia-arachnoid were in contact in the central part of this area, no brain tissue being present. The occipital lobe, a small part of the inferior parietal lobule, part of the middle temporal gyrus, the under surface of the temporal lobe, and most of the gyri bounding the great longitudinal fissure, were not degenerated to the naked eye. Elsewhere the brain tissue showed various changes from a slight gelatinous

softening of the superficial layers with thickened pia to a disappearance of nerve tissue altogether. The cavity of the lateral ventricle was much distended. A portion of optic thalamus and caudate nucleus remained, but no sign of lenticular nucleus or claustrum was visible. A small portion of white matter external to optic thalamus presumably was the representative of the internal capsule.

Where the degeneration was profound the tissue was soft and loose, and consisted of glia cells and nuclei embedded in a loose meshwork, no nerve cells being seen. When the degeneration was less advanced, the gliosis was mainly in the first two layers, with numerous of the larger pyramidal cells remaining in the deeper portion.

The condition is a very similar one to Case 2. The ventricular dilatation was more marked, however, in Case 3. The nerve-cells in the partially degenerate portions were rather better developed than in Case 2, having better processes. The diffuse nuclear staining was not so well seen. The gliosis of the first two layers was not so dense in Case 3. A typical descending degeneration of pyramidal tracts was observed. The sclerosed direct tract in the inner and deeper portion of the anterior column appeared to end about the level of the second dorsal pair of nerves, while the crossed tract showed the usual triangular shape, diminishing in size, and approaching the surface of the cord as it descended. The left anterior column, as far as the twelfth dorsal segment,—below which the cord was not examined—was twice the width of the right. The disappearance of the direct pyramidal tract made no difference in this discrepancy, which was, therefore, due to an unequal arrangement of the fibres of the anterior root zones.

CASE 4. W. S.— was admitted in July, 1896, æt. 21. He had fairly frequent and severe fits. The idiocy was not so profound as in the other cases. He died of pulmonary tuberculosis in April, 1904.

The skull was nearly symmetrical, dense, and thick. The dura mater appeared normal to the naked eye. The pia-arachnoid on the right was opaque and thick, no erosions being caused on stripping. On the left side it was opaque and thickened, markedly so over most of the parietal, all the temporal, and under surface of the frontal lobes. In these situations there were marked erosions on stripping. The cerebrum and cerebellum weighed $40\frac{1}{2}$ ounces. The right hemisphere weighed $19\frac{1}{2}$ ounces, the left 14 ounces. The left was smaller in all diameters, as if it had shrunk in equally from being the size of the right. The right convolutions were of the usual arrangement. Most of the left parietal and the posterior part of the left frontal showed numerous fine, secondary, shallow sulci in addition to the ordinary sulci. Over the anterior part of the frontal lobe the grey matter appeared normal. In

the temporal region, where the meningitis was most marked, there were not nearly so many small sulci visible, the meningitis appearing to seal them up, but there were many more than on the sound side.

Microscopically the arrangement was best seen in the posterior part of the left frontal. The grey matter dipped down at each small sulcus in a regular manner. The first layer with its few cells stood out distinctly from the numerous small pyramidal cells beneath. The latter dipped in frequently much further than the base of the sulcus, looking as if the sulcus had once been deeper, but the lower part of it fused together.

In the posterior frontal the small sulci appeared equidistant from one another (about fourteen to the inch), but in the temporal region the cells of the second layer would be seen to dip in at irregular intervals, and to various depths.

The dipping-in frequently occurred where no small sulcus was visible, the appearance then being as if there were a pyramidal inward extension of the first non-cellular layer. Although no sulcus might be visible this frequently occurred to a great depth, sometimes with secondary extensions of a similar nature. It was also noticed that there appeared a layer with very few cells in the midst of the layer of large pyramidal cells. This extended straight along the section without any projections or depressions corresponding to those of the upper layers. It was about the same thickness as the first non-cellular layer. Ford Robertson has met with a similar condition to this in a case of genetous idiocy, which Ireland has drawn attention to⁽²⁾. In the temporal region, where, as already stated, the dipping-in of the first two layers was very irregular, this layer with few cells was not nearly so evident, but indications of it could be seen at places. The nerve cells revealed no evidence of degeneration in this case, and were fairly well formed. The cells of the second layer were increased in number, except at the summits of the gyri. There was an increase of neuroglia in the layer beneath the pia where the meningitis was marked, but not in the frontal region where the meningitis was slight.

In this case it would appear that the initial lesion was the meningitis, which arrested the growth of the left hemisphere. The cells of the grey matter then arranged themselves in the above manner to compensate for the small size of the hemisphere.

These cases illustrate—

(1) The variety of lesions in epileptic idiocy, thereby showing the difficulty of making a pathological classification of idiocy. At the International Congress of Medicine held in Paris in 1900 Shuttleworth and Beach, and also Bourneville⁽³⁾, gave classifications on an anatomico-pathological basis, but it is unusual to get any one case conforming to only one of their

types. Hence at present it seems that Ireland's classification, which is mainly clinical and etiological, is the most convenient.

(2) The gross nature of the lesions in epileptic as opposed to non-epileptic idiocy. Andriezen (⁴) maintains that the essential lesions of the former are two-fold—(a) a diffuse sclerosis or overgrowth of neuroglia fibre-cells in the brain substance, and (b) a co-extensive change in the nerve-cells—negative and positive. The negative lesion is the imbecile type of cell with few processes, the positive an increase of pigment and displacement of nucleus, *i. e.* degeneration. The above cases do not show an increase of pigment in the nerve-cells.

(3) The frequency of changes in the membranes. Lewis (⁵), in seventy-three cases of "arachnoid cyst," had only one case of idiocy and four of epilepsy.

In the above it will be noted that two cases revealed false membrane formation, and one osteoid plate formation, in the dura.

More important, however, is the fact that in all the cases the pia-arachnoid was thick and opaque, and in two there were marked adhesions. It appears to me that meningitis is in many cases the primary lesion in epileptic idiocy. In the above series in Case 4 it is obvious it was so, but in Cases 2 and 3 it will be observed that the gliosis appeared to invade the tissues from without inwards, beginning and being most marked beneath the pia, as in general paralysis.

The subsequent myxomatous degeneration might be explained by vascular lesions, as the areas involved corresponded largely to the distribution of the middle cerebral artery. It can be easily understood why meningitis should be so frequently a primary lesion. In toxic states of other organs, in febrile diseases, etc., if the nervous system is to be affected at all, meningitis will be the lesion most likely to occur. The meningitis may, however, arise in neonatal or ante-natal life. Ballantyne (⁶) records Audion's case of meningitis due to infection by the umbilical vein, and also (⁷) the unique case of Gradwohl. In the latter the mother died showing the lesions of epidemic cerebro-spinal meningitis, and the membranes of the foetus were an exact counterpart of the maternal.

(4) A different reaction to irritants of the cells of different layers of the cerebrum. The larger pyramidal cells appear to



FIG. 4A.

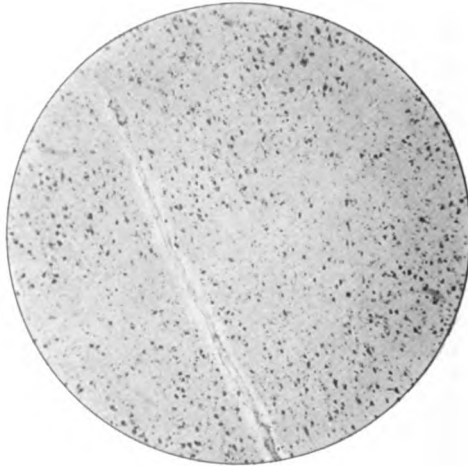


FIG. 4B.

To illustrate Dr. BAIRD'S paper.

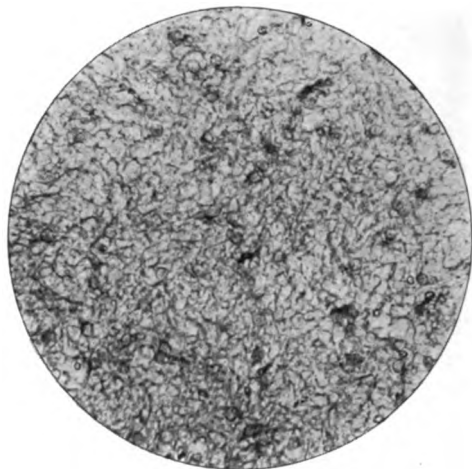


FIG. 1.

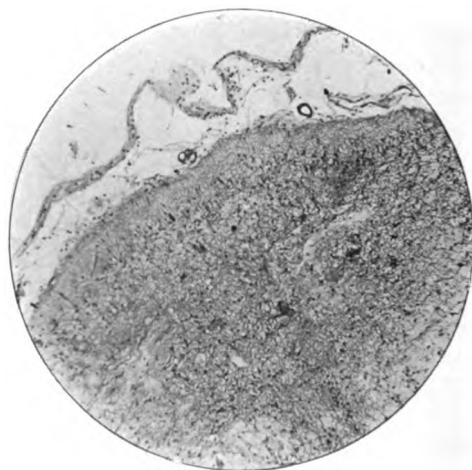
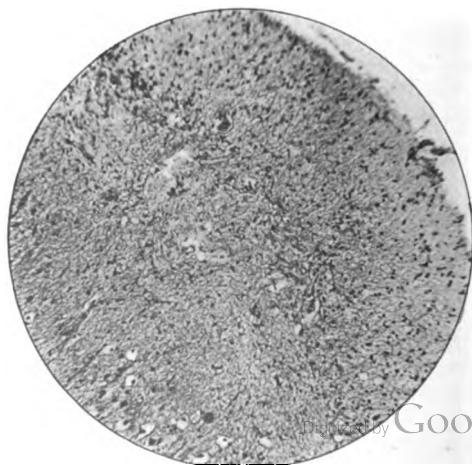


FIG. 2.



be the last to degenerate or disappear in the above cases. This confirms the observation of Lewis⁽⁶⁾, who mentions that, while the cells of the upper layers show changes in outline, the pyramidal cells usually retain theirs, in epileptic idiocy.

(5) The power the grey matter has of adjusting itself to altered conditions. Case 4 reveals this. There the idiocy probably resulted more from defect in the conducting paths between different portions of grey matter than from defect in the grey matter itself.

As regards the etiology of the above cases, I regret being unable to give satisfactory histories. All the cases except Case 1 I believe to be due primarily to meningitis in early, but post-natal, life. The convolutions were too complex for the lesions to have been ante-natal, but in Case 1 the absence of structures in the region of the corpus callosum, and the absence of sulci in the left frontal lobe, suggests an ante-natal lesion. Besides the neuroses, alcohol, tubercle, syphilis, and occasionally other poisons such as lead in the parents appear the main causes of idiocy. The lesion the poison causes depends largely on the period of ante-natal life at which it acts. If acting on an organ in its embryonic state, as Ballantyne⁽⁹⁾ points out, the result will be a malformation, or congenital defect. If the action of the poison be delayed till the organs attain their normal form, then no gross lesion may result, but the fœtus will be born with diminished powers of resistance, and its development interfered with. In such a case the nerve-cells, for instance, may be unable to proceed beyond the infantile type. In imbecility and idiocy one must also bear in mind the frequency of imperfect development of non-nervous organs.

(1) Bevan Lewis, *Text-book of Mental Diseases*, p. 531.—(2) Ireland, *Mental Affections of Children*, p. 82.—(3) "Thirteenth International Congress of Medicine," Section of Psychiatry, *British Medical Journal*, Sept. 22nd, 1900.—(4) Andriezen, *British Medical Journal*, May 1st, 1897.—(5) Bevan Lewis, *Text-book of Mental Diseases*, p. 494.—(6) Ballantyne, *Antenatal Pathology and Hygiene*, p. 61.—(7) *Ibid.*, p. 218.—(8) Bevan Lewis, *Text-book of Mental Diseases*, p. 531.—(9) Ballantyne, *Antenatal Pathology and Hygiene*, p. 185.

MICROPHOTOGRAPHS.

1. Section from sclerosed area of left frontal lobe of Case 1, 90 diameters, stained with aniline blue-black. A dense gliosis is seen, with nuclei of neuroglia cells, and a very few atrophied large pyramidal cells.

2. Section from very degenerate area of right parietal lobe of Case 2, 30 diameters, stained with hæmatoxylin. No nerve cells are seen. Note the dense gliosis, arranged in three layers. The lower part reveals myxomatous degeneration.

3. Section from partially degenerate area of right paracentral lobule of Case 3, 30 diameters, stained with hæmatoxylin. The gliosis is only marked beneath the pia, and in the layer of small pyramids. Numerous nerve cells of the large pyramidal type are seen.

4 a. Section from left frontal lobe of Case 4, 15 diameters, stained with hæmatoxylin. Note the microgyria, and the folding of the upper cerebral layers.

4 b. Similar section at level of large pyramidal layer, 120 diameters, stained with Nissl's blue. Note the layer with very few cells in the middle of the large pyramid layer.

Occasional Notes.

The Increase of the Lunacy Commission.

The new Lord Chancellor does not seem to be able to increase the Lunacy Commission, although apparently the need for an increase in its strength is becoming daily more apparent, and is acknowledged on all sides.

The prominent excuse at present for all non-progress is the parsimony of the exchequer, a most convenient but unconvincing allegation, when it is proposed at the same time to institute a Royal Commission which would cost a great deal more for many years than the addition of four or five extra medical members to the existing Commission.

We may, therefore, assume that the question of expenditure is a mere excuse, and, from long observation of things governmental, we are convinced that, if the additional appointments concerned a number of fat legal posts, the question of money would not occur, and the urgency of the need would brook of no delay.

The power of the legal profession in the House of Commons, and the consequent ease with which its interests are advanced, should be a strong stimulus to the medical profession to make serious efforts to obtain representation more commensurate with its own interests and the interests of the community in which it is concerned.

In the meantime, however, the scandal of an utterly inadequate Lunacy Commission remains unamended, and with little apparent hope of amendment.

The Disabilities of Medico-Psychologists.

The disability of Medico-Psychologists connected with private asylums, from being appointed as Lunacy Commissioners within a year of such connection, is in a fair way to be abolished. This is due to the initiative of Dr. Mercier, resulting in a deputation to the Lord Chancellor, consisting of Dr. Mercier and other members of this Association, whose representations were very favourably received.

This result is gratifying, not only as a probable amendment of an unjust legislative enactment, but as testifying to the influence of the Association and the practical results that may be obtained when its power is exerted with a definite objective.

Other important disabilities still remain to be amended. The most important, both for the welfare of the public, of the public mental hospital service, and of the medical officers of these institutions, is the hindrance to the latter from engaging in the personal treatment of the diseases in which they have acquired so much experience when they resign their hospital appointments.

A medical man who has devoted himself for years to the study of the treatment of the insane in hospitals, when he retires from such a post, cannot reap the benefit of his experience (or enable the public to profit by it) by taking a few cases under his personal treatment, but is limited, by Act of Parliament, except under special conditions, to the treatment of a single case only, a privilege which, as we have often pointed out, is shared by every layman or woman, whether with or without experience, and with or without character. The criminal, the drunkard, the bankrupt, and even the mental hospital nurse discharged for incompetence, misconduct, or ill-treatment of patients, are actually on a level, in this respect, with the physician of twenty years' experience of the highest reputation and character. This anomaly is, of course, consistent with the absurd legislative position which licenses "houses" to treat mental diseases, or rather, we may presume, to immure the sufferers, the idea of treatment being foreign to the legislative views of the last century.

The treatment of incipient insanity without absolute certification is now so definitely accepted and so certain to become law whenever any new lunacy enactment becomes possible

that the above-mentioned disability calls for more serious attention. In order to make the treatment of incipient insanity more satisfactory it will be desirable that it should only be undertaken by those who possess very special qualification for the work.

The needy spinsters, the broken-down nurses, the struggling nursing home, etc., should not be able to compete on equal terms with the thoroughly experienced physician or the thoroughly trained nurse. A wise addition to the incipient insanity clauses would be to extend the power of the Lunacy Commissioners to permit medical men possessing special skill and experience to receive two, three, or four such cases. This would be some relief to the present disability of ex-asylum medical officers.

Such an opportunity of professional work would react favourably on the medical staffs of institutions for the insane by giving an outlet for those who, after years of service, have failed to obtain a senior post, or who, from weak health, wish to escape from the arduous work. The incipient cases coming thus under the care of responsible persons would, if not recovered at the end of the six months' treatment, be relegated to institutional care. If, however, the present irresponsible people continued to take charge of these cases, it is to be feared that the cases may be shifted from one home to another almost indefinitely, each home being able to plead that it knew nothing of the preceding.

Should the Association take up this disability in the same vigorous and direct manner that it has brought to bear in the example mentioned in the beginning of this note, some amelioration of this special disability might be expected, to the great advantage, not only of medical men, but of the asylum medical service and the public.

The Journal of Abnormal Psychology.

This new addition to the periodical literature on abnormal psychology, made its first appearance on April 1st last, and is to be published bi-monthly. The Editor-in-Chief is Dr. Morton Prince, Professor of Nervous Diseases, assisted by Dr. Hugo Münsterberg, of Harvard, Dr. C. L. Dana, of Cornell, Dr. I. I. Putnam, of Boston, and Dr. Adolf Meyer.

The purview of the journal includes laboratory researches and clinical observations on abnormal mental phenomena, as seen in hysteria, neurasthenia, hallucinations, delusions, alterations of personality, etc., etc.

The numbers hitherto published contain matter of a very interesting character and of considerable originality; if the standard thus set is maintained this journal will prove a very valuable addition to the literature of abnormal psychology.

Ballinasloe Asylum.

Some time ago an occurrence in regard to the manner of dealing with an attendant charged with breach of discipline in this asylum was commented on unfavourably in this journal. It is with pleasure, therefore, that we note in the *Connaught Champion* of March 17th the report of a case in which the committee of this asylum exercised their disciplinary powers in the most exemplary and satisfactory manner, showing at the same time the keenest desire, not only to protect the patients, but to support the medical superintendent and officers in the maintenance of the discipline that is so necessary to the successful treatment of the insane. The comments of the *Connaught Champion*, in a special article on the case, are also extremely satisfactory, as indicating that there is a healthy local public feeling determined to support its official representatives in insuring that kindly and sympathetic treatment of the sick and suffering which is so eminent a characteristic of our Irish brethren.

The Asylum Workers' Association.

The Asylum Workers' Association, which has now entered on its second decade, held its annual meeting on June 1st, at 11, Chandos Street. Sir J. Crichton-Browne took the chair in the unavoidable absence of the President, Sir J. Batty Tuke, who was unanimously re-elected for the coming year.

The Report of the Executive Committee, and the address of the Chairman testify to the continued activity and useful work of the Association.

The registration of asylum nurses is the most valuable and important interest at the present time, and the Association has taken an active part during the past year in supporting this.

Registration of asylum nurses is definitely assured if a Registration Act is obtained, but as the Report points out, it is now necessary to exert all possible influence to insure adequate representation on any future Registration Board.

The number of asylum workers has been estimated at 20,000, and the number of mental nurses, male and female, who will be eligible for registration will probably be almost as numerous as the general nurses. It is desirable, therefore, that not only should the Medico-Psychological Association be represented on the Registration Board in virtue of its position as the teaching and examining body, but also the Asylum Workers' Association, as representing so many fully-trained nurses, as well as the large body in process of training.

The efforts made by the Asylum Workers' Association in regard to the pension question, the Homes of Rest, the good service medals, etc., and last, but by no means least, the valuable information and instruction afforded by its organ, *The Asylum News*, should command the adhesion of every asylum worker. We heartily join in the regret expressed by Sir James Crichton-Browne that only 3227 of a total of 20,000 asylum workers should contribute to the support of an Association which confers so many benefits and offers so many advantages at so small a cost to the members.

The indifference of so large a majority of the workers to the advantages that would accrue from a more general combination cannot be easily explained. Probably the influence of the members of the Medico-Psychological Association, if actively exercised, would largely help to remove this unfortunate want of *esprit de corps*.

The State Registration of Nurses.

An important deputation, organised by the Central Hospital Council for London, was received by Lord Crewe, the Lord President of the Council, on June 14th. The deputation included Sir Frederick Treves, Sir Thomas Barlow, Dr. J. Kingston Fowler, Dr. W. H. Allchin, and several matrons of London and provincial hospitals.

The object of the deputation was to protest against the State registration of nurses, and to suggest as an alternative an official directory, in which should be recorded the name, places, duty, periods of training, and appointments. The difficulty of removing a nurse from the register was one of the leading objections used by the deputation. Misconduct almost amounting to criminal misdemeanour, it was asserted, would alone suffice to effect such removal. Nurses, however disqualified for nursing by general inefficiency and misconduct, would remain on the register for the duration of their lives.

Lord Crewe, in response, definitely informed the deputation that there was no prospect of legislation on this matter in the present session, and the influential character of the opposition makes it very doubtful whether any legislation will be successful, for some years at least.

The Medico-Psychological Association has supported and will continue to support the right of mental nurses to registration if State registration is conceded to general nurses. If, however, this is not to be obtained, or is to be greatly delayed, it might be well to consider in the meantime the merits of the alternative scheme.

A directory issued by this Association of the nurses who had obtained its certificate, if compiled annually from applications, endorsed by a medical man, would be a fairly satisfactory evidence of continued capability and character. The expense of such a directory would, however, be prohibitive unless a small sum was paid by those wishing to have their names inscribed, and this would probably limit it to those engaged in private nursing.

Private nurses at the present time are quite sufficiently prone to assume the attitude of medical practitioners and to undertake the treatment of cases on their own responsibility. It is a question whether this tendency would not be increased by registration, whilst it would certainly be held in check by the necessity for the support of a medical man in renewing their annual application to a directory.

Nursing Examination.

The Educational Committee is not resting on its oars after the successful recognition which has been obtained of the eligi-

bility of asylum nurses for registration, but is actively engaged in still further improving the training and elevating the examination standard.

The revision and amplification of the *Nursing Handbook*, and the various means under consideration for making the examination more thorough and practical will greatly enhance the value of the nursing certificate of the Association, and the corresponding status of the nurses. The latter will be still further increased should the examination be divided into two parts, with an interval of a year between the first and second part, as has been proposed.

With these added improvements the training and examinations of the asylum nurses will compare not unfavourably with those of general nurses.

Part II.—Reviews.

Criminal Responsibility. By CHARLES MERCIER, F.R.C.P., etc. 8vo. Pp. 232. Oxford: Clarendon Press.

“What saist thou, Bully Bottom?”

“There are things in this comedy . . . that will never please.”

For example, on the second page of the first chapter (“Responsibility”) we have the following:—“The law, the accumulated wisdom, the concentrated common sense of many generations, sets up one standard of responsibility, and who am I that I should set up another?” This gives us furiously to think, and many answers, sacred and profane, flit through our mind. We think of Bumble and his definition of law, dear to those departing generations who had not learned that Dickens was vulgar. We think (and perhaps this is more to the purpose) of stout John Knox’s reply to Mary Stuart’s query, “Who are you to speak thus to the sovereign of this realm?” “Madam, a subject born within the same.” It was a sturdy answer in the days when sovereignty had prestige as well as power, but to-day, when prestige exists no more, and power is to be found only in trades councils, surely speech may be free, and the man who knows may venture to give utterance to his knowledge, even against accumulated wisdom and concentrated common sense, for accumulated wisdom means authority, and common sense is the last stronghold of ignorance, and neither authority nor ignorance have any validity in science. It is true that Dr. Mercier goes on to admit that the English law is eminently modifiable (of course; else, why lawyers?), and that it is being continually altered in accordance with the altering moods of the populace. Exactly; immortal John has told us the same thing with reference to the Englishman’s religion:

“The common cry is ev'n religion's test.
 The Turk's is at Constantinople best;
 Idols in India; Popery in Rome;
 While our own faith is only true at home,
 And true but for the time, for who shall know
 How long we please it may continue so?”

We are never quite sure, when Dr. Mercier is most respectful to the law and its exponents, whether we are not being made partakers of a little of the stupendous irony of Swift, or whether it may not be that the heathen is being overcome by the wily tactics said to have been recommended by Saint Augustine. However, we are well satisfied when, after making a profound bow to the law as it is, our author gives the go-by to the legal definition of “responsible,” and quietly substitutes a moral one instead. A person who is responsible is a person who is “rightly liable to punishment.” Punishment is briefly considered under its aspects as retributive, deterrent, and reformative, and our author, with Sir Edward Fry, holds that the earliest and the most important function of punishment is retribution. We punish because we desire to punish. The wild justice of revenge is tamed by social institution and becomes retribution. Amelioration is an afterthought (where not merely a hypocritical pretence) the afterthought of a highly-organised society in which philanthropy has become one of the businesses of life.

The second chapter deals with “Voluntary Action.” The author adopts this definition, “A voluntary action is movement, or arrest or suppression of movement, consciously directed to an aim or end.” Thus, when the Chinaman arrests or suppresses his movements towards home, Dr. Mercier would deem that it were not a terminological inexactitude to call this a voluntary action on John's part. With regard to the confusion which Sir Fitzjames Stephen points out as occurring between the ideas of “intention” and “motive,” Dr. Mercier shows that the fitting use of either term depends really on the stage of the action that is reached at a given time.

In Chapter III, on “Wrong-doing,” this definition is arrived at—“He does wrong who seeks gratification by an unprovoked act of intentional harm.” It follows, from the many things herein implied, that the determination of responsibility “is not purely a legal problem. It is in large degree a psychological problem also.”

Chapter IV, “Insanity,” contains amidst much that is valuable a good deal that is humiliating, as showing how imperfect our knowledge is, and how defective our delimitations. But the author surely goes too far in his dislike for the terms “mania” and “melancholia” when, having said that he knows no definition of either, he goes on to say that “if the descriptions attached to these titles are examined, it will be found that whereas the former means a manifestation of disordered conduct, the latter implies a disorder of mind.” The definitions which we have come across for the last thirty years, though probably all very imperfect, have almost invariably contrasted the expansive hilarity, the accelerated flow of ideas, and the motor restlessness of mania with the sadness, the narrow monotonous dwelling upon one set of ideas, and the motor sluggishness passing into stupor of melan-

cholia. That the last-named symptom belongs to conduct Dr. Mercier's own definition of voluntary action shows, and in a following chapter he remarks, anent another matter, "delusions of depression always influence conduct, usually to a serious extent," a fact that has surely been always recognised.

Chapters V and VI deal with "Mind." Here among many other things obsessions are discussed, and are probably given their due importance for the first time in any English book.

In Chapter VII the "Conditions of Responsibility" are discussed at length. The actor, we are told, must, in order to be responsible, will the act, intend its immediate consequences, and desire primarily to obtain his own gratification. The harm must be done without adequate provocation, and the actor must know and appreciate the circumstances in which the act is done.

The penultimate chapter, in which the famous answers of the Judges to the questions set them by the House of Lords in 1843 are set forth and discussed, is perhaps the most vigorous and interesting in this very vigorous and interesting book. The confusion of mind that exists about these questions and answers is somewhat ludicrous. The writer of this notice has heard a learned and able Judge, having enunciated his view of responsibility, triumphantly state that this was the law of England, and would be as long as the House of Lords existed! as if the House of Lords had presumed to claim the power of making law or even of saying what the law was, instead of merely asking questions. It would appear at best that the Judges had no right to reply to those questions, as they are not, in their official capacity, exponents of abstract law, while their *obiter dicta* are no more entitled to obedience than any other man's. The Judges' authoritative power of stating the law is just as much restricted as the Lords' power of making laws. So it seems probable that the respect accorded to these famous utterances is rather of the nature of fetichism. Dr. Mercier points out with admirable precision the extremely narrow scope, implicitly of all the questions, and explicitly of the first and fourth, and he draws attention to the fact that the Judges, in replying, yet further narrowed the scope of their answers. Answers I and IV specifically refer to "*persons who labour under such partial delusions only, and are not in other respects insane.*" Of course the psychiatrist from that day to this has maintained that the condition of affairs thus described does not exist and never could exist, and that therefore these answers are futile.

The nearest approach that is to be found to a partial delusion existing in a person not otherwise insane is probably exhibited by those egregious persons who, having spent their lives over quite other affairs (driving some small commerce, or preserving game, or hunting up mouldy precedents), yet imagine that they understand insanity better than those who occupy themselves with that subject. An engine-driver or a tobacconist, or a fiddle-maker is supposed to know more about his own business than do the followers of some other trade; not so the alienist. It never seems to be assumed that he knows more than the man in the street. The curious assumption that there is nothing to be known in psychiatry, except what everybody knows, is most likely closely associated with that strange incapacity to grasp the significance of the pheno-

mena of mental disease, even when these are presented to them, which is exhibited by most people. Even in our own profession this incapacity is prevalent enough, as everyone must know who has much experience of lunacy certificates.

To return to Dr. Mercier and the "Questions." II and III relate to the questions to be submitted to the jury "when a person afflicted with insane delusions respecting one or more particular subjects, or persons is charged with the commission of a crime," etc. To this the famous answer was made requiring proof that the prisoner "was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing." Taken in conjunction with questions II and III, and particularly having regard to questions I and IV, this may mean nothing, being founded on the hypothesis of a non-existent state of things, but it has been generally interpreted as applying to all cases of insanity, and, if this interpretation be correct, there seems no way out of the difficulty save that suggested by Sir Fitzjames Stephen. That able lawyer pointed out, as our readers will remember, that by giving a special significance to the word "know," or rather, perhaps, by giving its fullest extension to the word "know," it could be said that an insane person did not know the nature and quality of his act. This seems, at first, to be rather jugglery, but it is probably justifiable. Dr. Mercier appears to take this view, for he notes that "knowledge is a matter of degree, and that a person may know his act is wrong without knowing how wrong it is."

This chapter concludes with the principles that should, in the author's opinion, govern the treatment of insane offenders. Starting with the proposition that "some persons are so deeply and completely insane or idiotic that we are not warranted in punishing them for any offence they may commit," he proceeds, "the majority of insane persons are sane in a considerable proportion of their conduct, and when, in this part of their conduct, they commit offences, they are rightly punishable." A third proposition follows to the effect that as "the limits between the sane and the insane areas of conduct of insane persons are ill-defined, no insane person should be punished with the same severity that would be awarded to a sane person for the same offence."

Under these conditions, and with the qualifications of responsibility laid down in an earlier chapter, it is probably safe enough to talk of the punishment of an insane criminal, though we must say we are not without apprehension lest our greatest medical authority on criminal responsibility may, on the strength of such passages, isolated from their context, be quoted as advocating something perilously near the supposed views of the judges in 1843. The history of the questions and answers of that time, and the interpretation generally put upon them ever since, shows how little capable the general public are of making fine distinctions in these matters. The fact that the judges supposed a lunatic under very special circumstances to be responsible, has been regarded as if it meant that only a few idiots or most advanced dements are irresponsible. After being, as we fear, misunderstood for a time by the careless multitude, Dr. Mercier's views, if accepted, will lead, in the end, to good results no doubt. For it is evident that, with the present drift of the public mind, the intro-

duction of the doctrine that responsibility may be diminished, though not wholly destroyed, will tend to bring under more merciful treatment a large number of persons whose responsibility is undoubtedly attenuated, though one would hesitate to say abolished.

Dr. Mercier achieves a dialectic triumph when he girds at those who deny that punishments exist in our asylums, but is not this really accomplished by including under the term "punishment" a number of disparate things? The question that is always in the mind if not on the lips of the public is whether an insane murderer ought to be executed or not. This was the real question at the bottom of the MacNaughten case. In discussing such questions it hardly seems much to the purpose to say that we cannot exclude all the insane from punishment, because even in those beneficent institutions, our asylums, a wilful wrong doer is sometimes deprived of the privilege of going to a dance, or a picnic, or is liable to have his allowance of tobacco docked? If we punish in asylums surely the retributive end of punishment (its chief end in other cases) is reduced to the very minimum. In spite of the risks (not always inconsiderable as we know), and in spite of the harrowing responsibilities of asylum life, the discipline under which the patients exist is far less rigorous than most elderly men endured in the nursery and the preparatory school. And this is as it should be; for are we not dealing with people who are as young children in intellect, or will, or self-control, or judgment, or in all of these? Besides, have they not punishment already, these unhappy ones—

"Ch' hanno perduto il ben dell' intelletto?"

The gods, to whom all things are in the present, their divine nature "permitting neither of flux or division," have ordained (pre-ordained to our seeming) for the insane the heaviest punishment that human nature is capable of enduring.

Furthermore, confinement in an asylum, even in cases where it is not so designed, is truly a great punishment, while life-long relegation to a criminal asylum is perhaps as severe a punishment as any human act could merit.

The ninth and last chapter is devoted to procedure and practice, of which an excellent account is given. The only criticism which occurs to us is that Dr. Mercier hardly lays sufficient stress on the immense safeguard which is afforded in most cases by the method of trial on arraignment with the object of ascertaining whether the patient is or is not "insane and incapable of pleading." In our experience this phrase is given by the Judges so wide an interpretation that it covers almost the whole field, for the man who is capable of pleading is the man who can follow intelligently the whole course of the trial, and instruct his lawyer as to any fresh point that arises. Such a person must have at least average judgment; he must be capable of coherent and close attention, his mind must be free from depression that would make him indifferent to his fate or anxious for punishment, and his intelligence must be unclouded by delusion.

Dr. Mercier's book is so solidly written, so closely reasoned, so full of matters of old dispute, some of which even his eloquence and lucidity have not been able to clear perfectly, that it is a difficult work

to summarise satisfactorily. This is the less matter, as it ought to be in every alienist's hands. This we say, though we are not always able to agree with Dr. Mercier either in his respect for the law as it is, or in all his suggestions as to what it should be. Readers of the *Journal of Mental Science* need no additional evidence of the author's characteristics—his eager striving after truth, his closeness of argument, his wealth of illustration, the manly vigour of his lucid style, and the energy with which he tackles the most difficult subjects. The valuable treatise before us can but serve to heighten his well-earned reputation.

The Origin and Development of the Moral Ideas. By EDWARD WESTERMARCK, Ph.D. Vol. I. London: Macmillan. 1906. Pp. 716, 8vo. Price 14s.

Dr. Westermarck has long been known as the author of *The History of Human Marriage*, a work which placed him in the forefront of living sociologists, and which is almost universally recognised, even by those who do not accept all its conclusions, as both the most scholarly and the most scientific attempt yet made to deal with that highly complex and difficult question. If it was possible to feel any defect in Dr. Westermarck's intellectual equipment when he approached the study of marriage, one might have said that he placed the question too exclusively on a narrowly biological and Darwinian basis, and had not sufficiently allowed for the psychological factor—that is to say, for the influence of those, often elaborate, conceptions which affect the actions of even the most primitive human communities we are able to study. It would seem that Dr. Westermarck has himself realised this lacuna in his point of view,—a lacuna which could scarcely have been obvious to anyone at the time when the book was published,—for since the publication of his work on marriage he has spent several years in Morocco, studying the customs and beliefs of people who are not exactly primitive, but are of supreme interest to the student of European civilisation, since, according to a view which is slowly gaining ground, the North African Berbers represent the race from which the most important element in the population of Europe (probably both the dark and fair dolichocephals) originally sprang. Through his studies in Morocco Dr. Westermarck has become a master in this very department of primitive psychology. This has been of great service to him in approaching the vast and laborious task of writing the history of human moral ideas of which the first volume at length lies before us.

The first thirteen chapters of the volume, dealing with the more general aspects of moral concepts and the analysis of their nature, may be regarded as introductory to the main sociological topic of the work. In the course of this introductory section the author sets forth his own moral theory. To write a history of moral ideas without some working hypothesis as to the nature of morals was no doubt impossible, but the acceptance of a definite standpoint necessarily opens the way to attack. Whatever weaknesses or inconsistencies may possibly be found in the author's moral theory, it is difficult to see how he could have chosen any other but that he has selected. No rigid or absolute moral

theory of the Kantian type could possibly commend itself to one who has realised the complexity and shifting diversity of moral ideas at different ages and in different lands. Dr. Westermarck's conception of moral judgments—which may be said to be in general harmony with that of the English school of moralists of the eighteenth century, like Adam Smith, and later of Schopenhauer—is emotional and subjective. (Such subjectivism, it may perhaps be necessary to point out, is not egoistic individualism, for the moral emotions of a well-knit community are largely common to all normal members of that community.) “Moral concepts are ultimately based on emotions either of indignation or approval”; this is the author's fundamental proposition; it is the object of ethics to study the moral consciousness as a fact; it has nothing to do with the determination of truth. “Could it be brought home to people,” the author adds, “that there is no absolute standard in morality, they would perhaps be somewhat more tolerant in their judgments, and more apt to listen to the voice of reason. . . . Far above the vulgar idea that the right is a settled something to which everybody has to adjust his opinions, rises the conviction that it has its existence in each individual mind, capable of any expansion, proclaiming its own right to exist, if needs be venturing to make a stand against the whole world. Such a conviction makes for progress.”

It is still necessary to analyse the nature of moral emotion, and Dr. Westermarck finds that resentment, the chief moral emotion (because more conspicuous in its results than its opposite, approval), has developed out of protective reflex action, its object being defence, the removal of a cause of pain or danger. It will be noted that this is in close agreement with the view of the modern school of criminologists, who regard social protection as the only justifiable basis of action against criminals. With this modern development, however, the author is not concerned. His elaborate discussion of the history of the idea of punishment as an expression of social indignation is of great interest. The criminal law of a society, as he remarks, is a faithful exponent of the moral sentiments prevalent in that society.

In Chapter X we meet with a discussion of the irresponsibility of agents under intellectual disability. Dr. Westermarck here brings together a large amount of the evidence showing how animals, and even inanimate objects, were formerly regarded as responsible, and then proceeds to deal with the attitude of different peoples towards the responsibility of children, the intoxicated, and the insane, emphasising the indulgence which has often been shown to the acts of mad or drunken persons. Thus the Mexican Aztecs carefully distinguished between the irresponsibility of a drunken man and the responsibility of the wine or the god of wine, and the author has heard Moors remark of the acts of a madman, “The poor fellow does not know what he is doing; his mind is with God.” Some primitive peoples who put criminal lunatics to death do so, not as a penalty, but merely to remove a source of public danger. Even in civilised countries, the author remarks, drunkenness has till recently been treated with “frivolous leniency,” and public opinion still so regards the reckless production of offspring; “there is hardly any other point in which the moral consciousness of civilised men still stands in greater need of intellectual

training than in its judgments on cases which display want of care or foresight."

The discussion of free-will in Chapter XIII is extremely brief, and not, perhaps, quite so lucid as the author's expositions usually are. He states that determinism is not inconsistent with responsibility, and that determinism is by no means fatalism. The essential point, however, would seem to be the fact, to which the author passingly refers, that, whatever a man's views of determinism, everyone still feels resentment or approval; the idea of freedom is inevitable on the practical moral side, just as the idea of causation is necessary on the scientific side.

After these introductory chapters the special subject of the work is entered upon with a long discussion (in three chapters) of homicide, followed by chapters on special kinds of homicide—the killing of parents, of sick persons, infanticide and feticide, etc. A special chapter (in which Dr. Frazer is criticised) is devoted to human sacrifices, others to capital punishment (with the gradual decay of which the author seems to approve), the duel, charity, hospitality, the subjection of children. In an interesting chapter on the subjection of wives the author supports the contention of those who argue that the position of primitive women is by no means so full of hardship as is sometimes represented. The volume—which, as will be seen, approaches from the sociological side many problems with which the alienist is concerned—ends with a history of the social attitude towards slavery.

Those who are acquainted with Dr. Westermarck's previous work will not need to be told that *The Origin of Mad Ideas* is throughout marked by an extraordinary degree of erudition which never becomes pedantic, by an invariably fair-minded and well-balanced attitude towards difficult problems, and by a power of broad and lucid presentation which recalls Buckle.

HAVELOCK ELLIS.

Criminología de los Delitos de Sangre en España (The Criminology of Crimes of Blood in Spain). By C. BERNALDO DE QUIROS. Madrid: Editorial International, 1906. Pp. 130, 8vo. Price 2 pesetas.

The study of criminology is pursued with considerable ardour in Spain, and the author of this book is already favourably known by several books which show both a practical and a scientific acquaintance with the problems of crime. The essay he here presents is certainly the most scientific and lucid statement of its subject which has yet appeared, though the author has sometimes had to struggle with imperfect data, Spanish official statistics being, it has been truly said, "tardigrade animals."

Spain is one of the countries in which crimes of blood are most frequent; it comes third (after Italy and Hungary) with 10·5 homicides per 100,000 inhabitants, and crimes of blood constitute a third part of all crimes in Spain. The most criminal province is Logroño; we may, perhaps, connect this with the fact (to which, however, the author makes no reference) that it is the centre of the great Rioja wine district. The least criminal regions are the Balearic Islands, Orense in the north-west, and Guipuzcoa in the land of the Basques.

Having set forth the intensity, distribution, and character of crimes of blood in Spain, the author proceeds to the analysis of causes, consigning due weight alike to the endogenous and exogenous factors. Race is considered mainly on the basis of the cephalic index, which has been well studied in Spain, and the more brachycephalic regions of the north-west (like Lugo and Oviedo) are found to be distinctly less marked by crimes of blood than the chief dolichocephalic regions, such as the Valley of the Ebro and Andalusia. In considering the influence of environment climate is found not to be without effect; the different zones of Spain vary very greatly in humidity, and the very rainy zone is that in which there is least criminality, the dry zone that in which there is most, the three intervening zones showing an intermediate criminality. The relation between crimes of blood and density of population is inverse, with the exception of a few populous centres of immigration and industry where criminality is high. The author finds that the influence of education in diminishing crimes against the person cannot be doubted, and believes that the reaction against the ancient saying "The opening of a school is the closing of a prison" has been excessive.

The last part of this meritorious little book, which is illustrated by charts and maps, deals with the question of reforms in penal methods.

HAVELOCK ELLIS.

Der Fall Otto Weininger: Eine Psychiatrische Studie. By Dr. FERDINAND PROBST. Wiesbaden: Bergmann. Pp. 40, large 8vo. Price 1 mk.

This little volume in the "Grenzfragen des Nerven-und Seelenlebens" series is a study from the psychiatric side of the case of Otto Weininger, whose *Sex and Character* has lately been published in English, after exciting an extraordinary amount of attention in Germany, where by some it has been hailed as a new revelation.

In reality it cannot seriously be taken as a new contribution to philosophy, and it would be somewhat cruel so to regard it, but it is certainly a remarkably interesting manifestation of gifted, though morbid, adolescence, much in the same way as is Marie Bashkirtseff's Journal. As the production of a youth of twenty-two who committed suicide shortly afterwards, it is probably a unique expression of precocious intellectuality, and the phenomenon thus presented fairly comes within the province of the alienist. Before the author of this book began his study of Weininger's case he had been anticipated by Dr. Löwenfeld, who, however, eventually handed his notes over to Dr. Probst, an assistant physician at the Munich Asylum.

Weininger was born in 1880, in Vienna, of Jewish parents, the second in a family of six. The father, an art craftsman, is a many-sided and highly-cultured man, as is indicated by the fact that he imparted to his son a thorough knowledge of the languages and literature of France, England, and Spain. He has contributed information for this study of his son, and he states—though Dr. Probst considers that the statement must be taken with due reserve—that, so far as is

known, the family and ancestors have all been free from nervous and mental disease.

Nor has it been possible to discover very definite pathological facts in the early life of Otto himself. He was, however, in all respects remarkably precocious. As a student he was not regarded as notably singular, and he joined in sports and games. The author considers that he was naturally of strong erotic disposition, but he was never known to be in love, and latterly he became very ascetic. He wrote his book in eighteen months, devoting all his energies to it, and sometimes forgetting to eat his meals. With the extreme egoism and self-confidence that marked him, he was indifferent to criticism, and asserted that he had written a book for the millennium. He was, however, much hurt, and threatened legal action, when Möbius, reviewing his book, stated that many of the ideas were borrowed from his own works and caricatured in the borrowing. This was perfectly correct, nor was it by any means from Möbius alone that Weininger thus appropriated ideas with little or no acknowledgment, giving them out again, with an added extravagance all his own, as original solutions of the problems of life. It is highly probable, however, that he was innocent in the matter, and was unable to distinguish between his own ideas and the ideas of the time, for it is evident that he had read enormously in contemporary literature.

It is only during the last two years of his life that any morbid mental symptoms became at all clearly evident. Before cheerful, he became depressed and melancholy; traces of hallucinations appeared; there were symptoms which his friends thought epileptic, but Dr. Probst regards as hysterical; his mysticism increased; he began also to believe that he was a musical genius. Finally, in 1903, he hired a room in the house in which Beethoven died and shot himself in the heart. In appearance he was very tall and lean, nervous and hasty in manner, and not generally regarded as sympathetic.

As Dr. Probst views the facts at present attainable, Weininger was a "*dégénéré supérieur*" in Magnan's sense, and on this basis, during 1901, appeared "a hysterical insanity of maniacal depressive character." The facts are still so scanty that a diagnosis seems hazardous, and some may doubt whether the unquestionable mental anomaly present in the case can really be said to amount to insanity.

HAVELOCK ELLIS.

Part III.—Epitome of Current Literature.

1. Neurology.

On the Restoration of Function in Diseases of the Brain [*Ueber den Wiederersatz der Funktion bei Erkrankungen des Gehirns*]. (*Monats. f. Psychiat., January, 1906.*) Anton, G.

In this paper, Dr. Anton principally treats of the vicarious action between the cerebrum and the cerebellum. His observations support

the experiments of Luciani, who found that after extirpation of the cerebellum, the compensation came from the sensory-motor spheres of the cerebrum. Dr. Anton observes from the experiments of Goltz up to the present day there has been evidence collected to show that after the extirpation of the hemispheres the basal ganglia can take up the lost functions in a surprising measure. This especially holds good with animals of a lower order; Goltz's celebrated dog lived eighteen months after the removal of the cerebrum. Even in man there is a vicarious renewal of function. From the classical experiments of Gudden and from numerous pathological observations, it has been proved that if symmetrical portions of the brain are destroyed there is often increased growth in the opposite hemisphere. Gudden found that by permanently closing up one nostril in a dog, there resulted an increase of the olfactory lobe of the other side. This compensatory power is stronger in the young. Dr. Anton studied the case of a child who could at least stand, and walk with help. The cerebellum had almost disappeared, the cerebrum seemed unimpaired, though it weighed no more than that of a child of three and a half years. There was hypertrophy of the strands of the fillet and of the pyramids in connection with the sensory-motor zone of the hemispheres. These tracts were as large as in a grown man, a proof of the vicarious activity of the motor apparatus of the cerebrum.

Dr. Anton describes the case of a deputy who was seized with convulsions on the right side, and with loss of speech; upon the same side the muscular sense and feeling of position were lost, and he could not direct his eyes to the right side. The understanding of speech was lessened, the number of words at his command fewer, and they were used incorrectly. He could not read nor write either with the right or left hand. The diagnosis was disease of the parietal lobe on the right side. An opening was made in the skull and a large abscess opened and drained. We are told that the patient recovered, and is now in a condition to perform very important functions, but it was a year before speech had returned. The patient reads aloud with some fluency, but when he is asked the meaning of the word he answers, "My exertion only serves to find the word; what the meaning is I do not know, for the first and second time." In this man, the relation between speech and thought is injured, a symptom which is apt to escape notice on superficial examination. The use of words without any corresponding idea of their meaning has been called by Leibnitz "psittacismus."

WILLIAM W. IRELAND.

On the Functions of the Central Gyri. (Cbl. f. Nervenheilkunde, Mar. 15th, 1906.) Brodmann.

Brodmann exhibited to the Psychiatric Society of Berlin two monkeys from whose brains he had removed the anterior and posterior central gyri. They had hemianopsia and loss of motor power in the hand. As the result of his experiments, he found that little impairment of function followed small excisions of the posterior central convolution, whereas a similar removal from the anterior central at once caused helplessness in the use of the hands (meaning, we suppose, the upper limbs), especially in the smaller joints. This powerlessness lasted for

eight or ten days. In dogs, there is the same restitution of function, even after excision of both median gyri. Brodmann notes that after excision of the anterior central gyri there is much degeneration of the anterior tract, but comparatively little after a more extensive removal of the posterior central convolution.

WILLIAM W. IRELAND.

Cortical Paralysis of Touch [Die Kortikale Tastlähmung]. (Monats. f. Psychiatr., February, 1906.) Kramer.

It is doubtful if there be a special sense enabling us to recognise the form and consistency of objects independent of other sensations such as pain, pressure, weight, heat, electricity. Nevertheless, cases in which there was greater impairment of the feeling of touch than of the other modes of common sensation have been described under the title of "astereognosis." To the consideration of this subject, Dr. Franz Kramer has contributed a paper of thirty pages. He describes ten cases very carefully tested by himself. These are too long to reproduce, but we gather the following considerations from his observations and citations from other writers on the subject. It seems probable, that the loss of sensibility to touch is but a degree in the impairment of common sensation. Where to fix this degree is difficult owing to the complicated feelings and motions used to ascertain the outward form of objects. There are cases described in which the loss of tactile sensibility was much greater in proportion than the derangements of other qualities of common sensation. Perhaps similar inequalities of relation exist in normal persons.

Any lesion of the sensory tract may be followed by astereognosis. Where the tactile feeling in the hand is lost along with impairment of motor power, Dr. Kramer would trace it to injury of the motor area in the cortex, but where there is paralysis of sensation without motor incapacity we must seek another localisation. The majority of writers on this subject place the cortical lesion in the middle third of the posterior central gyrus; Williamson and Dercum put it farther back in the parietal lobe. Monakow assigns a greater area for this deprivation of sensibility, what he styles the whole centro-parietal region.

WILLIAM W. IRELAND.

2. Clinical Psychiatry.

Contribution to the Study of Sensation in General Paralysis [Contributo allo Studio della Sensibilita nella Paralisi Generale Progressiva]. (Riv. di Patol. Nerv. e Ment., vol. x, fasc. 12.) Giachetti, C.

The author has made a careful investigation in 41 cases of general paralysis in order to enable him to ascertain to what extent sensory changes were present. Of these cases, however, 18 were so demented that it was impossible to draw any accurate deductions from their examination. All the cases were of a fairly advanced type.

He summarises the result of his investigations as follows:

(1) Alteration in the sensation of painful impressions was almost constantly present (20 cases out of 23).

(2) In 15 of these 20 sensation of pain was diminished ; in some it was entirely abolished. In 5 cases it was increased, and as a rule, when this occurred, the patient was in a state of nervous excitement.

(3) Tactile sensation was slightly diminished at times. Thermal anæsthesia was rarely present. Sometimes there was diminution of the sensation of heat alone.

(4) These alterations were more frequent and more marked the more advanced the stage of the disease.

(5) Sensation of smell and taste and the auditory sense were rarely affected. As regards sight, in all the nine cases examined the visual field for white was lessened and the general colour field was always diminished, at times very markedly.

(6) The muscular sense was generally intact. Romberg's sign was never distinctly marked, although equilibrium was almost always slightly disturbed ; the amount of ataxia present was very slight.

(7) Pains of the rheumatoid type were frequent ; paræsthesia was rare. Several authors have noted the presence of profound anæsthesia of the internal organs, as instanced in painless cases of labour in female general paralytics. Soukhanoff has reported several cases of diseases that are generally of a painful nature (as gastric ulcer and some tubercular processes) which in general paralytics ran a perfectly painless course. He considers that this is due to decadence of the power of attention.

The author thinks that an intoxication is the prominent factor whereby toxic elements are evolved capable of causing weakening of the powers of sensation in general and of sensation of the internal organs in particular. It may be due to diffuse alteration in the nerve-cells, not only of the cortex, but also of the large ganglia and spinal cord, or to modifications in the nerve-cells of the spinal ganglia and sympathetic, or to lesions of the peripheral nerves.

The author is inclined to the opinion that it is the result of lesions of the cord and peripheral nerves, due probably to a form of chronic intoxication.

A. I. EADES.

Crepitus from the Fingers of Alcoholics (Quinquaud's Sign) [Il Crepito delle Falangi negli Alcoolisti (Segno di Quinquaud)]. (Riv. di Patol. Nerv. e Ment., vol. x, fasc. 11.) Perazzolo, S.

Quinquaud's sign, which is said to be idiopathic of chronic alcoholism, was the subject of a short and interesting paper by Aubry in the *Archives de Neurologie* (deuxième série, tome xi, 1901). It is elicited as follows: The physician fully extends his hand, palm upwards. The hand of the subject of the examination is held parallel to and above this, dorsum upwards. The patient is directed to flex his three middle fingers and press them perpendicularly against the physician's palm. The three fingers should be separated, the middle one slightly behind the other two ; steady pressure should be made. After a moment or two there is a crackling sensation conveyed to the examiner's palm from the patient's fingers as if crepitus were present. This tactile sensation is perhaps best to be compared to the rub experienced in pleurisy or dry arthritis.

Aubry made experiments on a number of epileptics, general paralytics,

and alcoholics, with the view of discovering if this sign were present, but could only elicit it in the last named. It was not confined to insane subjects.

The author made a careful examination of twenty epileptics and seven general paralytics with a negative result. He then experimented on thirty habitual alcoholic psychopaths. In twenty of these was the sign present, in five it was doubtful, and in five absent.

He then took ten habitual non-psychopathic heavy drinkers. Of these, seven gave a positive and one a doubtful result. In twenty moderate habitual drinkers it was only present in one.

The pathogenesis of this sign cannot be readily explained. The author is certain that it has no relationship with any functional or organic neuropathic or cerebropathic condition, as it was observed in sane subjects who were absolutely free from any mental or physical sign of illness or alcoholic intoxication. It was never present in those suffering from the effects of acute alcoholism. On the contrary, it was only obtained in chronic alcoholics, some of whom had not tasted liquor for eleven years. Alcoholic tremor of the fingers had no connection with its exhibition, as such tremor, he believes, does not involve necessarily any dynamic influence on the phalangeal articulations. He considers that the sensation of crepitus is of extra-articular origin, but can give no trustworthy explanation for its presence. Its frequency in chronic alcoholics, whether sane or not, and its almost complete absence in moderate drinkers, seem to class it as a pathological symptom. Its presence in chronic, combined with its absence in acute, alcoholism certainly seems to point to a disturbance of function in connection with an organic basis.

A. I. EADES.

On Cysticerci in the Brain [Ueber-Gehirncysticercose]. (Cbl. f. Nervenheilkunde, Mar. 15th, 1906.) Henneberg.

Dr. Henneberg showed to the Berlin Psychiatric Society, numerous preparations illustrating the pathology of cysticercus in the brain. In the Clinique for Nervous and Brain Diseases at the Charity, there was at least one case revealed by dissection every year. Out of ten thousand *post-mortem* examinations there were in this hospital about sixteen instances in which cysticerci were found in the brain. It is generally difficult to distinguish the presence of these parasites in the brain from a tumour. A patient *æt.* 57 had epileptic seizures of the left side which lasted for five days till his death in the status hemiepilepticus. A cysticercus about the size of a walnut was found at the foot of the first frontal gyrus.

Amongst the cases mentioned by Henneberg is a woman *æt.* 60 who presented the following symptoms: giddiness, headache, noises in the head, sluggish reaction of the pupil, paresis of the abductor oculi on the right, temporary hemianopsia on the left, neuritis optica, tremors of the hands, ataxia, irritation of the trifacial, and dementia. After death there were found bladders of cysticerci, dead and covered with fibrous tissue. The locality is not mentioned, evidently the base of the brain. There were degeneration and obliteration of the arteries.

The cysticerci at the base of the brain had the racemose appearance.

There was often chronic leptomeningitis, and the symptoms were generally like those of syphilitic disease of the base of the brain.

In a woman æt. 26, there were attacks of headache, giddiness, and vomiting, which improved after delivery; there was abnormal position of the head, which was drawn down and pushed forwards; on the left side there was facial paresis, also of the abductors of the eye, and optic neuritis, tremors, ataxia, and sudden paralysis of respiration. There was found a tumour of the size of a hazel-nut consisting of a cysticercus surrounded by degenerated tissue.

WILLIAM W. IRELAND.

Hallucinations Artificially Induced [*Künstlich Hervorgerufene Halluzinationen*]. (Cbl. f. Nervenheilkunde, March 15th, 1906). Moravesik.

In this communication, Dr. Moravesik observes that it can scarcely be held that all hallucinations have a peripheral origin, since there are cases of hallucinations affecting the senses in which the normal function has ceased. Here we may observe that at the meeting of psychiatric physicians at Jena (*Monatsschrift für Psychiatrie*, February, 1906) Dr. Berger reported a case of hallucinations of sight after total atrophy of the optic nerves; he also cited one of hallucinations of smell, although there was atrophy of both the olfactory bulbs. Dölken had noted vivid hallucinations of light after atrophy of the optic nerves of four years' duration.

There is, however, no doubt that peripheral irritations assist hallucinations, and sometimes appear to give origin to them. Sepilli has described visual hallucinations following hyperæmia of the choroid, and auditory hallucinations after catarrh of the ear. Similar observations have been made by Savage and Köppe with improvement following the cessation of the external affections. Various experiments have shown that not only rudimentary but even complex hallucinations can be produced by peripheral irritations. A patient of Jolly's heard whole sentences on the application of galvanism to the ear, and Köppe found that in one case it was sufficient to introduce instruments into the auditory meatus.

We may recall that Liepmann was able, in patients suffering from alcoholic delirium to induce visual images by simple pressure upon the eyeballs. In some it was sufficient merely to cover the eyes with a cloth to cause the apparition. At first, the hallucinations were simple flashes of light, golden spots, shadows, clouds; with much excited patients the images were complex. Dr. Moravesik, who is a professor in the University of Buda-Pest, has for several years made experiments upon the artificial induction of hallucinations in patients suffering from alcoholic delirium, as well as other mental disorders. In this inquiry, he used a tuning-fork, a small hurdy-gurdy, coloured objects, strong scents, pin-pricks, and the Faradic current. Any suggestive influence was carefully avoided. He describes four cases in which he was able to induce hallucinations. What is noteworthy, these were not confined to the senses to which the stimuli were applied, but passed to other fields; sometimes the hallucination only appeared to another sense. Like a stone thrown into a smooth lake, the whole surface was troubled and the reflected images deranged—or, rather, as in tetanus, the smallest irritation excited a spasm.

One of his patients, in a state of delirium tremens, had phantasms of a man in red clothes and with a club foot who played with money and spat fire. He saw other figures of men and animals, who vanished in a cloud with a bad smell. In the morning, while this patient was quiet and undisturbed, Dr. Moravesik got behind him with the tuning-fork. The man then stared before him and looked anxiously around; sweat gathered on his brow; he stamped with his feet, then flung himself on the ground, threw out his arms and legs, opened his dress, and complained that he was troubled by large beetles which he could not get rid of. When the tuning-fork was stilled the patient said that the beetles had suddenly disappeared, and looked searchingly around. It was found that the same apparition could be recalled by again sounding the tuning-fork. Some time after, when the patient had become much quieter, on sounding a hurdy-gurdy behind his back, the beetles again appeared. When the instrument was moved farther from him he looked round in astonishment, and remarked: "There are sitting by a table three persons; one is coming nearer." Being asked to describe the figures, he said: "There they sit and drink; one of them is blonde, the other brown. The one sitting here," pointing to the right, "has a black coat and chequered trousers; the woman wears a grey gown with a white collar."

The Professor considers the appearances to be real hallucinations and not illusions; for, as he explains, the patients rightly perceive the stimulus, recognising it as a humming or a musical tone quite independent of the images, which seem to them to be real and objective. In many cases they have no property in common with the stimulus which arouses them, and sometimes they do not appear in the field of the organ to which the stimulus has been applied. They are thus not the result of a false apprehension in many cases. The peripheral irritation brings no new image into consciousness, but merely reinforces the old hallucinations.

Sometimes he could induce new hallucinations, or revive old ones which had ceased to appear spontaneously.

It is impossible to arouse such images in a healthy subject, a morbid condition of the brain being a necessary condition for peripheral impulses being capable of inducing hallucinations. WILLIAM W. IRELAND.

The Morbid Fear of being looked at [La Phobie du Regard]. (Archives de Neurologie, July, 1905.) Bechterew.

Bechterew, who has studied this question in other articles, records in the present paper with full details three new cases of the "phobie du regard," or morbid inability to bear being looked at. In these, as in the earlier observations, the salient facts are that the symptom is constantly related to an insane or neurotic heredity, that it frequently develops as an immediate sequence of sexual exhaustion, particularly when brought about by masturbation, and that it is often associated with other phenomena of morbid inhibition, such as the phobia of blushing or the inability to micturate before witnesses. With regard to treatment, the author says that he has got good results from hypnotism combined with hydropathy and with the use of cardiac tonics and codeia.

W. C. SULLIVAN.

3. Sociology.

Insanity in the Army and the Institution of Field Asylums [*Le Psicosi nell'esercito e la Instituzione di Manicomi da Campo*]. (II *Manicomio, anno xxi, No. 2, 1905.*) *Tomasini.*

The author takes as his text the recent experiences of the Russo-Japanese war, in which, according to the testimony of numerous witnesses, outbreaks of acute insanity were extremely common in the battlefield, and occasionally assumed an epidemic character, and in which, moreover, many "regrettable incidents" were due to mental disorders in commanding officers. Dealing first with the statistics of suicide and of insanity in the army in time of peace, he points out that the former phenomenon is very much more frequent amongst soldiers than amongst the general population in the chief European countries. In Italy in 1901, while the suicide-rate for the whole country was about '061 per mille, in the army it amounted to '33 per mille. And it appears to be tending to increase; thus the figures for the years 1895 to 1901 show that, while sanitary improvements have reduced the general mortality in the army by nearly a half, the ratio of suicide has slightly risen. On examining the figures in detail it is seen that the suicide rate is very high during the first year of service, that it falls off somewhat in the second year, to rise again when the period of service is prolonged over two years. With regard to insanity, the official statistics would suggest that it is less frequent amongst soldiers than in the population at large, but the author contends that this result is misleading, inasmuch as the army represents a picked population which by reason of its age, constitution, and the exclusion from its ranks of the congenitally defective, is, or ought to be, specially free from insane tendency. In any case the rate of insanity in the Italian army is increasing notably of recent years. With regard to officers, there is a consensus of opinion in all countries that the incidence of insanity amongst them is peculiarly high, and this applies more particularly to general paralysis, which is estimated to account for 50 *per cent.* of mental disease in German officers, for 54 *per cent.* in French, and for 55 *per cent.* in Italian.

The facts with regard to insanity in time of war hardly admit of statistical treatment, but *à priori* considerations of the effects of fatigue and hardship and of the emotional shocks in fighting under modern conditions, show that there is a strong antecedent probability that these moral and physical influences must produce a large amount of acute mental disease, and this conclusion is supported by what we know of the matter directly. In this connection the author refers to the frequency of crimes of violence and rape during military campaigns, and suggests that they are in large part due to insanity.

The practical conclusion that the paper is designed to enforce is the need of a service of mental medicine in the army and the desirability of organising means of treating insanity developing in soldiers on active service. For the latter purpose the author looks to the help of the Red Cross Society.

W. C. SULLIVAN.

The Influence of Military Training on the Mental Concept of the Soldier [*Der Einfluss der militärischen Ausbildung auf das geistige Inventar des Soldaten*]. (*Monats. f. Psychiat., Jan. and Feb., 1906.*) Rodenwaldt.

Dr. Ernst Rodenwaldt, a military surgeon, four years ago published an estimate of the mental concepts of persons in health as a standard in comparison with their condition in disease. In 1902, he had occasion to examine 144 recruits, Silesian cuirassiers; 110 of these were of German origin and 34 were Poles. The report of the examination is given at great length, the whole paper filling forty-six pages, thirty-five of which are occupied with the questions put to the men, their answers, and the comments thereon. Some of these answers make us misdoubt the intelligence and information of the young men of Silesia, though perhaps an equal number of the same class in Britain would not come off any better. One man thought the Rhine ran into the Dead Sea, another into the Red Sea. To the question: "Who was Luther?" one man replied that he was the head of the Mahomedan Church, another that he was the King of the Jews, another the first preacher of Jesus Christ. Twenty-one had never heard of Schiller, forty had never heard of Goethe. The question "What are mammalia?" (*Säugetiere*, lit. sucking animals) gave rise to some etymological guessing; one man suggested leaches, another animals who live upon the sap of plants. Bees, fishes, worms, hawks, animals of the female gender, were all given as examples of this order. As might have been expected, the young men were found to have gained little in knowledge beyond the scope of their military duty; but they were readier to lay hands upon their knowledge, to apprehend questions, to answer them quickly, and to choose the shortest way to do so, qualities which, once secured, are better than acquired information, as they are the tools of the intellect, while knowledge is only the material. In my own experience the service in India seemed, with the private soldiers, to induce an utter helplessness to anything save their military duties. Taken to a foreign country amongst a people speaking a different language which they rarely took the trouble to learn, lodge, fed, cared for marching about, sent to parade and to church, brought to the hospital when ill, they degenerated into mere military machines. With the German army the period under the colours is no longer than three years, after which they return to civil employments. The general effect of this universal military training upon the physical, moral, and mental condition of the people must be very considerable.

WILLIAM W. IRELAND.

The Biological Genesis of Crime [*Sulla Genesi Biologica del Delitto*] (*Il Manicomio, anno xxi, No. 2, 1905.*) *Angiolella.*

This paper is a critical review of the psychology of the criminal, and is of special interest as an indication of the present tendencies of thought in the more progressive section of the Italian school of criminology. At the outset, the author lays stress on the fact that the study of the criminal is changing its direction and is becoming psychological rather than morphological. The insistence on the evidence of

somatic abnormality, he points out, was useful and, indeed, essential when it was necessary to combat the old views which saw in the criminal a normal individual doing evil of his free will, but it is out of place nowadays when the pathological nature of crime is fully recognised. What is now needed is a more minute study of the psychological mechanism of the criminal. Approaching the question, then, from this side, Angiolella first discusses the relation of crime to insanity, and points out that the affinities of these two conditions have been emphasised of late years as a result of the tendency to abandon the old antithesis between abnormality and disease, and to assign an increasing importance to the *rôle* of congenital predisposition in insanity. It has, however, to be borne in mind that, even admitting that a common basis of degeneracy underlies certain forms of insanity and certain criminal types, we have still to explain why it is that in one case and not in the other this condition is associated with anti-social tendencies. To meet this difficulty we must assume that an additional factor is operative in the case of the criminal. This factor cannot be, as is sometimes asserted, a special defect of the so-called moral sense; for, since what we so term is no more than the sum of the latest evolved and most complex ideational and emotional associations, we necessarily find it to some extent enfeebled in all the mentally diseased and degenerate, whether they be criminal or not. The further element which is needed to produce the criminal is, then, to be sought rather in the exaggeration and the perversion of his impulses, which the weakness of inhibition allows to issue in anti-social conduct. And this explains the fact that the insane who commit crimes are for the most part those whose insanity is of the degenerate type—paranoiacs, for instance, and epileptics. The insanities of the previously valid brain, the acute psychoses in general, do not lead to gravely criminal acts except in what is to be regarded as a purely accidental way, as may occur in states of hallucinatory confusion. Thus the lunatic who commits a deliberate crime acts, according to this view, under the influence of a temperament which is fundamentally identical with that of the offender whose ill-doing is not associated with any disorder of thought. Passing, then, to the consideration of these perverted impulses which are the essential factor in crime, and discussing more particularly the impulses to homicidal and sexual violence, the author reduces them mainly to exaggerations of individualism and points out that they are fostered by all the influences in social life which exalt brute force over moral force. The combating of these influences must lie at the root of the social prophylaxis of crime, as the prevention of the multiplication of the degenerate must be the aim of its biological prophylaxis.

W. C. SULLIVAN.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

An ORDINARY QUARTERLY MEETING of the Medico-Psychological Association was held at 11, Chandos Street, Cavendish Square, W., on Thursday, May 31st, 1906, under the presidency of Dr. T. Outterson Wood.

Present:—Drs. Fletcher Beach, David Bower, John Carswell, James Chambers, W. Crochley Clapham, Maurice Craig, William R. Dawson, John O'C. Donelan, Augustus C. Dove, Thomas Drapes, James W. Evans, Frederic W. Edridge-Green, Edwin Goodall, Horace E. Haynes, Gerald H. Johnston, Robert Jones, Henry C. MacBryan, Peter W. MacDonald, Thomas W. McDowall, Eric D. Macnamara, Charles A. Mercier, Alfred Miller, Cuthbert S. Morrison, H. Hayes Newington, Maurice E. Paul, Henry Rayner, William Rawes, George H. Savage, George E. Shuttleworth, James G. Soutar, Robert H. Steen, Henry F. Stilwell, William C. Sullivan, John Turner, Frederick Watson, Lionel A. Weatherly, Ernest W. White, Edmund B. Whitcombe, and David Yellowlees.

Letters of apology for non-attendance were received from Drs. Nolan, Turnbull, Briscoe, Percy Smith, Bedford Pierce, and F. R. P. Taylor.

The minutes of the previous meeting having already appeared in the JOURNAL were taken as read.

The following gentlemen were elected ordinary members:

Walter E. Collier, M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, Kent County Asylum, Barming Heath, Maidstone. Proposed by H. Wolseley Lewis, H. H. Newington, and Robert Jones.

John Alex. Creighton, M.B., C.M.Ed., Assistant Medical Officer, West Riding Asylum, Wakefield. Proposed by W. Bevan Lewis, H. Hayes Newington, and Robert Jones.

Edward Palmer Stewart Gane, M.R.C.S., L.R.C.P., Assistant Medical Officer, Fife and Kinross District Asylum, Cupar, Fife. Proposed by A. R. Turnbull, Lewis C. Bruce, and A. R. Urquhart.

Charles Rodney Huxley, L.R.C.S., L.R.C.P.Ed., L.F.P.&S.G., Fellow of Medical Society, London, Kent House, Kent House Road, New Beckenham, Kent. Proposed by Theo. B. Hyslop, Maurice Craig, and Francis H. Edwards.

THE ILLNESS OF DR. WOODS, OF CORK.

The PRESIDENT said the Council had learned that a former President of the Association, Dr. Oscar Woods, Superintendent of the Cork Asylum, was now lying seriously ill. Following upon a grave domestic affliction he was suffering mental and physical pain. Dr. Woods was a kindly urbane gentleman, and one of whom all members of the Association entertained a very high opinion. He believed it would be a graceful act if the Secretary were authorised to convey to Dr. Woods the Association's feelings of sympathy and kindly regard in his present sufferings, and he proposed that that be done.

The resolution was seconded by Dr. WHITCOMBE and carried unanimously.

THE ADMINISTRATION OF ASYLUMS IN IRELAND.

Dr. DAWSON said that the matter which he had to bring before the Association was one which had arisen within the last few months, and seriously affected lunacy administration in Ireland. A quarrel had, for some time, been in progress between the Irish asylums and the Irish Local Government Board regarding an Order of

the latter known as the "Public Bodies' Order," certain points in which, concerning what appeared to be absurd duties imposed on the Resident Medical Superintendents, and also regarding the form of accounts, were objected to. The superintendents took sides with their Committees in the matter, it appearing that their interests were identical, and certain asylums for a long time opposed the Order. Amongst these the Richmond Asylum held out until a mandamus was obtained against them by the Local Government Board, separate but identical orders being sent to the Committee and the Resident Medical Superintendent. Recent reports of the meetings of the Richmond Committee in the Dublin papers showed, however, that there was now a different point in dispute, and that appeared to be the question of the control of the Medical Superintendent over his subordinate officers. Thus, from the proceedings at a Committee Meeting reported in the *Freeman's Journal* of April 20th last, it appeared that certain concessions had been granted by the Local Government Board in a letter of November 20th, 1905, on condition of the Committee falling in with their wishes in other respects. One of these concessions was alleged to have been the empowering of the Committee to delegate to other officers certain duties which had hitherto been in the hands of the Resident Medical Superintendent, and it was now stated that the Local Government Board, in a letter dated March 7th, 1906, had departed from the first arrangement, and now vested in the Resident Medical Superintendent the duties in question. It was declared that if the changes which they desired were not carried out the Committee "would be a mere registration board coming there and having no authority in the house." Care was taken that the letter of the Local Government Board was not given to the public, but the point at issue had been made plain by a letter (*Freeman's Journal*, April 21st, 1906) from a member of the Committee who disagreed with the Chairman. This letter stated that "the entire controversy on this subject arises over the following paragraphs in the letter of the Local Government Board of the 7th March last, viz. 'They are clearly of opinion that the intention of Parliament was to render the Resident Medical Superintendent responsible for the entire management of his particular institution, subject, of course, to the superior control of his Committee and other duly constituted authority. It rests with the Resident Medical Superintendent, therefore, to permit books and documents to be prepared, verified, and kept by subordinate officers, subject to his supervision and control. He cannot, however, be permitted to divest himself of the responsibility for seeing that they discharge these duties in a satisfactory manner, or should they fail to do so, for reporting their negligence to his Committee, so that they may be suitably dealt with.' I may be very dull of comprehension, but I cannot agree that either of these paragraphs means taking control of the affairs of the asylum from the Committee. On the contrary, their plain meaning is vesting the active management in the Medical Superintendent, subject to the supreme control of the Committee." That was the obvious meaning of it.

It appeared, therefore, that the Committee of the Richmond Asylum were trying to pick a causeless quarrel with the Local Government Board, and it also appeared that they were engaged in operations hostile to the Resident Medical Superintendent. They protested that the last letter from the Local Government Board deprived them of all authority; they described the Chief Clerk as their chief executive officer (*vide* report of meeting, *Freeman's Journal*, May 18th, 1906), and they allowed him to demand (see same report) that all the correspondence of the institution other than medical should be lodged in his office. Lastly, they appointed a deputation, consisting of the Chairman and Vice-Chairman of the Committee and the Chief Clerk (but not the Resident Medical Superintendent), to lay their views before the Chief Secretary for Ireland, and it appeared, from the *Freeman's Journal* of May 25th, 1906, that this had been done. The matter was not personal; it affected the position of every Resident Medical Superintendent in Ireland, and, therefore, involved the proper lunacy administration of that country. It, therefore, seemed desirable to make representations to Mr. Bryce without delay, in order to prevent the retrograde step of creating a second and a lay authority in asylums.

The President, Dr. Yellowlees, Dr. Whitcombe, Dr. Drapes, Dr. Morrison, Dr. Shuttleworth, Dr. Soutar, Dr. Hayes Newington, and Dr. Bower took part in the discussion which ensued, and the following resolutions were moved by Dr. YELLOWLEES, seconded by Dr. HAYES NEWINGTON, and carried unanimously:

1. "The Medico-Psychological Association of Great Britain and Ireland, having learned, through reports in the public press, of a movement in Ireland tending to lessen the authority of the resident medical officers of asylums, desires to express in the strongest manner its conviction that any such change would certainly result in injury to the patients, and would be in direct opposition to all progressive and enlightened treatment of the insane."
2. "That the foregoing resolution be delivered into the hands of the Right Honourable James Bryce, Chief Secretary for Ireland, the manner of such delivery being left to the discretion of the President of the Association."

CONTRIBUTIONS.

Dr. JOHN TURNER read a paper, and gave a lantern demonstration, on "The Relation of Epilepsy to Changes in the Blood and Central Nervous System." We hope to publish this valuable contribution in a future number of the JOURNAL.

Dr. W. C. SULLIVAN read a paper entitled "Industry and Alcoholism" (see p. 505).

The following members were present at the Council Meeting which was held prior to the Quarterly Meeting:—Drs. Fletcher Beach, David Bower, James Chambers, Maurice Craig, William R. Dawson, Thomas Drapes, Robert Jones, Henry C. MacBryan, Peter W. MacDonald, Alfred Miller, H. Hayes Newington, Henry Rayner, George H. Savage, Robert H. Steen, John Turner, Ernest W. White, T. Outterson Wood, David Yellowlees.

Apologies: Drs. Henry T. S. Aveline, Michael J. Nolan, Bedford Pierce, R. Percy Smith, Frederic R. P. Taylor, Adam R. Turnbull.

The members dined together at the Café Monico in the evening.

SOUTH-EASTERN DIVISION.

The SPRING MEETING of the South-Eastern Division was held by the courtesy of Dr. A. N. Boycott at the Herts County Asylum, Hill End, on April 25th, 1906.

Among those present were Mr. G. T. Hine and Drs. Archdall, Bailey, Bower, Boys, Boycott, Chambers, Crookshank, Donelan, Dove, Dixon, Ewens, Gavin, Hart, Harding, Higginson, Hunter, Kidd, H. H. Newington, A. S. Newington, Navarra, Pope, Rolleston, Sall, R. Percy Smith, J. S. Smith, Shuttleworth, R. J. Stilwell, Stoddart, D. G. Thomson, Watson, and Steen (Hon. Sec. of Division).

The visitors included Mr. G. B. Hudson, J.P., Chairman of the Visiting Committee, Hill End Asylum; Revs. F. F. Buss and R. A. Squires (Chaplains), and Drs. May and Lipscombe.

Apologies were received from Drs. T. Outterson Wood (President), Moody, Robert Jones, Elkins, Bayley, Amsden, Pasmore, Gayton, and Slater.

The wards and grounds were inspected and subsequently Dr. Boycott entertained the members to luncheon. The meeting of the Divisional Committee was held at 2.15 p.m., Drs. Boycott, Harding, R. J. Stilwell, Hunter, and Steen being present. The General Meeting of the Division was then held, Dr. R. Percy Smith in the Chair. The minutes of the last meeting having appeared in the JOURNAL were taken as read and confirmed.

The following gentleman was elected an ordinary member of the Association:—Peter Mortimer Turnbull, M.B., Ch.B. Aberd., Assistant Medical Officer, Tooting Bec Asylum.

Drs. Donaldson, Crookshank, and Stoddart were elected members of the South-Eastern Divisional Committee of Management, which now consists of the following members:

Retire in 1907.

Dr. Hunter.
Dr. Rawes.
Dr. Lord.

Retire in 1908.

Dr. Boycott.
Dr. Kennedy Will.
Dr. G. N. O. Slater.

Retire in 1909.

Dr. Donaldson.
Dr. Crookshank.
Dr. Stoddart.

The next item on the agenda was to consider the following resolution on the suggestion of the Committee of Management of the Division:—"The South-Eastern Division of the Medico-Psychological Association deems it expedient that before the new statistical tables are brought into operation the opinion of each member of the Association be taken by post as to whether or not he or she is in favour of adopting the new tables in their present condition, and that the resolution be forwarded to the General Secretary of the Association with the demand that such resolution be discussed at the next Annual Meeting."

Dr. BOYCOTT said that he had found that many superintendents with whom he had discussed the new tables were not in favour of adopting them, and that it was his belief that many members of the Association were strongly averse to them. Owing to the exigencies of their work it was not possible for all members who wished to do so to attend the Annual Meeting, and he believed that the voting on the day in which the tables were passed did not represent the opinion of the Association. He did not wish to minimise the very valuable work the compilers of the tables had performed, and he thought they deserved the gratitude of the Association. In an important matter, such as the present, he thought it was only right to obtain the opinion of each member of the Association, and he moved that the resolution should be adopted.

Dr. HUNTER seconded.

Dr. THOMSON asked if the resolution were in order, and the Chairman ruled that the discussion should proceed.

Dr. H. H. NEWINGTON said that he begged to support the feeling expressed by the Chairman that the notice of motion should not be considered from the point of view of order. Though a good deal might be said on the subject, yet he thought that on this occasion it would be better to deal with it on its merits.

The motion had naturally attracted the attention of those who had had to do with the new tables. The Chairman of the Committee was in Teneriffe, and the Secretary was entirely unable to come, so he had attended himself, not so much to defend the tables as to endeavour to remove any stumbling blocks or misconceptions that might exist. He rather expected to have heard definite objections advanced by those who had moved the resolution. In default of these he could only deal with the subject in general terms, touching on questions that had been raised at the Annual Meeting and elsewhere.

First, as to the extra expense entailed in printing the new tables, he confessed that this had not crossed the minds of the Committee, but since Dr. Boycott had mentioned it last year as a definite objection he had thought over the possibility of saving this by co-operation. He had seen the printers that morning on a suggestion that he had made to them that if more than one asylum got the statistical matter in the reports printed at one place it would require a re-composition of the figures only instead of the whole matter, headings, lines, etc. Of course, he only referred to the tables and not to any other portion of the reports. He had been told that morning that if three asylums thus co-operated the expense would be reduced by one third to each; if four or more joined the expense would be halved. This, of course, was only a suggestion, but it might meet the complaint, and, if anything more was thought of it, he would get close prices and bring the matter before the Council, as the authority of that body might be useful.

As to the intrinsic value of the tables he would not enter into that matter, since it had been fully debated and settled by the Association. He would only advert to the hopelessness of arriving at unanimity.

As to the actual labour involved in producing the tables, he would ask straight away if any one in the room had tried the task fairly and squarely. In default of any answer he assumed that no one had done this, and therefore he could only look on objections under this head as a matter of prophecy. It had been objected that the number of tables was greatly in excess of those now asked for. This was very fallacious, as the old tables, though looking very simple, were in many instances collections of calculations. For instance, Table XI, dealing with the forms of mental disorder, was represented by four separate tables in the new scheme. It was the same with ages, residence, etc. He had analysed the two sets of tables comparatively, not once, but at least four times, so that the comparison should be as just a one as possible, and he found the following facts:—In the old tables operations in respect of individual patients were involved 24 times; in 5 of

these, portions only of a class of patients were dealt with. As an instance, in Table 1 A only readmissions were reviewed. In the new tables there were 23 operations, of which 9 were similarly restricted. He would say that of course in these calculations all general tables, which were of the same number in each, and all optional tables were omitted. Taking the tables in another way, he found that in the old tables the grouped admissions, deaths, etc., were reviewed in 30 places, in 3 of these restrictedly; in the new the same took place 25 times, with 8 restrictions. He was not going on these figures to claim that there was less labour in the new than the old; but he did suggest that a clear *onus probandi* of the contrary lay on those who might give excessive labour as a reason for passing the resolution before them. Then he would ask them to consider the trouble involved in getting the facts for the two sets of tables comparatively. For the old system where did the facts come from? Not from the Register of Admissions, for the fallaciousness of the entries therein, except perhaps for the name and address, was recognised everywhere, while the Registers of Discharges and of Deaths were of little help. They had to rely on the Annual Register asked for by the Commissioners, or on memory, or on the case-books. In some cases, of course, individual superintendents prepared registers for themselves in order to facilitate table-making. Under the new system all facts, with one exception (the form of mental disorder in the resident patients, which is common to both sets), were to be found in the registers, so arranged as to make compilation absolutely easy. These registers were to be made up as the year went by, and thus a rush at the end of the year was avoided. He and Dr. Bond, he might say in passing, had had several interviews with the Commissioners, and he had good reason to hope that the handy registers now drafted would soon be finally approved by them. Then, when the facts had been collected and marshalled ready for making up into tables, he imagined that a vast amount of trouble had to be taken under the present system. He had visions of having had, when at Morningside many years ago, to deal with huge sheets of paper containing names and dashes. The preparation of suitable collecting sheets must in itself be a burden. Nothing of the kind was required now. As would be remembered, the Association would at its own cost provide compilation forms similar to a sample which he now produced. With these it was quite easy to record a fact in an appropriate place ready for summation. These forms entirely did away with any difficulty that might arise from the large amount of useful correlation of facts provided for by the new scheme. He would at once confess that if the Committee had asked members to make up these correlations from the present imperfect sources of information, and without providing for complete facility, it would have inflicted an atrocity on asylum officers; but, taking everything together, he claimed that the change of system would bring no increase of trouble. In both systems there were awkward tables; but he thought that old Table 2 A held the record of troublesomeness. He would ask to be allowed to put his prophecy against prophecy on the other side, and then to leave prophecy for accomplished facts. Dr. Bedford Pierce had gone to the trouble of making up registers in the proposed forms, in order to make up the new tables from them. He had been supplied with a manuscript set of twelve compilation forms (others not having been yet worked out). In response to an enquiry as to the net result, Dr. Pierce had written a letter which he would read. Dr. Pierce said that he and Dr. Mackenzie had not done quite all the compulsory tables nor the optional ones; but he found that when the registers were completed the new tables present little difficulty, and are simpler to compile than the old ones, and take less time. Further, he stated that though his numbers were not large, he anticipated that larger numbers would be dealt with relatively more easily. It was possible, of course, that Dr. Pierce's large share in the statistical work might be considered to lead him to be unconsciously benevolent, and he was glad therefore to be able to read a letter from a member who was utterly unconnected with the Committee—Dr. Aveline, of Cotford. He had supplied Dr. Aveline with another set of slightly improved compilation forms, on hearing that the new registers had been compiled for two years past at this asylum. He had received the following letter from Dr. Aveline a few days back:—"I regard the registers as extremely useful, and have kept them for the past two years. The process of extraction for the tables you so kindly sent me is very simple, and could quite easily be entrusted to

a clerk. I have not yet tackled the other tables—Ætiological, etc.—so I cannot speak with regard to them.” Those letters left little more to be said (applause); but he would point out that if, as hinted by Dr. Aveline, the clerk was asked to do more of this work, to the relief of the assistant medical officer, the clerk would find the work so straightforward and allied to his other work that he would prefer to do more under the new system than he had to do under the old. One other point he must emphasise, and this was that the work of the two, clerk and doctor, are most carefully separated; in fact, when the registers are completed the doctor's compulsory work is ended.

Dr. KIDD wished to associate himself with what Dr. Boycott had said. Time was limited, but he should just like to say that he was one of the small minority at the general meeting who opposed the statistical tables, and he then said that he was sure there was a large body of opinion outside the room strongly against the adoption of the new tables. The resolution now proposed bore that out. Though fully appreciating the work of the Statistical Committee he thought they had failed to do what was required:—to reduce and simplify the tables. Nothing that Dr. Hayes Newington had said could alter the fact that the number of tables had been greatly added to, and the labour of compilation had been increased at least 30 per cent. The register was an excellent idea, and he could not see why anything more than the return of the actual facts in the register should be required. There was nothing new about the charts shown by Dr. Hayes Newington, and which he thought would so much simplify the work. Many asylums used similar forms for working out the tables. The new tables were much more complicated than the old—the quinquennial ages, and occupation tables as instances. He hoped that the resolution would be passed.

Dr. HARDING thought that the tables had been drawn up with much ingenuity and skill, and that valuable results might be obtained from them, but at the cost of much time and labour. They were tables, however, much more suitable for the use of the enthusiastic statistician than for the purpose to which they were proposed to be put. He strongly supported Dr. Boycott's motion. The Association was composed of members the vast majority of whom are unable to attend the meetings. It was not only just but expedient that every member should have an opportunity of voting on this important subject. The new tables should not be adopted unless there were a clear majority in favour of them. It would certainly be a mistake to impose them on the members of the Association against the wish of the majority, and it appeared that the method advocated by Dr. Boycott was the only practical way by which the opinion of the whole Association could be expressed.

Dr. STEEN pointed out that the matter under discussion was not so much the merits or demerits of the new tables, but as to whether or not the opinion of the Association as a whole should be taken on the matter. He thought this was a step which should be welcomed as much by the supporters of the new tables as by those who were opposed to them.

Dr. BOYCOTT said that in proposing the resolution he purposely avoided any reference to specific objections to the tables, as these objections had been fully gone into last July. That the proposed improvement of the Register did not of necessity carry with it any alterations of the tables themselves. A Committee had recently been appointed to revise the classification and nomenclature of mental diseases, and it would be advisable to await their report before making alterations in the present tables.

The resolution on being put to the meeting was carried by 17 votes to 4.

The question as to what steps should be taken by the division in view of the suggested amalgamation of the London medical societies into one Association was then discussed, and it was moved by Dr. DIXON, seconded by Dr. CROOKSHANK, and carried, that “The South-Eastern Division is of opinion that it would be a mistake to give an unqualified refusal to join the proposed Union until there had been time to see what final shape the scheme assumes, and whether some of the difficulties may not disappear.”

The invitation of Dr. Fielding to hold the Autumn Meeting of the Association at the Bethel Hospital, Norwich, on October 17th, 1906, was unanimously accepted with much pleasure.

The date of the Spring Meeting was fixed for April 24th, 1907.

Dr. W. H. B. STODDART then read his paper on "Instinct—a Psycho-Physical Study in Evolution and Dissolution" (see p. 491).

Dr. D. G. THOMSON read a short paper on "The Training and Examination of Mental Nurses for the Certificate."

He said that to anyone like himself who had the good name and efficiency of our mental nurses at heart, and who conscientiously and loyally strove to carry out the spirit and the letter of the so far excellent regulations framed by our Association for their training and examination, certain difficulties and anomalies must have arisen which he was sure had only to be alluded to to be recognised and remedied. His remarks were not tendered as an elaborate essay, but were merely to introduce discussion and draw forth from other members their views and practice on the various questions which he indicated as follows:

First, as to the lectures on mental nursing by the Medical Staff. For the present purpose he would suppose he was dealing with an average-sized Asylum of, say, 1000 beds and 100 nurses, male and female. Of these 100 nurses at least one fourth would be already certificated, another fourth would have no intention or capacity to obtain the certificate, and thus there would be some fifty to train and examine; these again were in probably three stages of service, twenty in their first year and fifteen each in their second and third year.

It was usual, he believed, for the assistant medical officers to lecture to the nurses. These gentlemen with commendable enthusiasm and generosity devote their time to delivering one or more lectures a week to a class of, say, twenty-five of each sex.

Here it was that one of the difficulties came in; should they lecture the same subject matter to first, second, and third year candidates? Obviously not, and yet they could not be expected to deliver a different lecture to the three different grades, which would involve three lectures a week. He saw no way out of this difficulty except by lecturing to the twenty first year or junior candidates of both sexes together, which would liberate one lecturer, who could lecture to the second and third or senior candidates, also both sexes together; or the medical superintendent could lecture to the third year candidates, leaving the second year candidates to the senior assistant medical officer.

Another matter was that it was quite impossible to cover the ground in the handbook in twelve lectures, the minimum number which must be attended per annum, nor did he suppose it was ever so intended. One lecture per week for the six winter months gives twenty-six per annum, and out of these surely eighteen should be, rather than twelve, the minimum number to be attended. These twenty-six should, in his opinion, be delivered annually to first year junior candidates of both sexes on the elementary anatomy and physiology, required on general symptoms of disease and disorder, and on elementary nursing; and twenty-six should be delivered also annually to second and third year senior candidates on mental disorders and mental nursing.

This scheme of dividing juniors and seniors and of lecturing on different days would enable the matron and head attendants so to arrange the duties as to spare the nurses and attendants from ward duties, and enable them to attend the lectures, no small difficulty at present.

The difficulty of enabling night nurses to attend lectures and practical work was considerable, unless they ceased to be night nurses during half the period of training, or were keen enough to sacrifice their own time to attend lectures held, say at five or six o'clock p.m.

Again, he thought the regulations were not precise enough as to the importance, nay, necessity of candidates doing a specified term of duty in the various departments of an asylum. At present a nurse may obtain the certificate who has never seen an epileptic fit, who has never nursed the aged infirm insane, who has never had charge of a case of acute insanity, or who has never seen the methods used to maintain order and comfort in a ward containing turbulent chronic cases. Surely a term of not less than three months in each of the wards containing the above cases should be exacted.

As a medical superintendent he fully appreciated the confidence bestowed on him by the Education Committee of the Association in giving him credit for arranging such experience for his candidates, but, at a time when our methods were being watched and very properly criticised by other nursing bodies with

nursing certificate regulations, he thought these *desiderata* should be laid down more definitely.

Another practical and vital matter he would like to bring before the meeting was the actual conduct of the examination itself.

All honour to the one portal system, the uniformity and fairness of the written department of the examination. Any general nursing teachers and examiners to whom he described this, our system, admire and envy it much. He found, however, that so variable locally were the methods of conducting the *viva voce* and practical parts of the examination, that he must say it was high time we had some more definite regulations about it. His own practice was as follows :

With the assessor each candidate in succession was examined orally in his office for twenty minutes, then the candidates were taken to a ward, where were all appliances such as for feeding and the giving of an enema, with thermometers, charts, bandages, and other nursing instruments. Each candidate had to show thorough knowledge of all those appliances, also to arrest supposed hæmorrhage, change and clean faulty cases, etc.

He believed higher proportionate marks should be allotted to the results of this, the more essential duties of nursing. To judge from the examination results form sent from headquarters, candidates must pass separately in the written part and in the practical part, that is to say, assuming that fifty per cent. of marks obtains a pass, if a candidate made forty-nine in the written part and ninety-nine in the practical part he or she would be inexorably rejected, whereas the forty-nine and the ninety-nine should be added together, an average struck, and a "pass" result. Some candidates will always shine in written work, and others at practical work, and yet, on an average, may prove capable exponents of their art. He, therefore, heartily recommended this suggestion to the Association. The success of a purely theoretical candidate, or of a purely practical candidate, could easily be prevented by demanding a certain minimum of marks for each department. To obviate the influence of personal local bias for or against a candidate, the local examiner should assess the results of the practical examination in marks on his return form before he sees those allotted by the examiners in the written department.

Much criticism of a foolish and thoughtless character had been levelled against the examination, certification, and registration of nurses ; it was often asserted that natural ability, high moral character, common sense, and pillow smoothing manners were all that is required in a nurse, and that is impossible by examination, or certification, or registration to discover if these are possessed by a candidate. He thought those critics forgot that all such argument applied with equal force against our own medical examinations, qualifications, and registration.

In conclusion, he would remind the Association that the recognition of its claim to qualify nurses under the proposed Nurses' Registration Bills brought grave responsibilities as well as privileges, and he was sure no one was more alive to this than the President (Dr. Outterson Wood), who has done so much to bring the claims of our nurses for recognition under the notice of public bodies concerned in nursing.

Many members joined in the discussion which the paper invited.

A vote of thanks was unanimously passed to Dr. Boycott for so hospitably receiving the Division.

NORTHERN AND MIDLAND DIVISION.

MINUTES OF MEETING, APRIL 19, 1906.

THE SPRING MEETING of the Northern and Midland Division was held, by the courtesy of Dr. Macphail, at the Derby Borough Asylum, on April 19th, 1906. Dr. Macphail presided.

The following members were present (15):—Drs. Adair, Ewan, Harding, Hopkins, Legge, McLeod, Mackenzie, Nash, Percival, Pierce, Powell, Raw, Richards, Simpson.

Also the following visitors (9):—Drs. Barwise, Cassidi, Greaves, Howarth, Moon, Ross, Turpin, Vandrey, and the Rev. D. Davies.

Letters expressing regret at inability to attend were received from Sir John Dorrington, Mr. Harold Urmson, Dr. Outterson Wood.

1. The minutes of the last meeting were read and confirmed.

2. The following were unanimously elected members of the Association:—James Forsyth, M.B., C.M.Glas., Assistant Medical Officer, Woodilee Asylum, Lenzie, N.B. Recommended by Drs. Hamilton C. Marr, W. A. Parker and W. R. Watson.—A. R. MacIntyre MacIlraith, L.R.C.P. & S.Edin., etc., House Surgeon, Royal Infirmary, Glasgow. Also recommended by Drs. Marr, Parker and Watson.—Thomas Herbert, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, York City Asylum. Recommended by Drs. Hopkins, Pierce and Macphail.—Thomas Peppe Fraser, M.B., Ch.B., Assistant Medical Officer, Sunderland Borough Asylum. Recommended by Drs. Middlemas, Pierce and Mackenzie.—Edward Victor Collen, M.D., B.Ch., B.A.O.Dublin, Assistant Medical Officer, North Riding Asylum, Clifton, York. Recommended by Drs. Tighe, Macphail and Pierce.—Mary O'Brien, L.S.A., Assistant Medical Officer, Northumberland County Asylum, Morpeth. Recommended by Drs. T. W. McDowall and G. R. East.

3. Dr. Bedford Pierce was re-elected Secretary to the Division.

4. Dr. Edgerley was re-elected Represented Member of Council, and Drs. T. W. McDowall and Ewan were unanimously elected in the same capacity in the place of Drs. Hitchcock and Legge, who retired.

5. After some discussion, the following resolution, proposed by Dr. Pierce and seconded by Dr. McLeod, was carried, there being two dissentients:—"Seeing that the Medico-Psychological Association is a national organisation, with membership in England, Scotland, and Ireland, and that the proposed Medical Academy appears to be a purely London institution, the Northern and Midland Division does not see how any affiliation is possible."

6. It was decided to accept Dr. Macleod's invitation to hold the Autumn Meeting on October 11th, 1906, at the East Riding Asylum, Beverley, and, subject to the date being convenient, to accept the invitation of the Committee of the David Lewis Colony to hold the Spring Meeting next year on April 18th at the Colony at Warford, near Alderley Edge, Cheshire.

THE MENTAL DISORDERS OF PREGNANCY AND THE PUERPERAL PERIOD.

Dr. NATHAN RAW, of Liverpool, read a paper on "The Mental Disorders of Pregnancy and the Puerperal Period, with special reference to their treatment." The paper was based on the observation of 102 cases of puerperal insanity, including six cases of the insanity of pregnancy. Of this number 24 patients recovered completely during the short period allowed for detention by sec. 24, paragraph 2 of the Lunacy Act, 1890. The other cases were transferred from the Mill Road Infirmary to the county asylums, and although he could not give the exact figures, no doubt a large percentage recovered. He pointed out that puerperal insanity, in its acute phases, was of all forms of insanity the most likely to end fatally, and in many instances it exhibited the most acute form of mental disease, although, as a general rule, it was perhaps the most satisfactory form of insanity to treat, because it gave the best results; yet he pointed out the difficulties of treating an acute case in a private house, unless the house could be practically given up for the time being to its treatment. At the same time he pointed out there was a stigma which attached to a mother from having been certified and detained as a lunatic, a stigma from which she never recovered; and chiefly on that account, and from the fact that puerperal insanity was more an exhibition of temporary mental derangement than of pure organic insanity, he strongly recommended the provision of reception hospitals in every city, where such cases could be temporarily treated for a fixed period of six or eight weeks. At the end of that time, if the case did not recover, the patient should be certified as insane and sent to an ordinary asylum.

Dr. POWELL agreed with Dr. Raw that insanity of pregnancy was a rare disease. The last case he had was interesting, as the only one he remembered in which stupor was a prominent symptom. The patient was a girl of sixteen. She remained stuporose until a month or six weeks after the child was born. The disease ran a typical course, and recovered completely. Another case was sent in as eight months' pregnant, and the appearances agreed. She was very ill, had a

sleepless night, and next morning there was some delirium. She passed no urine after admission, and when next morning a catheter was used, eight pints of urine were drawn off, and the case proved not to be one of pregnancy at all. Thus one must never take things for granted in admitting a case to an asylum. As to the early treatment of insanity of pregnancy, it was a great hardship to send the patient to an asylum. A temporary hospital in large centres had much in its favour, and also many things against it. It must be in or very near the town, which was not desirable. As to the lower classes, he did not agree with Dr. Raw that a stigma attached to them after being in an asylum. If they made a good recovery it was forgotten in a few months.

Dr. MACLEOD was strongly inclined to retain the classification of Dr. Skæ (insanity of pregnancy, of the puerperium, and of lactation), as they were caused by three different conditions. He had been struck by the great rapidity of the parturition in many of these cases, so that a patient was sometimes delivered while walking about in the ward amongst other people, and he had known a patient delivered on going to stool without any previous warning. He regarded some septic infection as the cause of the insanity. His experience was that all cases with albuminuria, surgical as well as others, went wrong. As far as his own statistics went, illegitimacy was not an important cause of the insanity of pregnancy. He thought bodily conditions were much more important than mental. Heredity was very important indeed.

Dr. PIERCE said that he hoped it would not be long before we should be able to differentiate the various forms of puerperal insanity, and that it might be possible, in the early stages, to say which cases could wisely be treated at home and which needed asylum care. He thought four varieties, at any rate, could be distinguished—(1) Toxic; allied to post-febrile insanity. (2) Cases due to exhaustion and loss of blood. (3) and (4) Cases in which the puerperal state had precipitated an attack of insanity in a subject already predisposed, *i. e.* cases of manic-depressive insanity and dementia præcox. With reference to treatment he pointed out that, if it became the practice to keep all puerperal cases in infirmaries and generally to delay admission of acute cases into asylums as long as possible much valuable time might be lost, whilst the position of the cases that did not recover within the specified time would be worse. The asylum would tend to become a more depressing place than at present if these curable cases were not admitted. He thought that, speaking generally, the welfare of the many might, in this way, be sacrificed to save the feelings of a few.

Dr. MACPHAIL wished to refer to three points:

(1) The insanity of pregnancy was said to be a very rare condition, but he was sure any general practitioner would agree that about the third or fourth month of pregnancy it was quite common for their patients to show some mental symptoms, though asylum care was not required.

(2) Albuminuria. For some years he had systematically examined the urine of all his patients, and the longer he lived, the less did he worry about albuminuria, for it is present one day and absent the next, and it does not seem to have the importance one used to attach to it.

(3) As to the question which had been asked about thyroid treatment in these cases, only a small portion of his cases of puerperal insanity did not either die in the early weeks or recover in the early months of the attack. He could only recall two cases which remained stuporose after about six months. He had used thyroid in these two cases—in one with a bad result, and in the other with some benefit.

Dr. NATHAN RAW, in reply, said that Dr. Powell's experience that melancholia was the most common form in these insanities was different from his, which showed mania to be more common. He had given thyroid a great deal, and had never seen any good effects. Dr. Pierce had touched a very important point as to the clinical varieties, but he did not think that any one could say which cases were going to do well and which were not. Dr. Macphail referred to transient albuminuria, which he thought was a very important point. Albuminuria might start mental symptoms, but need not necessarily continue as long as the mental symptoms. He had a ward in the Mill Road Infirmary in Liverpool, where he could detain patients for three days, or could extend the time to three weeks. Of 7000 cases thus admitted, one half were certified to asylums, and the other half recovered and went home. Many cases were sent to asylums who should not be

certified as insane, especially alcoholic and other toxic cases. The recovery statistics of asylums would suffer if these cases were dealt with in hospital as he suggested, but it would be to the benefit of many patients. The stigma of having been in an asylum was, in his experience, a very real thing, and often prevented a man getting employment afterwards.

THE HISTOLOGY OF SOME CEREBRAL TUMOURS.

In his paper on "The Histology of some Cerebral Tumours" Dr. JOHN RICHARDS first gave a brief account of the clinical histories of three cases of cerebral tumour, and then considered their histological features in detail. The first two were cases of rapidly growing tumours of under twelve months' duration, and scarcely to be distinguished microscopically from small round and spindle-celled sarcomata. The tumour in the third case was probably of several years growth, and was composed of well-formed glial cells and fibres, closely resembling the normal elements of the neuroglia. Dr. Richards dissented from the view that gliomata were derived entirely from epithelial tissue, and held that mesoglia elements also took a part in their formation.

THE TRAINING AND REGISTRATION OF THE ASYLUM NURSE.

Dr. HARDING opened a discussion on the training and registration of the asylum nurse. After stating what he considered ought to be the minimum training of an asylum nurse he mentioned that a three years' course of training had been in existence at Berry Wood for sixteen years, but that only about 16 *per cent.* of the nurses who entered the service gained the certificate. He spoke in strong terms of the inadequacy of the system of training and examination of nurses carried on by the Medico-Psychological Association. He pointed out that the only thing in which there was uniformity was the written examination—the least important method of gauging a nurse's efficiency. There was, however, no uniformity in the more essential parts of the examination, while the candidate might actually have had no practical sick-room training at all. He affirmed that the ignorance of some holders of the certificate proved this fact. The value of the certificate was therefore indefinite, and conveyed no indication of the knowledge and experience of the holder, who might be well equipped for her work, or who might be the reverse. Thus a great injustice was done both to the able and well-trained women holding the certificate, and to the public who had no satisfactory guide to the capacity of the nurse they might employ. It was therefore absurd to claim that the restriction of the right to register to the holders of the Medico-Psychological Certificate was any guarantee of efficiency, but rather the reverse. While recognising and giving full credit to the Association for their past work with regard to nursing, he urged the unfitness of a self-elected body of medical men to act as the sole arbiters to decide what the training and examination of a mental nurse should be. It was absurd that no one, however able and interested, should have anything to say on the question of the nursing of the insane unless he or she were a member of the Association. Its Education Committee contained no representative either of the public, of general nursing, or of the mental nurses themselves. He referred to the Report of the Select Committee of the House of Commons on the registration of nurses, and pointed out the different treatment allotted to hospital nurses as compared with asylum nurses. He advocated the representation of asylum matrons and nurses on the central body, and held that this body should exercise the same supervision over the training of nurses in asylums as it will do in hospitals. He also argued that it would not tend to progress in nursing if the qualification for registration in nursing mental cases were restricted to the Medico-Psychological Certificate. He supported the view that the qualification for registration should not be restricted to any one certificate, but should be such as might be approved by the central body, thus approximating asylum nursing to that of hospitals.

Dr. EWAN was afraid his views were very heterodox. He might have been unfortunate, but those nurses he had come across who held the Association Certificate were very little good indeed. He was very glad to hear that so small a percentage of the nurses at Berry Wood got the certificate there. His impression was that

most of the nurses who have the Association Certificate were not qualified rightly to be called nurses at all.

Dr. ADAIR thought it was a subject that should be left open and brought up for discussion again.

Dr. NATHAN RAW thought the subject should be looked at from three points of view—the Committee's, the patient's, and the nurse's. He thought the Association had done splendid work in improving the knowledge of the asylum nurse. Many asylums did not insist on the heads being trained nurses. Many of the chronic insane did not need trained nurses, but the acute cases did. Nurses themselves were not satisfied with their position. They felt there was little opening for them, as the head appointments were given on other grounds than asylum training. The nurse who succeeded best was the hospital-trained nurse who had had six months' asylum training. She could then go out as an asylum-trained nurse.

Dr. MACPHAIL thought that Dr. Harding had been unduly severe on the Medico-Psychological Association. He was aware that the certificate was not all it should be, but it had improved, and a committee was now considering how it could be further improved. For his own part he never sent up a candidate who had not already passed his idea of a minimum.

Dr. BEDFORD PIERCE agreed with the other speakers that the examination for the Association Certificate had been very easy, but seeing that the whole movement was but recent it was not possible to do otherwise than begin on modest lines. He expressed the opinion that in order to make the best nurse for mental cases it was desirable to begin within the asylum and take a year or two at a hospital afterwards, though, practically, it was difficult to arrange this, seeing that most good hospitals only take nurses for three years. The alternative, beginning in the general hospital was not in his judgment as satisfactory; the discipline and routine of a sick ward tended to make the nurse somewhat less adaptable to the very widely varying needs of insane patients.

Dr. HARDING, in replying, said that he felt that his object had been attained inasmuch as he had presented controversial points. He considered that the irresponsibility of each asylum, as regards the competency of those nurses certificated in it, was a serious fault of the present system.

A hearty vote of thanks to Dr. Macphail for his hospitality, and kindness concluded the business.

SOUTH-WESTERN DIVISION.

THE Spring Meeting of the South-Western Branch of the Medico-Psychological Association was held at the Winsley Sanatorium, Limpley Stoke, near Bath, on Friday, April 27th, 1906.

Those attending were: Dr. Lionel A. Weatherly, by whose invitation the meeting was held at the Sanatorium, Drs. H. T. S. Aveline, L. Baskin, G. A. Rorie, Morton, E. Goodall, MacBryan, Morrison, P. W. Macdonald, W. F. Nelis, and R. W. Prentice. Dr. E. Dunbar Townroe (of the Sanatorium) was also present during the proceedings.

The party was conducted over the sanatorium by Dr. Weatherly, who is the Chairman of its managing body, and entertained by him to luncheon. After some hours had been spent in inspecting the beautiful establishment and grounds the business meeting was held at four o'clock, Dr. Weatherly being voted to the chair.

Letters of regret for non-attendance were received from Dr. T. Outterson Wood (President), Dr. Ernest W. White, Dr. Stanley Elliott, and others.

The first business was to elect new members, and there were two candidates:

Reginald Wickham Prentice, L.S.A., Spring Grove, Bishops Stoke, Hants. Proposed by Drs. H. J. Manning, J. F. Briscoe, and Aveline.

Herbert Edwin Scowcroft, M.A. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Assistant Medical Officer, Somerset and Bath Asylum, Wells. Proposed by Drs. Pope, W. Scowcroft, and Sutcliffe.

Upon a ballot being taken they were declared unanimously elected.

Dr. H. T. S. Aveline was re-elected hon. secretary and Drs. Macdonald and Goodall were appointed representatives on the Council.

Drs. Blachford and Davis were appointed members of the Divisional Committee. The next meeting was fixed to take place at Kingsdown House, Box, on Friday, October 26th, by invitation of Dr. MacBryan, and the next spring meeting at Hereford, on April 18th, 1907, by invitation of Dr. Morrison.

The next business was to consider the Report on the Union of Medical Societies. After considerable discussion,

Dr. MACDONALD moved and Dr. MACBRYAN seconded the following resolution: "That this meeting of the South-Western Division does not favour the amalgamation of the Medico-Psychological Association with the proposed union of London societies, for the following reasons:

"(1) Such amalgamation would mean the dropping of our independence and the loss of our influence as an association.

"(2) The stopping of the *Journal of Mental Science* (now the property of the Association) as a separate publication.

"(3) The position of the Association in the matter of the training and registration of mental nurses, which could not be carried on as a section of the Academy.

"(4) The important work entrusted to the Parliamentary Committee, which could not be undertaken by a section of mental medicine in the proposed Academy."

Dr. MACDONALD further moved, and Dr. MORRISON seconded the following:

"While this Division disapproves of amalgamation, it hopes the Council of the Association will interest itself in the scheme and associate itself with the formation of the Mental Section."

Both were carried unanimously, Dr. Morrison, in seconding the second resolution, observing that he was willing to have strengthened it by a direct recommendation from that branch that members of the Association engaged in psychological work should try and become members of the Academy's proposed mental section.

WINSLEY SANATORIUM.

Dr. WEATHERLY then gave a most interesting account of the history of the Winsley Sanatorium—its scope, mode of maintenance, methods of treatment, and results. In the name of the Board of Management he first expressed a welcome to the members of the Association, as they did to all medical men, to see the sanatorium. In the year 1898, when he happened to be President of the Bath and Bristol Branch of the Medical Association, it was decided to have a discussion on the treatment of consumption. In those days sanatoria were not spoken highly of in this country, and there were very few in existence. Dr. Davies, the Bristol Medical Officer of Health, opened a discussion, and the outcome was a resolution that the Bath and Bristol Branch of the Medical Association should form a branch of the National Association for the Prevention of Consumption which had recently been inaugurated by H.M. The King, then Prince of Wales. After considerable discussion it was decided to form a branch for the three counties of Somerset, Gloucestershire and Wiltshire, and the city and county of Bristol, representing a population of one and three quarter millions. The duties of the branch were to educate public opinion by the circulation of literature, by lectures, etc., to influence town councils and bodies concerned with the public health on matters relating to consumption, and to erect sanatoria. That was a large order, particularly with so large a population and such a huge area. They began by holding a number of meetings all over the three counties, lecturers being appointed to lecture on the prevention of consumption, and at each meeting he (Dr. Weatherly) was present to plead the cause of a sanatorium for the poorer consumptives of the three counties and to secure the formation of a local committee to collect funds. In the meantime a sub-committee had been appointed to look out a site, and that one was chosen, and all who had seen it had agreed that a finer could not have been found. The committee were, unfortunately, checked in their endeavour to collect funds. The Boer war was raging, and then followed the death of Queen Victoria, and, as they knew, committees were formed everywhere to raise funds for war purposes and afterwards for memorials to the late Queen. Indeed, they were almost on the point of throwing up the sponge when he conceived the idea of approaching town councils, rural district councils and bodies of working men

with a view to their interesting themselves in the scheme. A curious position of our laws at once came to their notice. While town councils and rural district councils could, he believed at the time, help such an institution under the Public Health Act of 1875, county councils, being governed by the Isolation Hospitals Act, were not able to help them unless they made consumption a notifiable disease in their counties. It was decided that they should open the matter before the Bath Town Council, as he (the speaker) knew so many members of that body. He was heard in open council, and they decided that, provided counsel's opinion was favourable, and that a trust deed be appointed in respect of each bed, and that a member of the Board of Management be appointed to represent each bed, and that they had the sole right of nomination to the beds, they would purchase two beds at £250 each and provide the maintenance at the rate of £65 per bed per year. Mr. MacMorran, K.C., was distinctly of opinion that the corporation had the power to do as they proposed. He went on to Swindon, Gloucester, and Bristol, the latter city coming forward and taking twenty beds. For a place so large as Bristol that was not many when they considered that in Bristol alone more than one person dies of consumption every day of the year; but still, it was a beginning, and their £5000 was a great help. Then came the most gratifying circumstance of all. He addressed three meetings of the working men of Swindon and showed them that by merely denying themselves a halfpenny paper once in ten weeks for one year they would be able to provide two beds in the sanatorium. Long before the year was up they handed in sufficient to provide two beds, and when their beds were finished their maintenance for the year was paid in advance. Only that morning had come a further welcome bit of news from Swindon. They required another £13,000 before they had completed the cost of the building. This was due to underestimating the cost of their beds, which were £120 each more than they estimated, and, including all expenses of every kind, such as the heavy preliminary expense of the missionary work which they did in the course of several years, the cost of every bed was £420. This included also lawyers' fees, which were heavy owing to a separate trust deed being necessary in respect of every bed. They had also to face expenditure over water supply, drainage, etc., which was not anticipated. In the Annual Report which was just coming out they suggested that owners of beds who had purchased them for £250 should give another £50 towards the extra cost, making £300, and that morning he heard that the Swindon men having got an inkling of what was required, had met and unanimously voted another £100 in respect of their two beds unconditionally, a suggestion that the gift should be conditional upon the other owners doing the same not being entertained. That was an example of self-help that might be followed throughout the kingdom. Altogether thirty-eight beds were taken by town and rural councils, firms, working men, and individuals. The nomination to these beds rested entirely with their owners, and the patients had nothing to pay. There was a rule that one third of the beds should not be maintained in this way, and for these beds the patients were charged 10s. per week, so that the institution, once established and free of debt, would run automatically so long as they got from the public every year 15s. per week for twenty beds—just under £1000. He thought it was unique in the history of charitable institutions in this country that one should be run with less than a quarter of the annual cost being obtained from the charitable public. With regard to the entry of patients they tried to be very strict. They had, first, a Medical Consultative Board which consisted of the leading medical men in the different districts, so that there was one in reach of every part of the three counties. The names were sent under cover to the patient's medical man, who had himself to prepare a very fully drawn up certificate as to the patient. The patient was then sent on to one of these special medical men to be examined, and the certificates of both of them were sent to the resident medical officer at the sanatorium, and he decided whether the case was suitable for admission, and if not he communicated with the Medical Consultative Board, who decided accordingly. Then the case was invited to come in for four months when the first vacancy occurred. In the matter of staff they had a medical officer resident, matron, sister, two nurses, cook, kitchen-maid, scullery-maid, parlour-maid, nine house-maids, laundry-maid, and three helpers, engineer and assistant, a gardener and a labourer. When they first decided to start the institution they were made a laughing stock of because they said they proposed to run the institution on 25s. per patient per week, and they were told that

it could not be done. What they did was to take the absolute expenditure of all the sanatoria of America and Europe and divide them up, with the result that they made the average 25s., and he was glad to say that through the excellent management of the matron, assisted by a very strong Finance Committee with a splendid chairman (Mr. Dyer, of Bristol), who looked into everything most carefully, they had succeeded in keeping within the estimate. Allowing an average of fifty-five patients, the cost per patient worked out as follows: *Per week*.—Maintenance, 10s. 8½d.; surgery and dispensary, 7d.; domestic, 3s. 3d.; establishment charges, 1s. 0½d.; salaries and wages, 6s. 9½d.; management, 1s. 1d.; miscellaneous, 11½d. Total £1 4s. 4½d. They were therefore able to say that their promise had been fulfilled with regard to maintenance. With regard to their results. They classified their cases as follows: (1) Good cases—Full working capacity may be restored without much fear of relapse if reasonable care is taken. (2) Hopeful cases—A good chance of regaining working capacity exists, although not perhaps in four months' treatment. Risk of relapse greater; caution will be needed for a longer time. (3) Some benefit may be expected. Cases of long standing and with much lung affected. Improvement more or less lasting according to the life led. Will only be fit for very easy light work under favourable conditions. (4) Unsuitable cases—With regard to the suitability of cases their suggestions to medical men were: (1) The most suitable case for a course of treatment limited to sixteen weeks is one newly detected and found to have nothing more than signs of consolidation at one apex, or some similar lesion. (2) Cases with a greater extent of one lobe of one lung affected. These may do sufficiently well. (3) Cases with fair extent of disease in one lobe and slight disease in a second might be admitted, but only if otherwise the indications are favourable and if there is a prospect of carrying out after-treatment for the requisite time. (4) Cases complicated with laryngeal diseases should be admitted only if the affection of both larynx and lung is in an early stage. (5) Cases of disease dating back for several years should be excluded. The sanatorium was opened on December 16th, 1904, and during the year ending December 31st, 1905, there were admitted 180 patients and discharged 131. In regard to results they never used the word "cured." What he had always preached himself was that consumption could not be cured—there was always liability to relapse. So they used the word "arrested." Of the discharged, 49 were fit to resume work of a suitable character, and the disease was arrested in every case; 33 showed considerable improvement, there being either arrest, quiescence, or retrocedence of disease; 30 showed marked improvement, but required still further treatment; 17 showed no signs of improvement. There were 2 deaths. One great difficulty they had was that patients had to be sent back often to surroundings that were terrible, many of them to employment that was unsuitable. The Resident Medical Officer did his best to try and encourage employers to give returned patients some special facilities. If he was a clerk, for instance, they were asked to see that he worked in a room where there could be an open window. The Bath stone firms had done splendidly in this respect in regard to a clerk who had undergone treatment, putting him in a room by himself where he could have the window open, and he was keeping absolutely well. They were hoping soon to have an "after-care" association, by means of which greater help might be given to those who left the institution. He had done his best to keep in touch with the cases that went out, and a pleasing fact about the Annual Report that was in preparation was that there were in it "after-notes" of forty-nine cases that left months ago, and in every case the patients were doing well. With regard to the treatment of the patients, it was not excessively severe. There was no "Strasburg goose" stuffing. The food was very simple, and the patients gained flesh wonderfully well. With regard to case-books they had an excellent system. There was a case-book in which every detail was put down, the diagnosis of the medical practitioner consulted by the patient, and the diagnosis of the medical man at the institution. They very often differed considerably, and he did not think there was any disease which the ordinary medical man knew so little about. There was nothing that doctors failed so generally to diagnose early enough as consumption, and often they had cases which they were told were just detected where they found long-standing mischief. He could say, in conclusion, that they were doing in that institution an immense amount of good in two ways: (1) They were doing good by having arrested the disease in a large number of cases. Nearly one hundred patients

would not have been alive that day if they had not come to Winsley. (2) They were also doing a grand thing in educating the public. More had been spoken and written in these counties since the sanatorium was projected on the benefits of open air, ventilation, the prevention of spitting, etc., than ever before, and he was certain that the educational importance of their work could not be exaggerated.

Dr. DUNBAR TOWNROE, Resident Medical Officer, added some interesting information as to the treatment of the cases at Winsley, coupled with some observations from his personal experience of consumption. It was obvious from the cases they got there that few people understood what consumption was. To him the consumptive was suffering from depreciation of lung-tissue, and he had come to the conclusion long ago that a consumptive was a person who had never been in a very good state of health. As a rule, whether rich or poor, they were debilitated subjects, and therefore the first thing required was nursing. Therefore they nursed the patient, and as a more extended observation was generally desired than was available from the certificate, they put him to bed. He (Dr. Townroe) hated bed, but it was the only way in which they could really watch a patient. Every one must agree that the patients had charming bedrooms, and in being able to give every patient a separate room of course they scored enormously in regard to rest and quiet. They did not over-do anything. Nothing had done so much harm to the treatment of consumption as the rushing to extremes. They tried to recognise that the patient had probably deprived himself of fresh air, and that it was absurd to try and fatten him up all at once. The chief points were regularity and nursing. He abhorred the system under which the patients were "blown away," but attached much importance to bathing. Everybody bathed, first in tepid water in which the patient was soaped from head to foot, and afterwards everyone had a cold douche. It was something quite fresh to them at first, but they came to look upon it as a luxury that they would afterwards miss in their own little homes. For breakfast they had porridge, bacon, etc., and although that was simple, it was the best that money could buy, and throughout their diet was wholesome. Practically the only drug he prescribed was hydrochloric acid. Rest is ordered after all meals, and he saw all the patients in the morning before starting them for lovely walks. At 12 o'clock they were made to come in and rest perfectly quietly for an hour, and then came the important mid-day meal. They believed a great deal in vegetables, and he encouraged the use of raw meat. He had never had any difficulty with the patients over this; it did not sound nice, but it was easily taken and easily digested. Afterwards they had cooked meat. They rested a little in the afternoon or took a walk under his recommendation, and from 5 to 6 they rested. At 6 was the last meal. They went in for comparatively small meals, but they led a most methodical life and were most carefully watched. At about the second month they were put on hill-climbing, and he could show them men who when they came were absolutely breathless at the least exertion, but who could now take hills as well as any of them. They left the tubercle bacillus alone. Nursing was the thing most essential, and they got results there that he had never seen exceeded in any sanatorium. They could not say much about the future of the patients, and all they could do was to do as much good as they could for the present.

Dr. MACDONALD tendered the thanks of the meeting to both Dr. Weatherly and Dr. Townroe, congratulating them on the results which had so far been attained. Dr. Weatherly mentioned that there was no disease that medical practitioners knew so little about as consumption, but he thought there was another they could all name that the ordinary practitioner could seldom diagnose too. To him personally the great regret was that these cases had to return in so many cases to such miserable homes. It was interesting to hear about the average cost of maintenance, and he quite agreed with Dr. Weatherly that it was the matron who could make the cost much or little. His experience was that with the right woman they would get good results and economy. It was startling to hear that the cost per bed was £420, but he quite understood that that included a great deal of what might be classified as additional expense, and that generally happened.

Dr. WEATHERLY said they must not forget that in the sanatorium each patient had a separate bedroom. The difference that made was enormous.

Dr. TOWNROE declared that proper treatment of consumptives in wards was absolutely impossible.

Dr. GOODALL expressed the obligations of the branch to Dr. Weatherly for his kindness, his hospitality, the photographs of the institution he had distributed, and also for his address. He congratulated the three counties on having a gentleman of Dr. Weatherly's enthusiasm, patience, eloquence, and ability to get at the right people.

Dr. AVELINE, who said he was present at the laying of the foundation-stone, by Dr. Weatherly's invitation, seconded, and said they could not but admire the perseverance which Dr. Weatherly had put into the completion of that project.

Dr. Weatherly, in replying, said it was a great pleasure to receive them. They knew the keen interest he took in relation to consumption generally and particularly with regard to consumption in asylums. He hoped to see more done in their public asylums to segregate this disease and lessen the mortality from it.

The members afterwards dined together at Fortt's Restaurant, Bath.

SCOTTISH DIVISION.

A meeting of the Scottish Division of the Medico-Psychological Association was held within the Hall of the Royal College of Physicians, Queen Street, Edinburgh, on Friday, November 24th, 1905.

The following members were present:—Drs. Angus, Carlyle Johnstone, Clouston, Ford Robertson, Ireland, Keay, Kerr, Marr, McRae, Oswald, Parker, A. Robertson, Turnbull, Urquhart, Bruce (Divisional Secretary), and others.

Letters of apology were intimated from Drs. Havelock and Watson.

Dr. Clouston was called to the chair, which he vacated upon the arrival of Dr. A. Robertson.

The minute of last meeting was read, approved of, and signed.

Charles John Shaw, M.B., Ch.B., M.R.C.P.E., Assistant Physician, Perth District Asylum, Murthly (proposed by Drs. Clouston, Urquhart, and Bruce), applied to be admitted as a member. After ballot he was declared to be duly elected.

It was decided to nominate Drs. Yellowlees and Turnbull as Representative Members of Council, and Dr. Lewis C. Bruce as Divisional Secretary. These nominations to be confirmed at the Spring Meeting of the Division.

The Pensions Committee was reappointed in view of the probable occurrence of a General Election.

Dr. LEWIS C. BRUCE moved "That this meeting of the Scottish Division decline to adopt the new Statistical Tables."

Dr. CARLYLE JOHNSTONE seconded.

Dr. OSWALD moved an amendment "That this meeting decline at present to give an opinion as to whether the Scottish Division accept the new Statistical Tables or not, until the opinion of the members of the Division be ascertained by circular, to be issued by the Secretary."

Dr. MARR seconded.

After Drs. Urquhart, Carlyle Johnstone, Clouston, Marr, Oswald, Keay, and others had spoken to the motion and amendment a vote was taken.

Four members voted for the amendment, and eight for the original motion, which was declared duly carried.

The Division appointed Drs. Ireland, Urquhart, and Ford Robertson, with power to add to their number, to represent the Division at the International Congress of Psychiatry, to be held at Milan in 1906.

Dr. URQUHART showed charts, tables, and statistics relative to the Heredity of Insanity, which were discussed and criticised by Drs. A. Robertson, Ireland, Clouston, and others.

A vote of thanks to the Chairman terminated the meeting.

The members afterwards dined together at the Palace Hotel, and entertained Dr. A. Robertson, of Glasgow, as their guest on the occasion of his having completed fifty years in active practice as a physician.

A meeting of the Scottish Division of the Medico-Psychological Association was held within the Hall of the Faculty of Physicians and Surgeons, St. Vincent Street, Glasgow, on Friday, March 23rd, 1906.

The following members were present: Drs. Campbell, Carlyle Johnstone, Clouston, Easterbrook, Ford Robertson, Havelock, Hotchkis, Ireland, Kerr, Latham, Macdonald, Marr, Parker, G. M. Robertson, A. Robertson, Turnbull, Wallace, Watson, Yellowlees, L. C. Bruce (Divisional Secretary), and others.

Dr. Watson was called to the chair, which was later occupied by Dr. Carlyle Johnstone.

As at the last meeting of the Division fourteen members of the Division had not received notice of the meeting it was decided to read the items of the business contained in the minute of the meeting held in November, 1905, and vote for confirmation or reversal.

The minute was agreed to excepting the clause which reads as follows:

"Dr. Lewis C. Bruce moved 'That this meeting of the Scottish Division decline to adopt the new Statistical Tables.'

"Dr. Carlyle Johnstone seconded.

"Dr. OSWALD moved an amendment 'That this meeting decline at present to give an opinion as to whether the Scottish Division accept the new Statistical Tables or not, until the opinion of the members of the Division be ascertained by circular to be issued by the Secretary.'

"Dr. MARR seconded.

"After Drs. Urquhart, Carlyle Johnstone, Clouston, Marr, Oswald, Keay, and others had spoken to the motion and amendment, a vote was taken.

"Four members voted for the amendment and eight for the original motion, which was declared duly carried."

Dr. CLOUSTON moved "That this portion of the minute be reversed."

Dr. TURNBULL seconded.

Dr. URQUHART moved "That this portion of the minute be confirmed."

Dr. L. C. BRUCE seconded.

Six members voted for the amendment and fifteen for the motion, which was declared carried.

Drs. Yellowlees and Turnbull were appointed Representative Members of Council and Dr. Lewis C. Bruce Divisional Secretary.

The SECRETARY read the report of the Retiring Allowances Committee.

Dr. LEWIS C. BRUCE opened a discussion on "The Clinical Significance of Indoxyl in the Urine" (see p. 501). Drs. Yellowlees, Clouston, G. M. Robertson, Parker, Urquhart, MacDONALD, BAUGH, Easterbrook, and others took part in the subsequent debate.

The Report to the Council *re* the Union of the Medical Societies was considered. The Division expressed disapproval of the Union, but would be prepared to reconsider the proposal upon hearing further details regarding the scheme.

A vote of thanks to the Chairman terminated the meeting.

The members afterwards dined together in the Windsor Hotel.

IRISH DIVISION.

The Spring Meeting of the Division was held at the Central Criminal Asylum, Dundrum, by the kindness of Dr. G. T. Revington, on Tuesday, April 24th, 1906.

Before the meeting the members were taken round the institution and were then entertained at luncheon by Dr. Revington.

The chair was taken by Dr. Revington, and there were also present Drs. F. E. Rainsford, H. M. Eustace, J. A. Oakshott, M. J. Nolan, T. Drapes, R. R. Leeper, and W. R. Dawson (Hon. Sec.).

The minutes of the previous meeting were read, confirmed, and signed.

Votes of sympathy with the family of the late Dr. John Molony, and also with Dr. Oscar Woods on the death of his daughter, were passed unanimously.

The Secretary reported on matters arising out of the minutes.

P. J. Irwin, L.R.C.P.I., L.M., L.R.C.S.I., Assistant Medical Officer, District Asylum, Limerick (proposed by Drs. E. D. O'Neill, F. O'Mara, and W. R. Dawson), was unanimously elected an ordinary member.

Dr. W. R. Dawson was elected Divisional Secretary, and Drs. M. J. Nolan and T. Drapes Representative Members of Council, for the ensuing year.

The dates of the meetings of the Irish Division for next session were agreed on as follows: November 5th, 1906, April 22nd and July 4th, 1907.

It was decided to ask Dr. West to allow the Summer Meeting to be held at Kilkenny District Asylum. Failing this, Dr. Nolan invited the Division to Downpatrick.

The report of the Committee of the Division with reference to State provision for imbeciles in Ireland was received and adopted.

The question as to the desirability of the Association joining the Union of London Medical Societies was discussed and the following resolution unanimously passed:

"That the Irish Division is of opinion that it is not desirable for the Association to join the Union of London Medical Societies as at present proposed to be constituted."

A letter from Dr. Fletcher Beach was read, asking for the opinion of the Division on points connected with Lunacy Law reform, and after discussion the following recommendations were arrived at: (1) Increase in the number of commissioners; (2) legalisation of the admission of voluntary boarders into public asylums in England and Ireland and into chartered hospitals and private asylums in Ireland; (3) permission for certifying medical men to visit the patient together; (4) removal of disabilities of private asylum medical officers in connection with appointment as Commissioners or Chancery Visitors; (5) legalisation of the principle of the boarding-out system for Ireland; (6) extension of the provisions of the Idiots Act (England) to Ireland. The meeting declined to express any opinion as to (a) provision for treatment of incipient cases outside of asylums (in the absence of further information); (b) the pension scheme of the Association (the question of superannuation being already in the hands of a special committee of Irish asylum officials); and (c) transfer of licenses from one jurisdiction to another (this being a matter which does not concern Irish asylum officials).

Dissatisfaction was expressed as to erroneous information which had been furnished concerning the examination for the certificate of the Association.

COMMUNICATIONS.

(1) Dr. REVINGTON read some "Notes on the Central Asylum," which were discussed by Drs. Drapes, Oakshott, and Nolan.

(2) Dr. LEEPER read notes of the following cases and exhibited naked-eye and microscopic specimens from them:

CASE 1.—The patient, upon admission to the hospital, suffered from a number of exalted delusions, and coupled with these she believed her food was poisoned and that nothing was offered to her at meal-times but food impregnated with arsenic. She said she distinctly tasted poison in her tea and other articles of her diet. She ate her food at times very ravenously, and at other times it was difficult to get her to take sufficient. She gradually lost weight and became more delusional. No physical disease was diagnosed. Her walk, eyesight and movements were normal, and at no time was there any symptom suggestive of gross brain disease. She suffered from a hæmorrhage from the bowel which was so slight and transitory that it was not thought to be of any very serious moment.

It was noticed that a small, blue-coloured tumour appeared on one side of her neck. This was freely movable and in the subcutaneous tissue; it was quickly followed by the appearance of another in the left forearm, and within a fortnight the entire abdomen and chest were covered with these dark-blue-coloured tumours, varying from the size of a pea to that of a large marble or small tangerine orange. Her feet became swollen, and she suffered from frequent hæmorrhages from the bowel. The urine was normal and did not appear stained with pigment. She died of exhaustion.

Post mortem.—The abdomen contained a melanotic sarcoma, situated in the centre of the great omentum. This mass was composed of a number of small spherical bodies of the size of marbles, like scybala, and would be mistaken for

this condition if felt through the abdominal wall. The bowel was largely impregnated with small, shot-like sarcomatous growths and the peritoneum appeared as if splashed over with ink-spots. All of these little black spots were melanotic sarcomata. On examining the brain a melanotic growth occupied the left cerebellar lobe, and there were at least ten similar growths in the right and left hemispheres. The growths occupied the grey matter and were placed at different distances from the brain-surface, but all were in the grey matter except one, placed, as already mentioned, in the cerebellum. The membranes were normal, and no deposits were observed in them.

In a section of one of these sarcomatous growths the cells are of the "rounded" variety and there are numerous scattered granules of melanin; some of these are arranged in small spherical groups and some impregnate the pyramidal cells and neuroglia cells, and others are scattered throughout the typical cells of the new sarcomatous growths.

The points of interest in this case are the following:

(1) The presence of delusions of poison co-existing with the presence of the primary sarcomatous growth in the great omentum.

(2) The existence of melanotic sarcoma as springing from no pigmented area or from the eye, or other usual points of origin. There were no ocular symptoms developed in the case, and no secondary melanotic growth occurred in the eyes.

(3) The extraordinary malignancy of the growths and the fact that, although the cerebrum was extensively affected by secondary deposits, and also the cerebellum, no motor symptoms were noticeable, and little, if any, change in the patient's mental state resulted therefrom.

The presence of melanin in the normal brain, both with *locus niger* and *locus cæruleus*, is a fact of considerable interest. What is the function of this substance in normal mentalisation? The appearance of many of the pyramidal cells in the region of the sarcomatous growths is exactly similar to that observable in the *locus niger*. The melanin is arranged around the cell nucleus, as are the Nissl granules in normal cortical cells. The *locus niger* in this case was normal in appearance, and there was no increase of its usual amount of pigment. If one may form an opinion as to the significance of this observation, we might be led to think that the production of melanotic substance was a function of the healthy brain, and its decrease or increase productive of some psychical changes. From this case also it would appear that an increase of this substance is not toxic, as the brain-functions were active and fairly normal when undoubtedly the hemispheres were extensively infiltrated with melanin. The patient's general condition up to the time of her death was one of exaltation and expansiveness. There was no slowness or retardation of her cerebral functions. Her conversation was at times most interesting, and she was always most careful of her appearance, and her manner was always that of a royal personage of unbounded wealth and importance. If melanin be secreted from the hæmatin of the blood, then the presence of an excess of this vascular product makes for exaltation, or rather, a complacent cerebral state, rather than a melancholic or depressive condition.

CASE 2.—A young woman who was admitted to the hospital suffering from acute delirious mania. Before admission she had been allowed to remain in her bedroom with an open fire, almost untended and unwatched. She had jumped out of bed and into the fire, and she was extensively burned prior to her admission to St. Patrick's Hospital, and died forty-eight hours afterwards.

The *post mortem* was one of peculiar interest. The entire cortex was intensely congested, the appearance of the pia-arachnoid being very striking, bright patches of congestion the size of a shilling piece or larger being observed in either side of the longitudinal fissure. This young woman's illness was of very short duration. She appeared perfectly well two days before she jumped into the fire in her own bedroom, and the friends had noticed nothing unusual in her manner or conduct except that she appeared distressed, quiet, and sleepy. The practitioner who attended her found her temperature at this time slightly raised, and believing she was hysterical, took no special precaution or believed she was in any danger of a maniacal seizure of such an intense kind. The disease was ushered in by a period of depression of short duration, with high fever, culminating in a sudden outburst of maniacal fury. The cortical cells I found to be extensively chromatolysed and

the chromatolysis in this case was of an unusual kind. The disintegration was very irregular throughout the cells, one cell, say, almost completely disintegrated by fine dust-like chromatolysis and its neighbours not so affected. In all there was marked nuclear displacement.

The entire brain-substance, both grey and white matter, was extensively infiltrated with leucocytes. Staining the cortex by the Gram-Weigert method, I was able to bring out a number of cocci, arranged in circles round the smaller cerebral capillaries.

I much regret I was unable to make cultures of these or have the brain bacteriologically examined in the fresh state.

This is the second case I have seen of sudden onset of maniacal frenzy with no very well marked or defined prodromal symptoms; in both there was an antecedent period of torpor or drowsiness.

The proceedings terminated with a cordial vote of thanks to Dr. Revington for his kind hospitality.

THE AFTER-CARE ASSOCIATION FOR BEFRIENDING PERSONS DISCHARGED FROM ASYLUMS FOR THE INSANE.

By ROBERT JONES, M.D.

History.—Inaugurated in 1897 in the house of the late Sir John Bucknill (Mr. Justice Bucknill's father), and started by the late and venerated Rev. Henry Hawkins, chaplain of Colney Hatch Asylum, the Association is a national one, for it helps, when it can, cases from all parts, although London alone could more than supply it with cases, as one in every ten persons discharged from the London asylums is friendless, and the friends of another one out of ten are too poor to afford help. There is, however, at the disposal of the London asylums the "Queen Adelaide Fund," which, in the discretion of the committee, may provide a money gift as a small charity to needy patients upon their discharge as *recovered*.

Help for those discharged "*not recovered*" from the asylums is acknowledged as desirable by the State, for by Statute the Lunacy Act, 1890, sec. 55, enacts that committees of asylums for the insane are empowered to make a weekly grant, equal in amount to the cost of maintenance in the asylum to patients, upon their provisional discharge on probation, *i.e.* those *who have not fully recovered*. This power is frequently exercised for a period, usually of about four weeks. This grant, however, does not apply to those who have been absolutely *discharged "recovered"* from the asylum.

(It may be explained here that there are practically three methods of discharge from lunatic asylums. (1) *Recovered*—for whom "after-care" is needed, and it is for some of these that the Queen Adelaide Fund is eligible. (2) *On probation or trial "NOT RECOVERED,"* and these may obtain the money for about four weeks referred to above. (3) *Not recovered and not on probation* nor trial, when friends request the care of those insane, and who may thus, by the Lunacy Act, 1890, sec. 79, be given to their charge.)

The Association has never been in debt, and possibly this may be a demerit; but its funds are very inadequate to support the numerous cases—all deserving—that appeal for help. It has had the direct patronage of H.R.H. Princess Christian, and the personal help and pleading of the Archbishop of Canterbury, of Cardinal Manning, the Earl of Meath, the late Lord Shaftesbury, the late Sir Andrew Clarke, Sir William Church, and more recently Sir R. Douglas Powell, also the great Dr. Hack Tuke; also for the last twenty years it has had the experienced assistance of Mr. Thornhill Roxby as organising Secretary.

It is the only Society which exists for the housing and for finding occupation for those who have been discharged from the asylums as *recovered*. Unfortunately, unless brought prominently forward, such a society makes no appeal to public benevolence, owing to unjustifiable popular prejudice against mental illness; but, in spite of being a society unlikely to achieve popularity, it has, since its establish-

ment, relieved a large number of cases. The Society was founded by practical men as the outcome of an undoubted practical want.

Objects.—The object of the After-care Association is to find suitable cottage homes in healthy country districts where convalescent patients are boarded, and where they gradually become rehabilitated to domestic life and home duties, after a compulsory residence of varying duration in asylums. The finding of these homes entails considerable enquiry and careful inspection. But the "After-care" not only find homes, but also situations suitable to the capabilities of those they help, and supply clothing where necessary, or may give money grants; but, as patients who have long remained in asylums are probably somewhat incapable of obtaining the full advantage of money when left to themselves, this form of help is only a subsidiary and occasional form of assistance.

"After-care" in other countries:

1. In several cantons of Switzerland such an institution exists.
2. In France, but only for the department of the Seine, there is such a society, and a home for patients discharged from asylums, the home being under a religious sisterhood. The good work there done is recognised by the State, which contributes towards its support.
3. In Germany the Duchy of Hesse has had such an institution for twenty-five years.
4. The American Medico-Psychological Association, and the American Neurological Society are strongly recommending such a society for America.

Reasons for supporting the Association.—It affords help to those against whom popular prejudice is unjustifiably pronounced, for there are many temperate, well-conducted women—both young and middle-aged, single and widowed—who have broken down through sheer stress of work, domestic trouble, penury, privation or poverty, and who have no friends, no relatives and no homes. Again both men and women of education and refinement, members of professions and literary vocations, governesses, teachers and many such like, from no fault of their own, have sunk from their former positions in society through advancing age, competition, disappointment and failure; and these need help. They find their way into the pauper asylums, and, unlike the sufferers from bodily illness, for whom the situation is often kept open, the uncertainty of the duration of the illness in mental cases finds the victims shut out from earning a living and with their situations filled up upon their recovery and discharge. Not only are they shut out, but, owing to acts whilst their insanity was developing, a return to their former neighbourhood and position is not only uncomfortable but often impossible. Many of these have to begin life again, and truly such people not only need, but are most appreciative of sympathy and kindness.

2. The Association is a bridge over the gulf between the asylum and the outside world. It tests their fitness for living outside and thus enables them to make a fresh start in life.

3. It prevents relapses because many—women especially—return to poor homes where deprivation and want cause them to break down again, and the Association helps to confirm good health by restoring confidence in themselves and building them up before going home.

4. Long residence in asylums has deprived many of situations and friends, and if no such homes as the "After-care" existed, the only alternative upon recovery is the workhouse—a most undesirable and hopeless place into which to launch a convalescent, for an indignity is felt by the respectable and a feeling of degradation is engendered by compulsory association with low characters, which often leads to a relapse. It is only too well known that association with the ordinary inmates of a workhouse does not improve the self-respect and self-control of honest people, least of all of "mental" convalescents.

5. The discharge of friendless cases from asylums is known to be postponed from month to month when there is no home and no friends to send them to. Therefore it is to the advantage of the public and the pocket of the ratepayer—a strong appeal nowadays—that the work of the After-care Association should be expanded.

6. A voluntary association does much more than State-aid to encourage benevolence in the affluent, and thrift, self-respect and self-control in the recipient of help.

FURTHER PROGRAMME FOR THE AFTER-CARE ASSOCIATION, IF WELL ENDOWED.

1. It could look after the family when a patient enters the asylum so as to preserve the home for the patient on discharge, thus preventing the anxiety experienced in regard to possible dependence leading to pauperism, when the home, as often is the case, is broken up.

2. By placing patients in family care, it would educate and familiarise the public with the causes and phases of insanity, and would help to engender a "hygienic conscience" in the people.

3. It would teach the public the elements of "first aid" in mental cases, and help to break down prejudice and the stigma which attaches to the mentally afflicted.

4. Such an arrangement would permit of cases being discharged earlier from mental hospitals and asylums, and would result in economy of public funds.

5. It would also do more than any amount of theoretical advice in regard to carrying out the laws of health, and would greatly supplement the teaching of "Hygiene and Temperance."

REASONS FOR ITS EXISTENCE.

1. Hospitals for bodily diseases have convalescent homes to bridge over a time of bodily exhaustion and impaired health, and there are societies for looking after the discharged criminal; but the Society affording relief for the most piteous and hopeless affliction that can affect humanity is languishing for support.

2. The number of insane persons in England and Wales officially notified by the Commissioners in Lunacy to the Lord Chancellor, in their report issued in 1905 as a Blue-book, was 119,829, or nearly 1 in 280 of the population. Of these 109,277 were pauper lunatics, the larger proportion (59,997) being females, belonging mostly to the working classes; but in the case of many women of the middle and educated classes, for the reasons already given, a helping hand would be very greatly appreciated.

The employment or vocation of these women is representative of most occupations. In the year (1904) there were admitted into the London County Asylums 450 domestic servants and other occupations connected with household duties. On December 31st, 1904, there were resident in the London County Asylums 16,987 patients, of whom 9824 were females. The percentage of women who recovered in 1904 was 39.48 per cent. of the admissions for the year, many of these friendless and homeless.

RECENT ADDITIONS TO THE DOWN DISTRICT ASYLUM.**VISIT OF ROYAL COMMISSION ON MAY 3RD, 1906.**

On Thursday the Royal Commission on the Care and Control of the Feeble-minded visited Down Asylum. They were received by Mr. Alex. H. Gordon, D.L., Deputy-chairman of the Committee of Management; the Right Hon. T. Andrews, D.L., Chairman of Down County Council; Sir George Plunkett O'Farrell, M.D., Inspector of Lunatics; and Dr. M. J. Nolan, Resident Medical Superintendent of the Asylum. The visit of the Commission is an exceptional compliment, and is due to the very moderate cost of the recent additions as compared with kindred institutions elsewhere. The actual figures are £85 per bed for buildings and £5 10s. for furniture—total £90 10s., as against sums ranging from £150 to £350 in England and Scotland. The Commissioners were struck by the relatively small outlay here, and so decided to see for themselves, and no doubt will duly record their impressions in their report. The recent additions have been erected mainly to receive patients of chronic feeble minds subject to periods of acute mental disturbance, during which they are transferred to the main building or to the special hospitals as may be required.—*Down Recorder*.

JOHN MOLONY, F.R.C.P.I.

Dr. MOLONY was a well-known and deservedly popular member of the Irish division of our Association, of which he was a member for many years.

For about ten years after he qualified he was engaged in general practice, and in the year 1884 he was appointed Resident Medical Superintendent to St. Patrick's Hospital, the famous foundation of Dean Swift, commonly known by his name "Swift's Hospital." He found that institution in a very backward and deplorable condition. In Sir Henry Burdett's *Hospitals and Asylums of the World*, published in 1891, the following passage occurs: "The institution was one of the last strongholds of the worst forms of restraint. This has been done away with by the present enlightened Medical Superintendent, who, on taking charge of the institution, some six years ago, appears to have done what Pinel did in France and William Tuke in England a hundred years before. Till the appointment of the present head of the asylum, incredible as it may appear, pierced chairs, in which the patients were strapped all day, were in every-day use for a considerable proportion of the patients." The use of delf instead of tin feeding utensils for the patients (all middle-class people) is understood to have been part of Dr. Molony's early work. From these examples it may be judged how difficult was his task. How well it was accomplished is known to all who are familiar with the changed condition of the hospital before he left it. The work of his official life, however, after he had overcome his earlier difficulties, was to persuade the authorities of his hospital to procure an estate in the country and to supplement the accommodation provided in the melancholy old structure in Dublin by a suitable modern asylum. This he accomplished after years of persevering endeavour in 1895. Dr. Molony was transferred to the charge of the new auxiliary shortly after it was opened. He resigned office in 1902 after a total service of eighteen years, receiving a small pension. He then went to live at Forkhill, near Dundalk, where he kept borderland cases.

His health of late years was frail. He suffered from dilated and fatty heart. He had a severe attack of influenza in the early spring, and his recovery was retarded by the occurrence of phlebitis in one of his legs. He died quite suddenly on the morning of April 7th, probably from a detached thrombus, at the age of fifty-five.

Dr. Molony belonged to an old and well-known family of the County Clare. He was twice married, first to Miss Lyons-Montgomery, by whom he had two sons, and secondly to Miss Higginson, who, with his sons, survives him. To this accomplished lady, sister of a well-known Irish authoress, the respectful sympathy of her husband's old friends and colleagues is due.

Dr. Molony did not write much, but an occasional article in the *Transactions of the Royal Irish Academy of Medicine* showed his interest in one aspect of his work, while his Reports to his Committee contained many valuable suggestions, indicating that he had thoroughly grasped the requirements of a modern hospital for the insane. In one of these, describing various English and Scotch chartered hospitals, and published in 1891, he made a sagacious proposal, which we venture to think his Committee did ill not to give heed to. The local public asylum at that time was greatly overcrowded, and there were difficulties about building additions. Dr. Molony suggested that arrangements should be made whereby "Swifts" should take over the excess patients. This was not attended to, and the opportunity passed away. But Dr. Molony, in spite of eminent merits, had not the knack of persuading a committee, and everything which he did and many things which he tried and failed to accomplish caused him those disproportionate pains which fall to the lot of the conscientious and sensitive man who is not quite fitted for wrestling with Boards and committees—a trying and usually thankless task. He was among the most amiable of men. His kindness to his patients was extreme, and was rewarded by their unstinted affection, which he held very dear. He was endeared to his friends as a kindly, straightforward gentleman, and all who knew him regret his comparatively early death.

NOTICES OF MEETINGS.

MEDICO-PSYCHOLOGICAL ASSOCIATION.

The sixty-fifth Annual Meeting of the Association will be held on Thursday and Friday, July 26th and 27th, 1906, at the rooms of the Association, 11, Chandos Street, Cavendish Square, London, W., under the presidency of Dr. Robert Jones. There will be meetings of Committees as follows:—On Wednesday, July 25th, 1906, Parliamentary Committee at 4 p.m., Educational Committee at 5 p.m. The Council will meet at 9.30 a.m. on Thursday, July 26th.

The Annual Meeting will commence at 11 a.m. on Thursday, July 26th, when the usual business of the Association will be transacted.

2 p.m.—The President's Address, after which JOSEPH S. BOLTON, M.D., will read a paper entitled "The Prefrontal Cortex cerebri," with lantern plates.

Friday, July 27th, at 11 a.m.—F. W. MOTT, M.D., F.R.S., will read a paper entitled "The Effects of Alcohol in Hospital and Asylum Practice." A. HELEN A. BOYLE, M.D., will read a paper entitled "The History of an Unusual Case of Murder." EDWARD N. BRUSH, M.D., of the Sheppard and Enoch Pratt Mental Hospital, Maryland, U.S.A., will give a "Description of the Method of Admission and Treatment into the Hospital, also of the Founding and Organisation of the Hospital (with Plans of Extension)."

Afternoon, 2 p.m.—M. J. NOLAN, L.R.C.P.I., M.P.C., will read a paper entitled "On the Possibility of the Limitation of Lunacy by Legislation." W. F. MENZIES, M.D., will read a paper entitled "Tuberculin Diagnosis." ROBERT PUGH, M.D., will read a paper entitled "The Relation of Goitre to Insanity." EDWIN S. PASMORE, M.D., will describe a method of taking "Family Histories."

The Annual Dinner will take place on Thursday, July 26th, at the New Gaiety Restaurant, Strand, London, W.C., at 8 o'clock. (Tickets One Guinea, wines included.)

Through the courtesy of the Chairman of the Claybury Sub-Committee, it is hoped that facilities will be afforded by the London County Council to members on Saturday morning, July 28th, between 10 a.m. and noon, for visiting the London County Council Electric Power (52,000 h.p.) Generating Station at Greenwich, described in the 'Engineer,' June 1st, 1906, p. 561, and the 'Times' Engineering Supplement, Wednesday, May 30th, 1906.

Members are requested to notify their intention of dining to the General Secretary.

South-Eastern Division.—The Autumn Meeting will be held, by the courtesy of Dr. Fielding, at the Bethel Hospital, Norwich, on October 17th, 1906.

South-Western Division.—The Autumn Meeting will be held, by the courtesy of Dr. MacBryan, at Kingsdown House, Box, on October 26th, 1906.

Northern and Midland Division.—The Autumn Meeting will be held, by the courtesy of Dr. Macleod, at the East Riding Asylum, Beverley, on October 11th, 1906.

Irish Division.—The Autumn Meeting will be held on November 5th, 1906.

APPOINTMENTS.

Eager, Richard, M.B., B.Ch., Assistant Medical Officer, Devon County Asylum, Exeter.

McDowall, Colin F. F., M.B., B.S., Assistant Medical Officer, City Asylum, Newcastle-on-Tyne.

Ross, Campbell, M.B., B.S.Glasg., Assistant Medical Officer, Derby Borough Asylum.

Shaw, Charles J., M.B., M.R.C.P.E., Senior Assistant Medical Officer, Royal Asylum, Sunnyside, Montrose.

THE
JOURNAL OF MENTAL SCIENCE

[*Published by Authority of the Medico-Psychological Association
of Great Britain and Ireland.*]

No. 219 [NEW SERIES] OCTOBER, 1906. VOL. LII.
No. 183.

Part I.—Original Articles.

*Medico-Psychological Association of Great Britain and
Ireland: Presidential Address on The Evolution of
Insanity, delivered July 26th, 1906.* By ROBERT
JONES, M.D., Resident Physician and Superintendent
London County Asylum, Claybury.

GENTLEMEN,—The coveted position of President of this Association, which is to-day celebrating its sixty-fifth anniversary, is one to which many may aspire but few may reach, and I recognise to the full that the honour of being selected by you as worthy of this office—the highest compliment in your power to bestow—is not due to any distinction or merit in me, but arises from the fact that as your Secretary—holding an office which at least requires assiduity and patience—I have been closely associated for a longer period than has fallen to the lot of any of my predecessors with the interests and objects for which our Association has existed, *viz.*, the promotion and cultivation of science in relation to mental disorder and improvement in the treatment of the insane.

It is this recognition of my services, which have always been rendered as a labour of love, that has caused you to elect me into the chair, and whilst I sincerely appreciate the high honour of being your President—an honour also to the municipal authority which controls the institution that I serve—I cannot but feel some fugitive regrets at leaving my old and accustomed post, which I now relinquish with confidence to my friend Dr. Bond.

I apprehend at the outset that the distinction of being your President implies duties and responsibilities, and is, moreover, not exempt from criticism. I therefore crave your reasonable and generous forbearance with my imperfections, and I can promise you in return that no effort shall be wanting on my part to do my best to uphold the honour of our Association and to preserve the traditions which the great names blazoned on the roll of Presidents have handed down to us as a heritage during the sixty-five years of the Association's existence, and which my immediate predecessor has so successfully maintained.

The memory of my predecessors and their great intellectual attainments, added to the confidence you now repose in me, cannot fail to be an inspiration in what would otherwise prove an arduous, if not a presumptuous task for me to follow in their footsteps.

It would not be a platitude to state that there were giants in the days of my predecessors, and the names of Conolly, Thurnam, Skae, Sankey, Bucknill, Hack Tuke (to whose writings I am personally greatly indebted), and others who have occupied the presidential chair of our Association, commend themselves to every one of us in support of this assertion; whilst those of Maudsley, Crichton-Browne, Blandford, Orange, and others who are still spared to us form a happy link between ourselves and this distinguished past.

It is interesting, if not unique, to relate that each President who has occupied this chair annually during the last twenty years in succession is still living (¹), and we hope that all of them may long be spared to see the accomplishment of their cherished desires.

The hand of death has passed lightly over the roll of our members during the past year, and the chronicle of departed friends is happily a short one: W. C. Finch, W. J. Grant, J. Molony, A. H. Newth, G. H. Pearce, G. P. Torney, and H. Laehr (Honorary Member since 1866, and Editor of *Zeitschrift für Psychiatrie*), and quite recently Charles Angus and W. A. McCutchan.

We must all regret that ill-health and actual sickness in varying degrees have afflicted some of our most cherished workers. These have our cordial sympathy and our most earnest hope for their rapid and complete recovery.

With this preface I come to the subject of my address, and

it is the duty—or may I say the privilege—of the President to select a suitable subject. In this choice, probably like my predecessors, I have experienced considerable perplexity, and I do not envy my successors their prospect. I felt that if I were to elaborate a special theme upon some particular subject it might appeal only to a limited section of my audience, and as in the life of the individual certain events occur which give pause for introspection, so one such event has occurred to me.

I have recently completed a service of a quarter of a century in the care and treatment of the insane, and I feel it fitting and desirable that I should compare with my own knowledge that gained in the history of the past and see what, if any, suggestions can be derived from the contrast. From the opportunities which such experience has afforded me, I am of opinion that modern competition and the high pressure of to-day have evolved a complicated mental mechanism with almost every possibility of getting out of order, and that this has resulted in the appearance of a large variety of mental diseases unknown to the older physicians.

I have, under the circumstances, selected as my subject the “evolution of insanity,” or more exactly, the evolution of our conception of it, both as regards the special forms of mental disorder and, so far as accessible records permit, of the evolution also of their general treatment.

I propose in this address to demonstrate, first, that during this evolution of insanity the restraints, penalties, and disabilities formerly so inconsiderately applied to the patient have become shifted to his physician, who is now himself threatened with penal clauses and surrounded with restrictions. He is not permitted to receive into his care any case of insanity unless certified, and he has no power to treat under his own roof in the early uncertified stage of incipient mental disease, the stage most likely to effect a cure, any such case for payment, not even his own brother or other relative. He cannot receive such a case to board and lodge with him, or he is guilty of a misdemeanour and a fine of £50. If he receive two or more patients, although they may be certified, he is again liable to an action for misdemeanour. Moreover, if by chance he has certified a patient he is debarred in consequence from applying to that patient his own counsel and treatment. Even if he does not forward certain letters unopened he is liable to a penalty of £20. I do

not state that these are all of them improper restrictions or unjust. I merely state the law. I shall show secondly that with the progress of civilisation mental breakdown becomes more serious, if not more frequent, and the varieties of insanity more chronic and less curable than when life was simpler and men were more content. Finally, I shall attempt to foreshadow certain suggested remedies for the prevention and the amelioration of insanity, which has now become an acknowledged and a serious burden on the ratepayer as well as a social blot.

The earliest times of which we have any knowledge of insanity long preceded the Christian era, and it is fairly certain that mental affections were recognised and treated by the Egyptian priesthood—a highly privileged caste—at least 2000 B.C., but happily they were treated as individuals suffering from disease, the mental remedial agents being not only music and the beautiful in nature and art, but bodily recreation and occupation as well.

In biblical history—and we are permitted in the light of the “higher criticism” to entertain a wider and more liberal interpretation of facts than heretofore—we have the record of well-marked dangerous, if not homicidal insanity, in the conduct of King Saul being treated with persuasive tact and music; then we have King David feigning madness in Gath (1 Sam. xxi, 13, 14), for he “scrabbled on the doors of the gates and let his spittle fall down upon his beard,” but he was treated on account of his supposed affliction with fraternal care by the Philistines, who were his avowed enemies. We have also Nebuchadnezzar suffering from definite insanity, and we are compelled to believe that the treatment was humane, for after seven years of madness he recovered, and was replaced upon the throne of Babylon.

The period succeeding the Hebrew history finds civilisation, with its penalties also, advancing westwards. The priests as a special caste with special privileges by now had lost much of their influence, which implied that a still more humane and intelligent treatment had commenced.

The “humoral pathology” of Hippocrates, which connected mental states with altered conditions of the blood, lymph, and bile—thus anticipating the sanguineous, lymphatic, bilious, choleric, and other temperamental states of later times—suggested treatment by bleeding, counter-irritants, purging, emetics,

and baths ; and it is of peculiar interest at the present moment, when we ourselves are suggesting a fresh nomenclature, to note that during the time of Hippocrates, Galen, and Aristotle, the period of Greek pre-eminence, an attempt was first made at a classification of the insanities. Corresponding in time to a later period of Greek influence, the Gospel narrative of the Author of the Christian religion affords us lessons of the most extensive humanity in the treatment of mental affliction, and the example and teaching therein recorded are possibly responsible for an account, which may be authentic, of the treatment of mental disorders in Jerusalem about the fifth century. With the decline of Greek influence, about the third century of the Christian era, another reaction seems to have set in. Ignorance and superstition again prevailed, and not until the rise of the Bologna School in the seventeenth and eighteenth centuries, with experiments upon animals, was any further progress made.

Knowledge of nature has always coincided with the decay of superstition ; and with this decay incantations, spells, sorcery, and witchcraft also die, for they are only pretended powers claiming to vary natural phenomena. In superstitious times the conscience of man looked upon the world as governed by some good or evil agency, sometimes both ; and through the tendency to regard unknown or imperfectly known causes and effects from an anthropomorphic standpoint, cosmic phenomena tended to be personified. This simple appreciation, *viz.* the possession of man by a spirit—in the case of epilepsy it was both good and bad (*morbus sacer seu demoniacus*)—afforded the indication for treatment. The evil spirit either had to be propitiated to avoid harm, or it had to be expelled with some magic charm or by means of a mystic ceremony, which latter implied an active religious rite by the priest, accompanied by sacrifices and occult incantations and a more or less heroic ordeal for the patient, accompanied by oblations, purifications, and frequently by tortures.

The whole of the Middle Ages witnessed the association of demoniacal possession, of exorcism, and of witchcraft, and only with the laws passed against witchcraft in 1736 were these abated. This was a period of epidemics of plague, famine, and pestilence, and during this period over 100,000 persons are stated to have been put to death for witchcraft and sorcery, of whom about one-third were lunatics.

The notion that insanity was caused by demoniacal possession was long retained in this country, and the help of the Church was naturally invoked to exorcise the evil spirits. Incantations, mystical rites, the use of salt—the emblem of immortality—holy water, and the offering up of masses, all figured in the early cure of mental diseases, as they still do in the East, and as the recent report of the Medical Superintendent of the new Syrian Asylum in Beyrout testifies.

It is interesting to note that the first custodial institution for the care of the insane was founded in Florence in 1389, then shortly afterwards, in 1403, one was established in our own country by the use of "Bethlem," subsequently in 1660 the Hôtel Dieu in Paris was opened, and in 1737 an institution was established in Pennsylvania.

The revival of general knowledge, of science, art, and of literature, gave encouragement to the so-called "somatic" school. Insanity was now regarded as a condition of physical origin, and the decline in cures by faith, hope, and forgiveness at once became apparent. To this school we are indebted for the spirit of research which characterizes our own day.

It is interesting to investigate the earliest reliable accounts of the care of the insane in our own country. They come to us from the Saxon times and reveal a curious medical treatment—a compound of pharmacy or polypharmacy with superstition and castigation. The most grotesque and often the most offensive substances entered into the remedial list, and their administration was not infrequently accompanied by severe rites or ceremonies to be observed by the patient. Of the plants in use—and the herbal treatment of Dioscorides and Apuleius was repeated in later days—the peony was considered a special remedy for the cure of insanity. The mugwort, a composite plant, was especially favoured for the cure of mental illness arising through a demon. The periwinkle was also prescribed for demoniacal possession, but to be effective it was to be picked when the moon was nine nights old. The dandelion—called in Welsh the "devil's eye"—was definitely associated as a cure for this "devil's sickness." Some of the Ranunculacæ, noted for their acridity, were especially popular, and the mandrake took a high place as a cure for witlessness. It is interesting to observe that henbane was then used as a reliable remedy, but with instructions emphasised

that the essence should be drunk out of a church bell and simultaneously with the singing of seven masses by the monks. Burton, in his *Anatomy of Melancholy*, written in 1621, suggests that herbs should be used for the cure of madness, particularly should borage be used for the heart, poppies for the head, and wormwood for the stomach. Plants were often placed under the pillow and slept upon, and the practice of outward application by salves was also in vogue, but as a necessary condition in the use of outward application Masses were compulsory. Holy water had to be used, the sign of the cross had to be made, and incense burnt. The early physicians very thoughtfully, if not somewhat astutely, allowed some considerable time to elapse between the patient's first and second visit, as their prescriptions were not always easy of execution, and in the meantime the *vis medicatrix naturæ* had time to effect a cure which was ascribed to the remedy. The treatment of insanity at holy wells is another method only accredited to romantic superstition. The wells of St. Winifred in Wales, of St. Maree in Ross-shire, Great Nun's Pool, St. Fillans in Perthshire, and St. Ronan's near Butt of Lewis, are well known as resorts for mental invalids, and who can say that this treatment was not the anticipation of the "long immersion" of to-day?

Hack Tuke states that the first literary reference to insane persons in our country is made by Gerald the Welshman, who states that medicine could only be obtained in the monasteries as the monks were the only practitioners, also that those persons were lunatics whose attacks were exacerbated when the moon every month was at the full. The *Vision Concerning Piers Plowman*, written by William Langlande in the fourteenth century, calls lunatics "God's minstrels," but from that time until the eighteenth century the history of the treatment of the insane is one of harshness and cruelty, not necessarily intentional, alternating with torture, persecution, superstition, and ignorancce.

The two centuries following the death of Shakespeare, who makes frequent reference to insanity, until 1815, the date of the great disclosures before a Committee of the House of Commons and less than one hundred years ago, witnessed the treatment of the insane by flagellation, torture, confinement in dark rooms, and acute suffering, often until death relieved them. It was a treatment of the greatest cruelty, inhumanity, and barbarity.

The insane were tied to crosses, to pillars in churches, flogged at "trees of truth," or burnt as sorcerers at the stake.

The milder forms of mental disorder were treated by pilgrimages to the shrines of certain saints who were reputed to have particular skill and success in the exorcism of evil spirits, and if they were not cared for at the shrines, they wandered homeless about the country. Lunatics from all over Europe were brought to the shrine of St. Dymphna, in Belgium, for miraculous healing. Those who were a menace to the community were either chained in dungeons or sent to the common prisons, and this as late as the beginning of the nineteenth century.

Up to the fifteenth century the weak-minded and the insane were associated with criminals and other dependent persons (those whom we now term paupers), who at that time were under one authority—and do not some of us foreshadow a return to one control for all our defective population? Gradually, however, owing to the accumulation of lunatics in prisons, a distinction was drawn between these and criminals, and the two classes were separated, the insane being taken to cloisters and monasteries, as is exemplified to-day in the use by the mentally afflicted of the priory for the brethren and sisters of the Order of the Star of Bethlehem. The engravings of the great pictorial satirist Hogarth, the records of Evelyn, and the disclosures of the Committee of the House of Commons in 1815 show to what barbarity and cruelty the insane were subjected—fastened in chains, strapped in covered cribs, confined in wristlets and strait jackets, even in our own country so late as the year 1841. This wretched torture, the neglect, and the horrible injustice shown to the insane are vividly described in the *Gentleman's Magazine* for July, 1804, in a letter to Dr. J. C. Lettsom, part of which is as follows: "I was shown downstairs into a room [Launceston Workhouse] in a very dirty state, in which a poor lunatic was confined. He lay stretched on a little short and dirty straw, with a few rags on him. His fixed, intent eyes, his shaggy hair, long beard, dirty and livid face gave him the appearance of a monster. The floor of the room was earth, and literally a puddle of water and dirt more than an inch deep. The keeper had unmercifully beaten the poor fellow and given him two black eyes." Then follow other details too revolting to be repeated.

The harsh measures of the eighteenth and early nineteenth century included also crude, severe, and unsympathetic medical treatment—*e.g.*, blood-letting in the standing, recumbent, or sitting posture, active counter-irritants, drastic purgatives, the shower-bath, emetics, and heroic doses of tartarised antimony, of mercury, and of digitalis. These have now given way to hygienic measures, exercise, and suitable medicinal and moral treatment, of which congenial occupation and amusement form especial features.

Although the nineteenth century has been described as the “most conceited since God made man,” it is entitled to be recorded as the most illumined period in regard to the rational, humane, and scientific care of the insane. It is only during this period that the metamorphosis—if it may be termed—of asylums has taken place, and if we correctly appreciate the spirit of the times there is a growing tendency to further metamorphosis—*i.e.*, to a greater subdivision and specialisation for the great class of defective and morally infirm section of the population. As a contrast to the gaols, shrines, holy wells, chains, tortures, and exorcism, we have to-day suggestions for the care and cure of early cases of insanity by “reception houses,” and we already have well-planned and furnished hospitals for the acutely insane, others for the chronic insane, asylums for the criminally insane, institutions for the inebriate or chronic drunkard and for the feeble-minded, and finally we have colonies for the epileptic. Probably in the immediate future we shall have penal or educational settlements for the idle or “work-shy” and suitable colonies for the care of the profligate, the vagrant, the prodigal, and the facile.

As one of the most brilliant examples of lunacy reform there exists in London to-day an institution which has survived the vicissitudes of criticism. From being the “Bedlam” of reproach the Bethlem Royal Hospital has now become the most enlightened hospital in the world for the treatment of mental diseases, its present management under Dr. Hyslop being in striking contrast with its ancient history.

We owe to Pinel, whose work was translated into English by Davis, of Sheffield, a philosopher, scholar, and physician, and to his successor Esquirol (the Hippocrates of psychological medicine as he is called), to Griesinger, to Guislain, and to many others not our own countrymen, the deepest obligations

for more exact knowledge and information in regard to the treatment of the insane, and for the abandonment of cruelty, barbarity, and inhumanity. Sainthood, as Hack Tuke states, is not the exclusive property of the Church, and those of us who practise in the department of psychological medicine have also our calendar. The names of Conolly, Tuke, Gardiner Hill, and Charlesworth are pre-eminently those of apostles and saints in regard to the more humane treatment now universal in asylums for the insane.

The history of this improvement has coincided in the main with the history of special legislation, a statement which emphasizes the necessity for further legal changes; as we are not at present permitted by law to treat insanity, even in the earliest stages, as other bodily diseases are treated, *viz.*, in special homes, under the care of trained and skilled nurses, obviating the necessity of placing them under certificates of insanity, a course which is at present compulsory. Previous to the Gordon Ashley Act of 1828 there were but few legal enactments dealing with the care of the insane, those existing at this time dating back only to the second or third year of the reign of William IV, although the Lunacy Commissioners inform me that statistics may be traced as far back as the reign of Edward II. Prior to 1828 the Royal College of Physicians, represented by five of its Fellows, had the supervision and licensing of asylums in London and Westminster within a radius of seven miles, whilst the county justices of Middlesex and other counties acted for the provinces, a supervision which was not to the advantage of the insane. In the year referred to the number was augmented to fifteen Fellows of the College, and in 1832 this body was styled the Metropolitan Commissioners in Lunacy. In 1842 they were accorded the duty of visiting the public asylums of England and Wales, and the whole of their Report for the year extended to only one and a half pages! In 1845 the Board of eleven Commissioners in Lunacy—now only eight—was appointed; of the latter two are honorary and six are paid, and it is since this systematic visitation of all institutions for the insane, and since the control of nearly all lunacy procedure has fallen into the hands of these Government officials, that the care of the insane has become the proudest boast as to progress during the Victorian era. So complete is the authority the Lunacy Commissioners exercise

over the certified insane that there are few circumstances in connection with persons of unsound mind which do not fall under their immediate control.

It is impossible to estimate correctly the number of insane persons at the beginning of the nineteenth century, as not until January 1st, 1859, was the number of lunatics officially registered in this country. At that date there were 36,762 insane persons, a proportion of 1 to every 536 of the population.

The number of registered insane persons in England and Wales when the Lunacy Commissioners were first appointed was 11,272, there being then only fifteen county asylums. This year (1906) there were 121,979 and a total of 176 hospitals, licensed houses, and asylums. The Report of the Lunacy Commissioners has also grown from a page and a half to a volume of over 500 pages, and the Report for 1905 to the Lord Chancellor contains the following statement: "The efficient and satisfactory administration of the Lunacy Acts, under which great benefits accrue both for the patients and for the country at large, cannot longer be continued on the existing arrangements, which, generously sufficient for the duties of the Commission in 1845, are quite incompatible with those of 1904." A similar request occurs in the Report for 1906, but hitherto these appeals have fallen upon deaf ears!

This record would not be complete without allusion to the more recent legislation for the idiot and imbecile. Up to 1847 no separate provision existed for this class, but Dr. Andrew Reed, a philanthropic divine, began to interest himself in this class, and subsequently founded the Earlswood Asylum, from which, as a pioneer, sprang several other most deserving and useful charities.

In 1886 an Act was passed permitting backward children to be placed in such institutions upon one medical certificate merely stating that such a course would benefit the child, so that it is now no longer necessary to certify these backward children as "lunatics." We have, further, for children less afflicted, the Epileptics and Defective Children's Act of 1899, making it permissible for public authorities to provide suitable educational faculties for this class. The numbers of mentally and physically defective children on the roll and actually attending the special schools for London has been kindly given to me by Dr. James Kerr, and they are as follows:

“Average attendance at elementary schools is 666,757 and at the special schools 5831 (mentally defective 4522, physically defective 1309). The full roll is 757,084 and 6952 respectively (mentally defective 5311, physically 1641), giving an average of almost 1 per cent. of defective children attending the special schools in London alone.” Dr. Kerr further states that “there are probably as many more children mentally and physically defective who are not so classed.”

Now, many of the vagrants, “ne'er do weels,” profligates, and immoral persons, criminals and lunatics, are recruited from these classes; and in my own experience cases are received into asylums from prisons who in infancy have attended hospitals and charities as mentally and physically defective. If the stock is to be kept free from taint a proper supervision should be kept over this class. In country districts they are more definitely known, and a certain amount of “communal vigilance” is exercised over them, but in towns this is obviously impossible, and it should become the duty of the State so to register them by special notification through the schools as to direct and control their lives, and to see that adequate care is exercised over their destinies in specially adapted schools, homes, colonies, or settlements. Such a regard would tend to lessen the necessity for increased asylum accommodation, but to this we shall refer later.

Now, what have been the contributory factors to the changes in the treatment of the insane, and what do they signify? The answer to the former question is found in the undisputed fact that mental diseases form an integral part of disorders of the nervous system, and are not a fragment detached, as it were, from the domain of general medicine. Possibly, also, the mental infirmity of King George III gave an impetus to the more enlightened treatment of mental diseases, which even long after this period continued to be a reproach.

The fact that all institutions for the care of the insane are carefully inspected by Government officials of recognised professional ability and rank in law and medicine, whose reports are made public, has had a great effect upon the care of the insane, also the fact that they are for the most part supervised by unsalaried Boards of trustees representing charities, or managers and visitors elected by the people; and I think we may legitimately claim the further fact that institutions for the

insane are served by responsible medical authorities, who link their reputations with those of the institutions they serve, and to which they devote their time with loyal energy and fervour.

There is in consequence of the above reasons more confidence on the part of the public, which induces them to send into these institutions all mentally infirm persons from whatever cause; more especially do we now find old people admitted who are suffering from the decay of nature and whose friends no longer have the necessary time, the accommodation, nor the means to supervise them, cases which in the circumstances of the past would have been retained by their relatives in their own homes. Upon this point, going back to 1859, we find that 56 *per cent.* of all pauper lunatics were in asylums, the rest being in workhouses or with their friends. In 1905 over 78 *per cent.* were in asylums, showing, among other causes, that probably the capitation grant of 1874 may have had the effect of sending into asylums a large number of chronic and incurable patients formerly detained in workhouses and kindred institutions. Most of these cases, in spite of their transference in a state of senility and infirmity, owing to their improved sanitary surroundings, live longer and, therefore, tend to accumulate in our asylums. Added to these senile cases there is an increasing number of young people who, being mentally defective (and this defect is now recognised by law), are, whilst children, looked after and cared for at home and in special schools, but as adolescence approaches and they begin to give trouble they are brought into our asylums. Most of these cases, owing to the very nature of their affliction, are incurable from the start, and they help to form the chronic remainder of hopeless cases. There is no doubt that this burden of the incurable insane is growing fast, and that fresh accommodation is constantly being called for. It is not surprising, therefore, that the public, which is—or rather ought to be—master of the situation, should desire to look into the matter for itself and be interested in the subject.

Now, in what does this growing burden consist? We in this room appreciate the relationship there is between insanity and crime and between crime, drink, and pauperism, also between all these and the whole of the mentally or physically defective class.

Together, this defective community—defective in intelligence, defective in citizenship, and in productiveness to the common weal—has become a burden which must needs cause apprehen-

sion, and which cannot but keep awake public interest in the great question of social pathology. To some extent the Press, which is occasionally a "potent and practical philanthropist," has recently been the proximate cause of official investigations into the data of this great subject. An article in the *Contemporary Review* of April, 1903, was the origin of the Inter-Departmental Committee on Physical Deterioration, some of whose recommendations are at present under consideration, and there have also been other committees or commissions, one on the vagrancy question, one on feeding of children, another on the feeble-minded, and yet a fourth into the working of the Poor Law, the latter two having yet to report.

As Sir James Crichton-Browne eloquently remarks, "Unfortunately, lunacy is a bye-path in public affairs, hidden from the busy thoroughfare, a bye-path so sombre and melancholy that most men are anxious to avoid it. Even when our men of light and leading realise in their own family circles, as they sometimes do, what madness means, they are averse to touch in public upon any question associated with their own grievous private calamity, to which a sense of reproach in some degree attaches." Surely the voice of our Association should be clamant as to some remedies when more than 1 in every 285 of our population is an inmate of an asylum, and when there are already over 120,000 certified insane persons in England and Wales; when, moreover, there is an equal number of potential lunatics, those not known to us by certification, *viz.*, weak-minded and neurotic persons out of whom lunatics are recruited, owing to a vicious inheritance or to a wretchedly sordid environment. Furthermore, the pauper roll has latterly been a growing one, as is shown by the Report of the Local Government Board on Poor Relief in England and Wales during the half-year ending Michælmass, 1905, which exhibits the steady increase of the cost of pauperism, particularly in London, an increase on the corresponding half-year of 3·1 *per cent.* for England and Wales. It was stated that during the year 1900 in the United Kingdom 1,882,000 persons sought poor relief, and of these about half a million were over 65 years of age.

On January 1st, 1905, there were 932,267 pauper persons in England and Wales, an increase of 63,139 compared with the previous year.

This is equal to about one in thirty-seven persons, or 2·7

per cent. of the whole population of England and Wales, being a pauper person dependent upon the earnings of others. My own country (Wales) is the most distressful in the three Kingdoms in this respect, having an average of 3·11 *per cent.* of the total population who are paupers, Scotland, with customary superiority, having the least number.

The total cost of relief to the poor during the year ended Lady Day, 1904, for England and Wales was £13,353,656, an increase upon the previous year of £405,333. This relief involved a burden of 8s. per head of the estimated population as compared with 7s. 9½*d.* for the previous year.

What are the statistics which twenty-five years place before us in regard to insanity, crime, drink and drunkenness? The latest information from the Local Government Board Department shows that £36,264,702 have been spent upon pauper lunacy during the last quarter of a century, *viz.*, from 1880 to 1904 inclusive.

The result of the last two census returns also shows us that, whereas in 1880 there were only 65,345 pauper lunatics in England and Wales, in 1905 there were 109,100, an increase of 49 *per cent.*, whilst the population during the same period has only increased 25 *per cent.*

In the quinquennium 1880-1884 inclusive the annual average expenditure upon intoxicating liquor in the United Kingdom was £143,799,641; in the quinquennium 1900-1904 it was an annual average of £177,920,339, an increase of 24 *per cent.*, whereas the population of the United Kingdom has increased by only 19 *per cent.* The annual average of prosecutions for drunkenness in England and Wales for the quinquennium 1880-1884 was 185,643; the annual average for 1900-1904 was 216,424, an increase of 17 *per cent.*, as against an increase of the population of 25 *per cent.* With the advantage of education, improved sanitation, and the great advances made in the social condition of the people, we should have expected a greater diminution in this proportion, but there may be some consolation in the fact that, whilst there is increased drinking, there is, on the other hand, comparatively less drunkenness.

What do we know about the causation of insanity? We are aware of the fact that heredity plays a most potent part in the transmission of insanity. A history of insanity in the ancestors determines a tendency to this in the descendants. We know

also that the spread of venereal disease is responsible for increasing certain forms of insanity of a most hopeless character as to recovery, and that over-stimulation in many directions induced by modern social conditions contributes to insanity. Especially do we know that intemperance in the use of alcohol is a contributory factor, and statistics collected from many sources and for a term of years present an almost unchanged average incidence of insanity through alcohol. And although several antecedents may share in the production of insanity it is definitely ascertained and agreed that one of the antecedents may be the proximate cause and may be the direct agent in producing the fully-developed disease. An average of 22 *per cent.* of men and 10 *per cent.* of women who are insane in the County of London owe their insanity to alcoholic excess. We are scoffed at in some quarters when we state that alcohol is a cause of insanity, as the following quotation (*Times*, April 21st, 1906) illustrates: "One solemn person tells us that insanity is largely due to 'drink,' ignoring the two obvious facts that insanity is on the increase and that drinking is not, as well as the consideration that the converse of the proportion is more likely to be true. It is more likely that a tendency towards insanity finding expression in defective self-control occasions alcoholic intemperance than that alcoholic intemperance occasions insanity." We are further informed that "solemn" statements are made by us ascribing insanity to the effect of mental "stress," which is looked upon as accepting a theory that there is something material or spiritual behind mental processes through which the mind acts and upon which our practice of to-day is said to be based, we thereupon are accused of treating $\psi\upsilon\chi\eta$ and its derivatives when treating insanity. In this address we shall not discuss the relationship of cortical processes to conscious processes. To compare such is to compare things not *in pari materia*; but, as physicians who are called to treat mental conditions, we do see the effect of "stress," as when ambition fires the over-worked brain, when the eager hand reaches to grasp the prize plucked away by some other competitor, and when the thousand environmental stimuli cause the brain to react innumerable times more frequently—even in the course of a single day—than formerly. We know that these tend to make the tension of mind more continuous, and to create disappointment and sorrow, nervous disease, and

mental breakdown. Natural sorrow, like natural joy, may be pondered over unduly until a habit or a groove of nervous thought is established which oversteps the bounds of health, but to ascribe the sorrow to "brain-grooves" would—as Dr. Yellowlees has stated—be as reasonable as to deem the ruts in the highway the cause of the traffic which had produced them. The increased complexity of modern life implies a brain-structure more highly evolved to cope with it, and therefore a structure less organised, more unstable, and more subject to derangement. "Stress," as Dr. Mercier has stated, of whatever kind, if continuous, will eventually determine the *locus resistentiæ minoris*, as a chain will yield in its weakest link.

Attention may be specially called here to the diminishing birth-rate, as further evidence of the love of selfish pleasure and the shunning of parental responsibility incident upon so-called progress; and not only is there a diminishing birth-rate, but, unconnected with this, marriages are contracted later. In 1901 the birth-rate for England and Wales was 28·5 per 1000 living, then the lowest rate since the civil register was established, and 1·4 per 1000 below the mean rate in the ten years immediately preceding. In 1905 this had further fallen to 27·6, whilst for London the rate had fallen to 27·1 per 1000. This rate has been declining for many years, but never before 1898 had it fallen below 30 per 1000. Civilisation means the association of men and women in towns, which only the rich can circumvent, their wealth enabling them to obtain ready access to the country. City life means artificial desires and their gratification; but civilisation also implies progress, which proceeds at the expense of the less fit. A higher standard is fixed, and those who are unable to attain it are left behind to sink lower and lower. The population of the convict and local prisons shows an increase in 1905 of 9447 persons as compared with the previous year, juvenile offenders showing a decided increase, and the Prison Commissioners have recently called special attention to a remarkable increase of commitments for offences against the vagrancy laws, which was "material for grave reflection," a special committee having lately reported upon the matter.

I do not think that I am called upon to notice the asseverations of angry pamphleteers in the public press. When, however, a journal of the reputation of the *Times* (April 14th and 21st, *et seq.*) takes up this question it is bound to arouse attention.

The growth of insanity is undeniably a matter of considerable public importance, and few subjects have of late more employed the pen of every class of critic than the legal, curative, custodial, and even the preventive aspects of insanity. Overdrawn and unjust statements have been made in the *Times* that the insane to-day are under the care of officials who have neither received the necessary training for conducting scientific investigations nor have the inclination to pursue them. Medical officers of asylums are stated to be physicians only in name, for they devote neither thought nor time to professional work. The asylum service is held up as a scarcely conceivable career for a young man of promise or for a person of real capacity. Moreover it is stated to be a service which has practically excluded insanity from the area of scientific investigation. In short, asylum medical officers are in these articles actually held responsible for the accumulation of incurable insanity in our asylums, a state of things which implies a grievous burden upon the community. Fortunately, however, the dawn appears in spite of a mist of sophistry about " $\psi\upsilon\chi\eta$ and its derivatives," and after an enumeration of the mental endowments and qualities essential to success in the seeker after truth into vital phenomena, the essential cause underlying insanity, as if by inspiration, is discovered by the *Times* to be a "noxious agent" which when properly looked for may be found and identified. The discovery "not in symptoms necessarily implicating the intellectual faculties" can, however, only be made by the establishment of special hospitals and by so-called "hospital" physicians. It is suggested that a special hospital would render unnecessary "the provision of a constantly increasing number of huge buildings for the lifelong incarceration of thousands of men and women who are now annually suffered to drift into hopeless incurability" and who accumulate *ex hypothesi* from the failure of asylum physicians to cure them.

Now, I ask are these statements fair? are they right? or are they true? If they are, and the reduction of the blot and burden of insanity can be thus relieved, I am able from this presidential chair and with the unanimous voice of this Association to promise the most cordial support and our best and readiest advice to realise this solution. But although I should welcome most cordially the more continuous and direct assistance of hospital physicians in our work, I feel, alas! that they

can no more prevent the occurrence of incurable insanity than they can prevent the filling up of cemeteries. It may be recalled that Sir William Gull over forty years ago was medical superintendent of the insane wards of Guy's Hospital. He had charge of the insane cases in that hospital and had the advantage in their treatment of the services of the medical officers and of the visitation of hospital physicians and surgeons. Yet what happened? The Lunacy Commissioners considered the patients were less favourably placed there than those who were in asylums, and the hospital authorities, in the interests of the insane, were compelled to close the wards.

Is the treatment of insanity in this country to-day the shame and reproach which our critic asserts? I venture to think that these statements are not only inaccurate, but they are also detrimental to the position we claim to hold in the larger medical world outside our asylums, and I propose very briefly to refer to this aspect.

To begin with, our present institutions for the care and treatment of the insane are the evolutionary growth of sympathy and unabated humanitarian zeal for curative as well as custodial interests, and it may be truly stated that they are the most up-to-date nursing institutions to be found in any country. Again, we all recognise that diseases of the mind are primarily and essentially an expression of diseases of the body and that their classification should be based upon general pathology. Haslam, in 1798, urged the view that insanity was a physical disease, although Boerhave favoured the mental origin of insanity—a view in which Pinel himself concurred. We have eminent specialists working at the subject of pathology in our department of mental diseases, and the researches of Drs. Bevan Lewis, Mott, Ford-Robertson, J. S. Bolton, J. Turner, G. F. Watson, A. E. Campbell, and others, of whom we are justly proud, commend themselves to every member of this Association.

The practice of our art depends upon the anatomist, the physiologist, the histologist, and the general pathologist, and we share in the knowledge and the discoveries made in the whole field of medicine, and our treatment is that which appertains to all medical men. We claim for ourselves the whole study of medicine, as it forms a part and belongs to the whole profession. Are the biochemical changes in the synapses or the neurones able to explain to us the nature of a mental

judgment, or even of epilepsy? or are those protean changes described as hysteria definitely ascertained?

Do we know the conditions underlying the nature of delirium as it accompanies pneumonia, hyper-pyrexia, hyperæmia, and the specific fevers? If the explanation of some of these conditions, which form a part of the domain of general medicine, is at present undiscovered, I hardly think the failure to discover their essential cause lies at our door. As has been stated by a former President (Dr. Hayes Newington), "the advance of science in any system of investigation is to be measured less by the amount of result than by the general intention." I do not say that we ourselves are satisfied with our present results; on the contrary, we desire to attain further improvement, but we are doing our best in the light of our present knowledge. It is not fair to compare our asylums with general hospitals and to state that in them we only treat symptoms, although in insanity the symptom often transcends in importance the underlying physical abnormality, and when a patient is soothed by remedies fitted to allay the irritability of a diseased brain that remedy is properly administered, and who will venture to say that this treatment of symptoms is empiric or wrong?

The physician who neglects to treat symptoms may be shunning a responsibility which we, as physicians in asylums, are bound to undertake for our patient, who is not responsible for his own acts. We have to see that food is taken when delusions forbid and command otherwise; we have to see that patients are properly clothed who prefer nudity, and that they take exercise when disinclination and resistiveness are extreme, as those of us who are continuously familiar with insanity apprehend. It is difficult, if not impossible, to contrast asylums with general hospitals, and most emphatically is this so as to "cures." The term itself is not easy of definition, and of 38,838 in-patients admitted during the year 1905 to the general hospitals of London—including those associated with medical schools—we find by reference to the *Lancet*, June 9th, 1906, that only 12,571 are stated to have been "cured," a proportion of only 30·2 *per cent.* of the admissions, whilst a proportion of 8·7 *per cent.* have died. What has become of the other 61·1 *per cent.*? These have been sent home, or to some such destination if they possess relatives or friends; if not, then, to the Poor-Law infirmaries or other shelters. At any rate they are not per-

mitted to remain in the hospitals, whereas we are compelled to keep our incurables, who remain in our asylums and therein accumulate. In order to analyse further the accumulating remainder let us extract a more detailed classification of the nature of the cases admitted to the asylums as is furnished by the last quinquennial average, 1898-1902, in the Lunacy Commissioners' Report for 1905. Of these admissions 7·7 *per cent.* were epileptics, 6·4 *per cent.* were general paralytics (in 1904 it was 8·2), 12·8 were suffering from dementia, 5·4 were congenital, and 4 *per cent.* were paranoiacs or cases of delusional insanity—mainly an intractable class as to recovery, these making a total of 36·3 of the most unpromising material—almost irrecoverable *ab initio*—cases foredoomed to be incurable, but still compulsorily detained in our asylums. Furthermore, of the admissions, 14·3 *per cent.* were over 65 years of age, and 27·5 were cases whose insanity was not the first attack, and who, for this reason, may be considered very unfavourable material for "cure." Yet, with all these incurables, what is our own recovery rate in asylums? It is certainly not cheering to think the proportion of recoveries to admissions, which had reached over 40 *per cent.* was lower, *viz.*, 37·58, in the last quinquennium recorded—1898-1902—than in any similar period for the past thirty years, and that the proportion of recoveries *per cent.* to the daily average number resident was 8·7 in 1904, the lowest of any year since 1874.

In the Claybury Asylum, with a record of 10,945 cases (4937 males, 6008 females), the recovery rate for twelve complete years, including 1905, works out at 40·99 *per cent.* of the total admissions (males 37·85 and females 44·28); but early in the last century John Haslam, of Pembroke Hall, Cambridge, Apothecary to Bethlem Hospital, relates an experience of 8874 cases (4042 males and 4832 females) and extending over forty-six years in the old Bethlem Hospital at Moorfields, and he states that among his cases of mania 67 *per cent.* recovered. In all the asylums of London for the last year the corresponding recovery rate for cases of mania was only 34 *per cent.*, whereas in melancholia it fell to 27 *per cent.* On the other hand, the general death rate among the insane has considerably diminished, and in the quinquennium already referred to the percentage of deaths to the daily average number resident in England and Wales was the lowest recorded for thirty years, *viz.*, 8·87 *per cent.* In 1840 Dr. W. A. F.

Browne reported the death rate in the Lancaster Asylum at 24 *per cent.*, in Wakefield also at 24 *per cent.*, in Cork at 30 *per cent.*, in French Hospitals at 22 *per cent.*, and in the Charité at Berlin at 25 *per cent.*

Having analysed the recovery rate and noticed its fall within recent years, let us now compare the varieties of insanity as they are known to-day with those of which we had knowledge a century ago. Of these, epilepsy appears to have undergone but little change; it is still the intractable neurosis it always was in regard to cure; whilst general paralysis, on the other hand, has become more common. John Haslam was the first to describe this disease, although Esquirol had already noted the extreme gravity of those cases in which dementia was complicated with paralysis. Baillarger remarked in much later times of this discovery that it was one of the greatest steps of advancement made in the history of mental disease. It is only fair to suppose, however, that the disease was not then the scourge and the reproach to our treatment that it is to-day.

Dr. Clouston refers to deaths among women from this disease during an experience of over thirty years. In the first decade of his experience 7·5 *per cent.* of the deaths among women under his care were from this disease, in the second the percentage had risen to 9·7 *per cent.* and in the third decade to 12 *per cent.*, whilst in the following year (1904) the deaths from general paralysis among women had risen to 23·5 *per cent.*

In my own experience for 1905 at Claybury a proportion of 36·5 *per cent.* of the total deaths were from general paralysis of the insane. The time of onset of general paralysis after syphilitic infection appears also to be shorter than formerly. In a recent average the period is given as about ten years, whereas past records give an average of fifteen years, a fact which tends to show one of two things, *viz.*, either a diminished resistance of the individual to the effects of competition or an increased "stress" through the conditions of modern life in which the stimuli are both more numerous and more complicated. It is certainly not syphilis alone which is the cause of general paralysis, for in the insane population of the Straits Settlements Dr. W. Gilmore Ellis, a competent observer, states that general paralysis is exceptional there, although syphilis is rampant; probably the Malay race has not reached the stage of evolution in civilisation at which "stress" is felt. It is further

asserted by those in a position to form a judgment (and Sir Alfred Cooper is of this opinion) that syphilis is not more common to-day than it was a century ago, although general paralysis appears to be on the increase. The subtle and lethal effects of syphilis upon the nervous system are a matter of every-day experience, and it may be that the anti-syphilitic treatment of to-day which has caused the almost complete disappearance of rupial sores, periostitis, and necrosis has, in some manner at present unknown, so altered the nutritive plasma that the most highly evolved cell (the neuron) reflects its ravages before cells of baser quality become affected. We are able to say fairly definitely that syphilis is an almost constant antecedent of general paralysis, and yet we all say that syphilis is preventable. Why, therefore, not prevented? Whilst conscientious objectors and other faddists make themselves heard, the Legislature is silent about infection from this disease, which saps the energy and vitality, not only of the actual victim, but also of many innocent descendants.

What did the early physicians know of the condition now so often referred to as "dementia præcox"? then apparently so rare, but now so common that it attacks prematurely our most promising and educated youth, the brain worker rather than the manual labourer, but now in young men rather than women, and it is a disease so incurable that it tends to fill our asylums with hopelessly insane patients.

Haslam refers to it as "a species of insanity sometimes occurring about the time of puberty, especially in those who have possessed a good capacity, a lively disposition, and in females more than in males. Their faculties are gradually obliterated until they are at last complete and incurable idiots." Although premature dementia, as such, is not referred to in the Lunacy Commissioners' Report, the statistics for the last quarter of a century support the assertion that it is more common than formerly. These cases almost invariably commence in depression, and it is justifiable to conclude they were classed as melancholia, which has risen from 21·5 *per cent.* of the total admissions in 1878 to 31·2 *per cent.* in 1904. Cases of mania, on the other hand, have diminished from 53·8 *per cent.* of the total admissions in 1878 to 40·3 *per cent.* in 1904.

Senile insanity, which shows the wreckage due to long-continued stress, has apparently undergone a remarkable in-

crease, partly due, it is acknowledged, to increased registration. In some districts, senile, or I would prefer to call it pre-senile, insanity has increased from 11 to 20 *per cent.* of the total admitted into asylums within the last sixteen years, and the evidence given by Sir John MacDougall before the Commission on the Feeble-Minded confirms the increase in this form.

It is interesting to note that the congenital varieties of mental deficiency show but little increase, according to asylum statistics. These are teratological variations not controlled by any natural laws, and they make themselves apparent by arrest of development, often accompanied by physical stigmata. These varieties, which exist in every country and among every race, are the least reflection upon civilisation. They occur among animals and are familiar to all observers of comparative natural history. In the records of the most barbarous and least civilised of races there occur two forms of psychic anomalies, *viz.*, the congenital and the toxic, the latter due to some poison, such as occurs from alcohol in our own country, and this latter form has of late years aroused much interest, as it is especially one of the preventable varieties.

A hundred years ago practically nothing was known about insanity, and at this time its treatment had been relinquished by the faculty and fallen into the hands of charlatans. In 1750 a man was described as a conjurer who "cured" insanity. Nevertheless there were able and learned men during this century who interested themselves in mental diseases. The writings of William Perfect in 1770 described cures from epilepsy, and particularly referred to idleness and gluttony as the causes of insanity—there is a debauchery of inaction as well as of repletion! There are overwhelming statistics to-day demonstrating that idleness and drink and idleness and insanity are closely connected, and the list of employments of persons of all ranks in asylums supports this view. The writings of Joseph Mason Cox, of Fishponds, in 1804, referred to the mental effects of inebriating potations, and he stated these were due to the circulation of poisons about the head. He called especial attention to the fact that drunken sires were succeeded by insane children.

Alexander Crichton, Physician to the Westminster Hospital,

published in 1798 two most interesting volumes upon the psychological origin of insanity, and he referred particularly to the effect of the passions in this respect. Thomas Arnold, of Leicester, in 1806, published observations on the nature of insanity. Davis, of Sheffield, translated Pinel's works. John Monro, of Bethlem, and William Battie also published works about this period, the latter stating that insanity might be cured if the treatment were timely and properly effected. Pargeter, in 1792, offered a classification of insanity, and included in this either maniacal disorders characterised by excitement or those accompanied by collapse. He referred at considerable length to the disturbed emotions as being a cause of insanity, and he named four volumes which, in his opinion, had a most unfavourable influence in causing a mental breakdown, *viz.*, Wesley's *Journal*, Watts' *Hymns*, the *Pilgrim's Progress*, and the *Fiery Furnace of Affliction*, a book the title of which indicates its character. It is especially noteworthy that he describes those who marry, having an hereditary history of insanity, as enemies of their country.

It will be noticed that I have hitherto said little of heredity as a causative factor in insanity. It is not that there is nothing to say. On the contrary, heredity is the most important as well as the most powerful antecedent in insanity, but the prominence recently given to this question and the numerous discussions upon "Mendelism" forbid my encroaching further upon your patience.

It is certain that permanent progress is a question of breeding quite as much as it is of pedagogy, and of a healthy germ-plasm as much as of training. However much influence the environment may exercise over the individual, the nature of the offspring is without doubt and essentially a matter of inheritance. In some of the States of America this question has been boldly met with legislative suggestions, and I confess I feel that in eugenics are to be found the chief remedies for the amelioration of social pathology, but how these are to be applied is a matter of detail. Some are ready with legal restrictions and penal awards, whilst others suggest inculcating principles as to the duties to be fulfilled by those who would look for health and healthy families.

The highest function of medical science is the prevention of disease—*i.e.*, the adoption of special measures which are known through experience to be protective against injurious influences;

and of all known diseases there is not one in which there is either a greater need of prevention or one which permits of more effectual limitation by precautionary measures when taken in the early stages than insanity. Hence we need statutory authority to treat incipient insanity as other diseases are treated—*viz.*, with full freedom to the physician and proper and adequate safeguards for the interests of the patient. Such means would prove to be a most valuable auxiliary towards prevention. I am of opinion that those who undertake the care of the insane in the incipient stages should be especially sanctioned by recognised authority so to do; but I do not believe in public bodies undertaking the care of cases making high payments, as this can be better done by private enterprise and without the “red tape” so dear to public authorities. This suggested limitation of municipal accommodation for private patients is clearly acknowledged by Mr. P. M. Martineau, in the first Report of the London County Council Asylums’ Committee for Claybury in 1893, when he described it as an effort of the London County Council “to provide for a class of patients above the pauper class, but who can ill afford to bear the cost of a private asylum, and who may find comparative quiet and comfort, perhaps even a touch of ‘home,’ in such an institution as the Claybury mansion house.”

In regard to insanity, as in other diseases, the neglect of ordinary hygienic rules and the failure to observe natural laws are inevitably and remorselessly punished. Nature is a good friend but a bad enemy, for she never forgives a wrong, and she is, again, wholly selfish—perhaps more correctly wholly just—for she invariably decides the race to the swift and the battle to the strong. It is in the observance of a proper health code and by an adherence to temperance in all things, nay temperance in temperance itself, that insanity can best be prevented.

If only the evils of alcohol and venereal disease were disposed of, then half the problem of insanity would disappear with them. Many suggestions on the lines of reclamation, education, and restriction have been made for fighting intemperance, but hitherto they have not been distinguished for their wisdom or practical statesmanship. As a medical Association we should carefully consider in what way we can best assist towards restricting drink and drunkenness; and I, for one, welcome the attempts of the National Temperance

Legislation League—of which Viscount Peel is the President and Sir Thomas Whittaker chairman of executive—to bring its views before the country and the legislature, with the object of promoting sobriety in such ways as local conditions and public opinion may render possible. This League realises that its scheme must be constructive in policy as well as restrictive. It is surely better to attract people from the public-house rather than to lock them out, though that may be necessary, and it is agreed that our licensing laws need alteration to allow educational work free play.

We accept the statement that society is bound to provide for and to support its own languishing sick and feeble, but when 1 in every 283 persons of the population is an inmate of a lunatic asylum, when 1 in every 157 during the year 1905 has undergone a term of imprisonment for offences against the law; when 1 in every 100 children of elementary school age is so mentally or physically defective as to require special educational facilities; and further, when 1 in every 36 persons in England and Wales, and 1 in every 31 in London is a pauper, it is surely time that some stir was made!

The whole of this so-called “defective class” have a right to be protected against themselves, and the control which they lack should be supplied to them from without; at the same time, society has a right to be protected from the transmission of their defective qualities to future generations. I have no sympathy with the crude and barbarous mutilations proposed by indiscreet and fanatical persons who are devoid of any quality of sympathy or patience necessary to enlightened reform. It is certain that some defectives can be assisted to become in a great measure self-supporting, and it is possible to reinstate others of them in the ranks of the wholly self-sustaining.

We have devoted workers who use every effort by educational, reforming, and training methods to effect this improvement, but hitherto only the outskirts of this problem have been touched.

It appears to me necessary to subdivide and classify the whole of the defective classes, and, if possible, to bring them all under one great department of State, so that in youth they may be notified and registered, in adolescence be strictly observed, and in maturer years those of them still supervised who have not succeeded in taking their place in the community as con-

tributors to its welfare, and in this way be saved from a life of crime, vice, or any of the forms of pauperism. There should be adequate provision for their bodily comforts without extravagance, and such happiness as they are individually capable of, accompanied by a guarantee that society shall not suffer from their defects. So much may be involved in this suggestion that it may well form the basis of inquiry and investigation by another Royal Commission, a suggestion which must not be interpreted as equivalent to shelving the whole question.

I am of opinion that insanity, which of all illnesses inspires terror beyond any other, and causes a sense of helplessness, might be lessened if the hospitals of our cities (whether associated with a medical school or not) were to initiate out-patient departments, where patients could apply for advice and submit to treatment for mental symptoms without loss of liberty. Where this experiment has been tried it has proved most satisfactory. Moreover, our public asylums, built and supported by the ratepayers, should give them some relief and benefit in return. They should be the centres for disseminating, through their medical officers and nurses as missionaries, a health-conscience and a creed which should reform the districts they serve. Each of our asylums should be a centre for clinical instruction. It should be a school where any qualified medical practitioner could refresh his knowledge of the subject of insanity in all its bearings, and where the medical staff should give advice to any applicant suffering from premonitory symptoms of incipient insanity, and power should be given by law to take such cases in for treatment, if necessary, as voluntary boarders.

An asylum should be the place where the principles of eugenics should be widely disseminated, for surely it is wiser and better to make every effort to arrest insanity before it has reached the stage of certificates than to wait until it has been legally established. The law of the land empowers the medical man to deprive his fellow-citizen of his liberty; and upon a written statement a citizen may be incarcerated until he can show that he is entitled to his restoration. To no other subject in the State is a similar power given to dispossess an individual of his liberty, to disfranchise him, to alter his position towards his friends and his responsibility to the law, and so to disturb his social relations that the greatest distress is caused to his relatives.

Surely this power imposes upon the medical man the duty of being acquainted with his work, and every facility should be given by public bodies for students and medical men to receive full and adequate clinical and systematic instruction in insanity. It is for this reason that I would strongly support the proposed scheme for the establishment of "reception houses" for London, although I think that the erection of an acute mental hospital within the grounds of the asylum is a most excellent and admirable proposal, and one which is expected to yield the most beneficial results. I think, and I hope some of you will agree with me, that there should be a diploma in mental diseases granted by the Royal Colleges of Physicians and Surgeons, which should be a qualification necessary before any medical officer can receive the higher appointments in public asylums—a *sine quâ non*, as the D.P.H. (diploma in public health) is for medical officers of health. The London University has already taken a step in this direction by the recognition of mental diseases as a special subject for the M.D. examination, and the further question of a separate diploma is worthy the attention of the University authorities.

The effort which is now being made by teachers in elementary schools to teach hygiene and temperance is a scheme against insanity, and it should not be optional but compulsory. In this connection also the recommendation made to the Minister of Education—and which since this was written has been favourably received—that a medical officer should be attached to every elementary school would tend to greater physical and mental efficiency of the scholars, and would probably more than pay for the outlay through the better health of the children and the better educational work resulting in consequence. The London County Council has done much for the furtherance of the public health, and it now has, as the Educational Authority for London, the unique opportunity of supplementing University training in this and other directions. It has also the opportunity of emulating the enterprising action of the Edinburgh Corporation, which by its enlightened and beneficent scheme, inaugurated in the past the great extra-mural school of medicine which has developed into the celebrated school of the Royal College of Physicians and Surgeons.

I will allude to one more method of mitigating the accumulation of the insane in asylums, *viz.*, that so ably advocated by

Dr. D. Nicolson in a recent communication to the public Press by the extension of "after-care" work, and no more efficient machinery could be devised than this of finding natural homes for the harmless insane. I have been favoured by the remarks of Mr. H. F. Keene, Clerk to the Asylums Committee of the London County Council, in regard to the "boarding-out" system which, although permissible by statute, has become a dead letter in England and Wales owing to the various "sanctions" necessary from committees of asylums, Boards of Guardians, and local justices, as to the place, the allowance, and the control of asylum authorities—diverse points upon which agreement would be necessary before such arrangements could be carried out, and we urgently need a solution to this *impasse*.

I am not certain that an old-age pension for those over sixty-five years of age would not materially reduce the number of senile cases in asylums; and for this reason I venture to repeat the reference made to it some years ago—that the home circle, and not almshouses, workhouses, or asylums, is the proper place for the old who are suffering from the physical and mental effects of terminal dissolution.

May I ask in conclusion what our great National Association is doing and has done in the direction of mitigating insanity? Our Association has risen, owing to the vigilance and faithful care of our Treasurer, to be, so far as financial position and annual income are concerned, the second of the medical societies of this country. Founded in 1841 with a membership of 44, it can now boast of a roll of over 700 qualified medical men and women interested in the improved treatment of the insane. Such membership must be a bond of union to all asylum workers, and this bond is greatly strengthened by our representative Journal, so ably conducted under the experienced editorship of Drs. Rayner, Conolly Norman, Urquhart, and Chambers. With the view of encouraging investigation and research our Society continues to hold an examination in mental medicine for qualified medical practitioners engaged in the asylum services, and a certificate is granted by the Association as a mark of proficiency, and I consider this encouragement and the continuance of this examination to be imperative upon us until such time as the universities and conjoint medical colleges take the matter up. This year six candidates have been successful in obtaining this certificate. A medal with

an honorarium of ten guineas is also offered annually for an essay by any assistant medical officer upon a subject connected with the clinical study of mental diseases, and two essays of remarkable ability have recently been presented, one dealing with the special pathology of insanity, the other dealing with the incidence of tubercle in the insane.

Further, a prize of £30 and a gold medal are offered by the Medico-Psychological Association to assistant medical officers as an incentive to the study of insanity; and both are this year awarded. I can foresee the time when eminent bacteriologists shall have prepared a vaccine or serum for the treatment of mental symptoms which shall render harmless the disabilities and terrors of insanity; and who may not further cast the horoscope, and by ascertaining the opsonic index of those threatened with mental symptoms, may, by a proper raising of the individual resistance to bacterial invasion, altogether prevent the incidence of insanity?

The improvement of nursing in our asylums and mental hospitals has always been an object of much solicitude and of considerable interest to the Council of our Association. Didactic instruction in the form of lectures to the staff by the asylum medical officers, according to a syllabus laid down by the Association, has become the almost invariable rule in asylums throughout the three kingdoms as well as in those of some of our Colonies. The period of training for the certificate of the Association for proficiency in mental nursing now extends to three years, and such training enables the holders to obtain better executive positions in various institutions as well as in private nursing, and by insuring better prospects encourages a more ambitious and a better class of nurses, which means a higher moral and intellectual standard, conditions which cannot fail to react upon the patients themselves, for they are continuously under the care of these nurses, and they must receive better custodial and curative services in consequence. My own experience and my long and special interest in this question convinces me that efficient nurses are a substantial auxiliary and a most helpful element in the treatment of insanity. Training improves the tact of the persons trained, it increases skill, and gives greater accuracy and value to reports through improved observation of symptoms. Moreover, it broadens and elevates the sympathies of a nurse, and it

develops and confirms what is best in and most characteristic of human nature, *viz.*, tenderness and care for others.

The records kept by our energetic and methodical Registrar, Dr. Alfred Miller, show that there are at present no less than 7555 persons, 3549 men and 4006 women, who have obtained the certificate for proficiency in mental nursing, and I think the least we can expect for those who thus devote themselves to duties, which, were they not essentially Christian in the highest sense of the term, would be positively repellent, is that with regard to their later days they should at least be placed in such ease and comfort as to old age provision as the ordinary policeman. More we do not ask, and I am happy to think public opinion is now maturing towards the view that they deserve as much.

During the past year we have had a special committee, under the chairmanship of Dr. Percy Smith, to consider the classification of insanity. This committee, in the light of our present knowledge of psychology, pathology, and symptomatology, has discussed the matter very fully and has endeavoured intelligently and practically to subdivide the whole of mental diseases, to rearrange them, and thereupon to suggest a nomenclature which, if not final, is at any rate a workable scheme in harmony with the united opinions of members of the committee and based upon psychological and pathological knowledge as they fit in with the various symptoms presented. It can be truly said of this scheme that it is the result of thought, care, and deliberation.

This year also witnessed the final presentation of a scheme of statistical tables, which to be of any use for the collation of our knowledge and for general information in respect to insanity, requires the loyal co-operation of every member of our Association. The Committee, with Dr. Yellowlees as Chairman, deserves the very cordial thanks of the whole Association for the years of elaborate and consistent devotion to this task.

I have already inflicted myself at too great length upon your indulgence, and I would only say in conclusion that the study of mental diseases is related to every aspect of human life, that sanity, and therefore *a fortiori* insanity, can be traced by the student of sociology to be associated with such phenomena as heat and cold, the rate of interest, the price of Consols, varying conditions of prosperity, deposits in savings banks, and the value of imports and exports; and I would suggest for the

further consideration of this relationship that an annual Lectureship be endowed by our prosperous Association dealing with insanity in its sociological aspect; for the more we work into these side issues the more do we feel that the life of intellect, of emotion, of action, of thought, and even of pleasure, have effects which command our earnest attention. The whole question of insanity demonstrates what a great thing life is, and that there is no aspect of it unworthy of study or destitute of interest.

(1) Since the above was written the death of Dr. Oscar T. Woods, President of the Association in 1901, has occurred.

The Neuron Theory—Fatigue, Rest, and Sleep. (1) By W. BEVAN-LEWIS, M.Sc., Vice-President of the Physiological Section of the British Association; Medical Director of the West Riding Asylum, Wakefield.

THE subject of fatigue, rest, and sleep cannot be approached without reference to the theory which has revolutionised our ideas of cerebral activity—the neuron theory of Waldeyer and Ramon y Cajal. This theory is certainly “in the air,” and despite the adverse views of notable histologists such as Apathy, Bethe, Dogiel, Donnagio, and Hill as regards its universal applicability, it has, I think, come to stay with us, as have the cycle, motor, submarine, and probably we may shortly say the aeroplane. Arguments, *pro* and *con.*, are scarcely called for here, but there are a few points which I cannot omit reference to.

Now, Dogiel⁽²⁾ found in the inner ganglionic layer of the human retina cells which directly communicated with each other by a stout process and dendrites freely anastomosing, and apparently continuous with the plexuses of adjacent cells. He gives a striking figure of such ramifications. Apathy⁽³⁾ after ten years' research at the great zoological station at Naples, published results wholly antagonistic to the neuron theory. It must, however, be remembered that all his more important work was done with the invertebrata, more particularly hirudinea and lumbricus, also crustaceans and molluscs. When he came to the examination of vertebrate forms he signally failed, and

he admits that his methods—*vis.* methylene blue, gold chloride, and hæmatoxyline, although most favourable for worms, gave most unsatisfactory results with vertebrates. It appears scarcely fair to reason from the connections found in the ganglionic cord of lumbricus to the large nerve-cells of the cortex cerebri. On the other hand, Bethe (⁴) by physiological experimentation attacked the neuron theory. Isolating the nerve-cells which supplied the second antenna in *carcinus mænas*, by section of all their processes he yet obtained movements of flexion and extension of the antenna, and concluded that this could only be obtained through the medium of a free communication between motor and sensory fibrils, which he maintained formed a continuous pericellular network here. Bethe's views have been severely criticised and weakened by van Gehuchten. Alexander Hill (⁵) believed he could trace direct connections between the cells of Purkinje in the cerebellum of the skate and the axons emerging from the granule layer; fine fibres were found by him streaming from the gemmules of the dendrites of the cells of Purkinje horizontally towards the neighbouring granule cells. I do not know whether this observation has ever been confirmed or extended to other forms of life.

The old view respecting the constitution of the nerve-cell—say one of the large motor cells of the cortex cerebri—was that of a perfectly homogeneous mass of protoplasm containing a large nucleus, and throwing off laterally and upwards a number of protoplasmic branches of equal homogeneity, which divided and subdivided into elaborate and fine plexiform meshworks continuous throughout the whole cortex. From the base, on the other hand, emerged the axis-cylinder process or axon, which was supposed to travel without division to its ultimate distribution. It was regarded as motor in significance, the other branches being sensory or recipient in their function. Stimuli reaching the recipient branches aroused nerve-currents which streamed into the cell protoplasm. There a contest of currents would occur, a resolution of forces issuing in the outgoing or motor current; and thus definite tracts of molecular instability would be established and organised which we scarcely dared hoped would be differentiated by microscopic vision. Now all this is altered; by the beautiful silver and sublimate methods of Golgi, Cajal, and Cox, with their varied modifications these definite tracks of functional activity seem to be

revealed to us as coarse and finer fibrils traversing the ultimate dendrites and streaming from the dendron into the cell protoplasm, to be distributed in a cortical or peripheral and a perinuclear series, the latter giving off a large proportion of fibrils which emerge by the axon as a more condensed fasciculus. Golgi, Ramon y Cajal, Levy, Marinesco, and van Gehuchten have all given us their views upon this remarkable system of neuro-fibrils. Golgi asserted that the dendrites were purely nutritive in their agency and of no moment as conducting tracks; Cajal (⁶) strongly dissented from this view, and the great weight of opinion is decidedly favourable to the conducting function of the dendrite. We have also had a valuable *résumé* of observations made in this field of research by Professor Bradbury (⁷) in his Croonian lectures; and quite recently a short but luminous exposition of the neuron theory by Sir William Gowers (⁸).

Now, in early stages of cell life these neuro-fibrils are few, imperfect, they multiply with the growth of the cell, so that as Cajal (⁹) indicates, the large nerve-cells are not favourable objects for revealing their disposition, owing to their enormous multitude and density. Here, then, we have presumably the laying down of tracks of functional activity, first by invisible molecular arrangements, then by visible tracks of neuro-fibrils increasing quantitatively with the growth of the cell, and possibly qualitatively modified by reason of their topographical distribution. In lieu of the continuity of the nerve-cell processes with others throughout the cortex, the cell with its apical, lateral, and basal processes is now regarded as an independent unit—the neuron, brought into relationship with other neurons by contact only, *not by continuity of structure*. The axon or basal process throws off collaterals along its course, many of which turn up and ascend some distance into the cortex, break into finer branches, and are applied according to Berkley (²⁶) parallel to the dendrites, where they give off numerous very short and fine collaterals with bulbous ends which apply themselves to the gemmules of adjacent dendrites; at these points only do they functionate. Cajal (⁹), however, believes that they functionate along their whole length, and he describes the ultimate distribution of axons as varying greatly in different regions of the nervous system. In the spinal cord of the adult rabbit he finds a nest of such terminal axites closely applied

to the nerve-cells, each fibril ending in a conical protoplasmic mass ; a similar arrangement is found in the nerve-cells of the superior olivary body of the adult cat, and Cajal accords the same significance to the well-known basket-work around the cells of Purkinje in the cerebellum.

Although the great weight of opinion favours the axite as being the sole agent whereby the stimulation engendering the nerve-current is brought to the terminal dendritic plumules, we are by no means certain that the lateral dendrites do not functionate by contact with the dendrites of neighbouring neurons. In support of this view I might quote such authorities as van Gehuchten⁽¹⁰⁾ and Lugaro⁽¹¹⁾ both of whom regard the dendrites as possibly conducting in either direction ; and Professor Sherrington has, I believe, adduced by experimental research some evidence which seems to indicate that the law of dynamic polarisation enunciated by Cajal might in certain cases be infringed upon. In like manner Sir W. Gowers⁽⁸⁾ speaks of "the influence which one dendrite exerts upon another, an influence which may be conducted as a form of energy which excites fresh impulse in the dendrites of the neuron it affects." Professor Gotch, explaining the phenomena in hypnotic states, lays great stress upon the gaps existing betwixt contiguous dendrites—the intervening living matrix varying in resistance from time to time would seem to determine whether the nerve-current should pass or no. Now, if we conceive dendrites of neighbouring cells to be brought into contiguity by their respective gemmules we have a mechanism whereby the activity of one neuron must react on those adjacent so long as their respective gemmules are expanded. The difficulty to this conception rests upon the view (which may yet prove faulty) that all dendrites, being receptive, are the channels for inflowing or centripetal currents only. We have seen that some authorities believe they functionate in both directions, and by new methods of research we find numerous neuro-fibrils pass from apical dendrons through the cell and turn round to course through lateral dendrons, and this would render it highly probable that emissive currents might, therefore, pass by these channels to the neighbouring dendrites. I would suggest that the gemmules crowding the dendritic plumules, being presumably termini for the neuro-fibrils, form an apparatus for isolated stimulation at a distance ; whilst the meshwork of neuro-fibrils within the

cell, being the equivalents of naked axons, are subject to stimulation by the products of cell metabolism, possibly also by nuclear influence, and almost certainly by toxins which may reach them from without. Have we not here a mechanism for more massive results? I confess I cannot with Sir W. Gowers so readily dispose of the masses of chromophilic material of Nissl, with all the important changes they are seen to undergo—functional and pathological—apart from their nutritive functions. I believe with Marinesco (¹²) that they probably serve to increase the potential of the currents, that the nerve-cell is a storehouse of energy, subject to liberation by stimuli reaching the cell from the terminal dendritic plumules, or by intrinsic changes within the cell itself or its nucleus.

Lugaro (¹³), whose views, perhaps, more than any other living neurologist, should be respected, emphasises very strongly the retardation of the nerve-current at the points of discontinuity or the synapse; at this point, he says, we have not a mere transmission by contact, but an actual transformation of energy due to some physico-chemical change; and I see no reason for doubting that the same changes due to metabolic activity within the nerve-cell should not arouse nerve-currents here in like manner. On the other hand, Cajal thought the current was brought by contact from one cell to another as between ordinary conductors.

What, now, is fatigue as it affects the nerve-cell? Fatigue in general is certainly a complex in which both mental and bodily states participate; we cannot fatigue the muscles without similarly affecting the nervous centres—we cannot overwork the latter without reducing the capacity of the muscular apparatus. Mental and physical operations are indissolubly bound together, and overwork in either sphere entails a disability in both. There is therefore a dangerous assumption in the widespread view that a *change of occupation* implies a relief to fatigue, and in the case of growing lads it is of primary importance that this faulty conception should be corrected. Certain authorities have shown that fatigue induced by mental work in any one direction involves the whole sphere of mental operations, the capacity for work in all directions being thereby restricted. So with our muscles, fatigue of any overworked group of muscles floods also other muscular areas, rendering

them less capable of work, whilst at the same time it reduces the psycho-motor activities. We shall all recall in this connection the experiments of Abelous⁽¹⁴⁾, who tetanised the body of a frog by an electric current, after having arrested the circulation in one limb by ligature of its vessels; *that limb* escaped the severe exhaustion of the other limbs *because it was cut off from the products of auto-intoxication derived from the whole body*, and could only be affected by the toxin developed in its own substance. The toxin of fatigue, therefore, *wherever produced by local overwork*, spreads its results over the whole organism. Bettmann showed long since that whilst mental effort was followed by motor enfeeblement, physical efforts result in a more transient reduction in the excitability of the central motor mechanisms. The disability for mental exertion after physical reductions is also evidenced from the fact that a two hours' walk enfeebled the operations of memory, discrimination or choice, association and recognition. Now, a lad wearied by mental work is sent into the cricket field, or seeks his restoratives in a sharp walk or an arduous cycle run; this may be in accordance with current belief, but for all that I regard it as *very bad physiology*; gymnastics are not restoratives in the case of mental fatigue.

Is there any histological indication of fatigue recognisable in the nerve-cell? This has been the subject of experiment at the hands of Vas and C. F. Hodge⁽¹⁵⁾; the latter put to himself the question of ordinary functional fatigue as betrayed by nerve-cells examined in the morning and at night, and the changes accompanying artificially induced fatigue such as followed electrical stimulation by a Du Bois-Raymond coil. The subjects of investigation were the brain of a sparrow, swallow, pigeon, and the humble-bee, and the spinal ganglia of the cat, dog, and frog. Lugaro⁽¹⁶⁾ and Levy⁽¹⁷⁾ followed up the same line of investigation by electrical excitation, and Gustav Mann examined similarly the motor area of the dog and the superior cervical ganglion of the rabbit. Now, from these researches in the main it appears established that *during rest* chromophile particles accumulate in the nerve-cell to be used up during active metabolism (Gustav Mann), whilst the fuchsinophile granules are greatly reduced, or even absent (Levy); that *during ordinary functional activity* a notable protoplasmic turgescence of the nerve-cell occurs, causing great

increase in size (Lugaro), whilst the nucleus and nucleolus of the motor and sensory ganglion cells and the spinal sympathetic participate. Lastly, *during fatigue* the nerve-cell undergoes progressive decrease in size, the nucleus shrinks less notably, and the chromatin particles become lessened in the nucleus, whilst the chromophile is diffused throughout the cell (Lugaro). Vacuolation of the nerve-cells and enlargement of pericellular sacs in the cerebral cortex have been observed by Hodge, whilst the very careful observations of Levy revealed a great increase in fuchsinophile granules after half up to two hours' stimulation. Very interesting, also, were the observations of Hodge that the changes inducing or induced by fatigue after five hours' stimulation were very gradually removed, complete restoration being not obtained for twenty-four hours.

For the clearing out of fatigue products Nature's remedy is *rest*, but this alone does not suffice, for we still have, to a less extent, nerve-currents originating in their centra, streaming through their connecting links, muscular tone sustained, whether we will or no; we require *sleep* to give that cessation to brain-activity correlated with phases of consciousness, and that complete relaxation of muscles, that lowered blood-pressure, diminished expenditure of cardiac energy, and lessened respiratory vigour which sleep entails. Rightly or wrongly, I have always maintained that the products of such metabolic activity implied by fatigue of the nerve-cell would be in normal states removed through the agency of the lymph-connective system of the brain—in short, by the elements I have termed "scavenger cells." (19) It is a fact, whatever the explanation be, that vast augmentation of these elements occurs in all states of excessive cerebral activity, where we know products of nerve-disintegration largely accumulate, as in general paralysis, alcoholic insanity, epilepsy, and dementia præcox, or adolescent insanity.

Passing now to the subject of sleep, I do not propose dealing with the several theories accounting for the phenomenon of sleep—the *vasomotor* or *cerebral anæmia* theory, the *chemical*, the *psychological*—all of which have been admirably dealt with by Professor Bradbury (7), but will take only into consideration the *histological* theory, which bids fair to claim by far the larger number of adherents and which satisfies most of the conditions demanded by a rational explanation of sleep.

Duval's⁽²⁰⁾ conception of sleep was certainly a fascinating one; for him conscious states imply full expansion of the dendritic plumules of the cortex cerebri, bringing each arborisation into contact with the neighbouring units, whilst sleep and unconscious states produced by drugs such as bromides, chloroform, and ether were accompanied by retraction of these dendritic plumules and isolation of the neuron in this manner from its fellows. We can well conceive how such a theory might account for the sudden onset of sleep, for the various phases of its gradual incidence, for dreaming, illusory, and somnambulistic conditions, since the break in the synapse might imply an infinitely varied degree of dissociation. The amoeboid movements of the neuron, however, embrace three assumed changes: (a) retraction of the terminal dendrites, (b) recession of the dendritic gemmules, (c) moniliform varicosities of the dendrites due to such retraction. Unfortunately for this tempting theory, the retraction of the dendritic plumules has never been observed, and in the very nature of the case is of course, not likely to be detected; and, moreover, we have still to exclude the powerful effects of fixing reagents, which in the Golgi and Cox preparations are very intense. In the next place the moniliform appearance is notoriously influenced by the age of the animal, the plasticity of the structure, and the action of reagents; and in the last place the theory rests wholly upon the assumption of the accuracy of the *contiguity* in contradistinction to the *continuity* conception of nervous activity—a conception which, as already stated, many notable neurologists decline to accept in its entirety, whilst others affirm, what undoubtedly is correct, that Golgi methods probably fail to reveal structures still to be discovered. This last suggestion is all-important to us; we *cannot* assume that we have reached finality with respect to anatomical details in the neuron fields. Years since I wrote to one of the most distinguished living physiologists who had in his address given a charming diagram of neuron chains forming the framework of the nervous system—a diagram which has since been copied into most text-books of neurological science and of medicine; I had looked in vain over many hundred beautiful sections of the cortex by Cox's method but had utterly failed to detect any approach to the wondrous arborisations shown in the diagram around the nerve-cells of the cortex. The question put was this: Had

he ever seen or been able to demonstrate such terminal axites as arborisations surrounding a cortical nerve-cell as there illustrated? The reply was in the negative, but they were supposed by him to exist there. Now, this is just the point: we *must* impress upon ourselves the fact that the mode of termination of the axon collaterals around the cortical nerve-cells is a theory pure and simple, but for all that an admirable working hypothesis. The inexperienced student of neurology is often misled upon this point and is apt to dogmatise upon these terminal arborisations as if they could be readily demonstrated. It is, of course, legitimate to crowd into our neuron fields any number of reasonable conceptions, but we must remember that they are there only to subserve our favourite views of nerve histology; and yet, like that wondrous conception of Weismann's, the ids, idants, determinants, and biophores are only there to elicit more exact methods of thought, and probably to be swept away into oblivion with the dawn of truth. Demoor⁽²¹⁾ described moniliform dendrites devoid of gemmules in animals to which morphine, chloral, and chloroform had been administered, and in others where the cortex had been electrically stimulated for five minutes. Goddard also by a special method with Cox's reagent found all the dendrites beautifully expanded in puppies seven weeks old, which were asleep when killed; whilst in the puppy which was fatigued but awake at the time of its death a large proportion were retracted and varicose. In one kept awake all day and greatly fatigued but not asleep scarcely a cell could be found which did not show varicosities, whilst in yet another killed on awaking in the morning no varicosities could be discovered; hence Goddard taught that varicosities did not imply sleep but *fatigue*. The method adopted appears to me far too coarse for reliable results to accrue therefrom.

Lugaro⁽²²⁾, whilst strongly opposing the idea of dendritic contractions, is equally convinced that expansion and recession of the gemmules of these dendrites is a most important feature in cerebral activities. Contrary to the customary teaching, however, he asserts that *expansion* of the gemmules implies sleep and their recession characterises states of mental activity.

If I may venture to obtrude my own views upon this fascinating subject, I would submit that:

- (1) The retraction of the dendrites *as a whole* is most

improbable, nor does it admit of proof by any known method of research.

(2) Even were its possibility admitted, the enormous wealth of structure in these dendritic fields, as shown by Cox's method, is such as to preclude the possibility of neuron isolation to the extent suggested.

(3) The contact of gemmules and the break in contact on their retraction is far less open to question, and admits of possible proof by further methods of research.

If we accept Waldeyer's view, upheld by Ramon y Cajal and his school, of the neuron, and regard the gemmules as the agents of contact, we still have some facts which have not received due consideration. Instead of viewing the nerve-cell diagrammatically on the flat as they appear to us in sections of cortex, if we reconstruct them mentally with their dendrites spreading out on all sides around the main stem or dendron, we have a true arborisation, which like a tree sends out its terminal branches on all sides to engage those of the neighbouring trees around. Now, if we approximate two such arborisations we at once see their respective dendrites tend to assume more and more a parallelism eminently favourable to contact along their whole length ; if *very closely* approximated, this will apply to all the branches, to the right, to the left, towards and away from the observer ; the less closely approximated the branches, the less the parallelism, the dendrites tend to cut each other obliquely, with few points of contact. Since the gemmules are the only points of naked protoplasm, parallelism here would imply far more perfect functional contiguity. Hence the closer approximation of neurons implies greater structural integration, and the potential of such units far higher than those that from structural disability can adjust themselves to few contacts. I call this the principle of anatomical juxtaposition, and one bearing to my mind is this: since numerous areas of the cortex exist in which this structural integration varies infinitely in degree, we must presume a corresponding diversity in functional activity dependent upon these fixed anatomical groupings. We might almost suppose the existence of certain tracts of cortex always more or less asleep, the site of activities correlated with very infrequent and feeble states of consciousness ; whilst other elaborate centres functionate far more vigorously owing to the favouring conditions of neuronically juxtaposed

position ; and this infinitely varying structural integration, implying as it does every possible degree of contiguity of gemmules, helps us, I think, although but faintly, to realise the wondrous phases of the psychical wave which, now here, now there, gathers in intensity or recedes in distant echoes or absolute silence in the sphere of consciousness.

Now, we want to save our growing youth from pathological weariness or *brain-fag*. Brain-fag is often the correlate of muscular fatigue. Most of us recall early cycle experiences. The great triumph of acquiring the art leads to ambitious efforts at too early a date to emulate the long distances of the accomplished cyclist; the result is the "cycle-head," as we may term it ; associated with aching muscles and lassitude we have that vague, indefinite, widespread feeling in the head, akin to pain, a light-headed, too wakeful sense, *absolutely fatal to sleep*, a condition we may justifiably regard as fatigue of the brain-cell. A persistent dilatation of the cortical arterioles supplying the brain with blood saturated with katabolic fatigue-products is the most reasonable explanation of this sense of brain-weariness. However induced, whether by overtaking muscular and nervous systems, whether by defective or deficient food, or by stress and worry, or lastly, by inadequate sleep, the symptoms are closely related and demand prompt attention at the hands of the physician. It cannot be doubted that such changes in nerve-cells, naturally or artificially fatigued, pass on with continued stimulation and inadequate rest to established structural disease, and that failure to detect early indications of brain-fag in young growing children may lead to irreparable mischief. Such brain-fag does not imply excessive waste in the sense that other bodily tissues, such as muscles, waste; for all of us have learnt this from Atwater's⁽²³⁾ case of a man placed in a respiration calorimeter engaged at severe mental work, reading a German work on physics, and in whom there was no more bodily waste than during rest from mental effort.

Now, there are some points connected with fatigue in growing youth I am desirous of laying special emphasis upon :

(1) It should be recognised that there are diurnal variations in intellectual capacity of rhythmic periodicity in all children, such children being capable of producing the highest work-values at definite times of the day, and the teacher should also learn to discriminate and watch for this more

favouring tide of mental acquisitiveness and avail himself of its energy.

(2) We should be familiar with the fatigue-curve and the enormous importance of the intercalated periods of rest between periods of effort to realise the best work-values.

(3) The teacher should be keenly alive to that residual fatigue betrayed by children who obtain inadequate sleep—a residuum which, constantly accumulating, issues eventually in grave reductions in the normal working capacity.

(4) At this period of the lad's history the rapidity of growth in stature and in weight indicates how enormous is the metabolic activity now assumed—an annual growth of 5.5 cm. from the age of five to eighteen (Quetelet); an infant weighing 10 kilos. at the age of twelve months doubles its weight by the age of seven years, quadruples it by that of fourteen, and weighs nearly 60 kilos. at the end of eighteen years.

(5) In view of the importance of the central nervous system in controlling metabolic activity directly and indirectly through trophic and vaso-motor influences, we must imperatively insist upon adequate rest and sleep in those subjects submitted at this period of their life to scholastic training.

(6) At this period of life the psychomotor centres are assuming a far more important *role*, the full force of the developmental wave being here most pronounced, whilst all through the successive stages of adolescence structural integration proceeds here with enormous strides, the result being almost equivalent to a complete transformation of the personality.

(7) Defining the motor centres *histologically* ⁽²⁴⁾ as a track of specialised cortex in the upper portion of the precentral or ascending frontal convolution, and at the terminal or mesial end of this gyrus, as well as to a less extent towards the lower end of the precentral, I would affirm that Betz cells characterising this area show notable changes in the form of mental disturbance which prevails at this period of life and throughout adolescence.

(8) That the form of adolescent insanity so intractable in its progress, so terrible in its issue, is most liable to occur in neurotic subjects and cases of mental weakness who at this time of life are exposed to the stress of overwork, pressure, and competition of school life conjoined with inadequate rest and sleep.

(9) That if it be legitimate in any way to reason from the

mentally enfeebled to the sound and normal subject, my experience at Wakefield Asylum where a home for the systematic training in school is adopted for weak-minded and mildly imbecile children, shows that ten hours' sleep has not been found extravagant for the restorative effects required for the succeeding day's work.

(10) With respect to the psychomotor centres as *histologically* defined I would add that Sir Lauder Brunton ⁽²⁵⁾ in 1882 gave us a most suggestive article in *Brain* on the motor centres in regard to their nutritive and social functions; and although there is reason to believe the motor centres to be far more limited in their range over the cortex than as was then assumed to be the case, such restriction as I have defined *histologically* ⁽²⁴⁾ by no means impairs the force of the argument advanced by Sir Lauder.

(¹) Read at the Physiological Section of the British Association at York, 1906, in connection with the discussion on "Sleep in School Children," opened by Dr. T. Dyke Acland.—(²) *Archiv f. Anat. u. Phys.*, 1893.—(³) "Das leitende element des Nervensystems und seine Topographischen Beziehungen zu den Kellen," *Mitth. aus d. Zool. Stat. Neap.*, Bd. xii, 1897-1898.—(⁴) *Arch. f. mikr. Anat.*, Bd. li, 1898.—(⁵) *Brain*, 1896.—(⁶) *Nuevo concepto de la Histologia de los Centros nerviosos*, Barcelona, 1893.—(⁷) "Croonian Lectures," *Lancet*, 1899, vols. i and ii.—(⁸) *Lancet*, July, 1906.—(⁹) *Bibliographie Anatomique*, tome xiv, 1905.—(¹⁰) *Anat. du Système Nerveux de l'Homme*, 1897.—(¹¹) *Monitore Zoologico*, 1897, No. 4.—(¹²) *Pathologie de la Cellule Nerveuse*, Paris, 1897.—(¹³) *Riv. di Patol.*, 1897.—(¹⁴) *Arch. de Phys.*, 1893, 3.—(¹⁵) *Journ. of Morphology*, vol. vii, 1894.—(¹⁶) *Lo Sperimentale*, xlix, 1895.—(¹⁷) *Riv. di Patol. Nerv. e Ment.*, May, 1896.—(¹⁸) *Journ. Anat. and Phys.*, xxix, Oct., 1894.—(¹⁹) *Text-Book of Mental Diseases*, 1899.—(²⁰) *C. R. Soc. de Biologie*, Nos. 4 and 5, 1895; also *Rev. Sci.*, 1898, ix.—(²¹) *Journ. of Phys.*, xxiii, 1898-1899, and *Arch. de Biol. de Brux.*, 1896.—(²²) *Riv. di Patol. Nerv. e Ment.*, 1898.—(²³) United States Depart. of Agriculture, *Bull.* 44, 1897.—(²⁴) "Cortical Examination of Motor Area of Brain," Bevan-Lewis and Henry Clarke, *Proc. Roy. Soc.*, No. 185, 1878.—(²⁵) *Brain*, 1882, vol. iv.—(²⁶) *The Johns Hopkins Hospital Reports*, vol. vi, 1897.

Alcohol and Insanity.—The Effects of Alcohol on the Body and Mind as shown by Asylum and Hospital Experience in the Wards and Post-mortem Room. By F. W. MOTT, M.D., F.R.S., Pathologist to the London County Asylums; Director of the Pathological Laboratory; and Physician to Charing Cross Hospital.

So much has been written on this subject, that I trust it will not be considered disrespectful to previous observers if I refer more particularly to my own experience and observations. As out-patient physician to Charing Cross Hospital, and

latterly physician in charge of wards, I have had a considerable experience in seeing the effects of alcohol in the production of bodily diseases; but as Pathologist to the London County Asylums I have had a much larger experience in seeing the effects of alcohol in the production of mental diseases. I can safely say that in quite one fourth of the male cases which come under my observation at Charing Cross Hospital, and in a considerable proportion of the female cases, alcohol has been an efficient cause in the disease, or a very important coefficient. In conjunction with venereal disease, especially syphilis, it is responsible for many degenerative processes, which will be alluded to. My house-physician, Mr. Reade has kindly made a tabulated statement referring to the influence of alcohol in the medical cases admitted during the year 1905, which is appended.

The cases coming to Charing Cross Hospital of which intemperance has been the main cause of the disease are especially numerous on account of the situation of the hospital, and the class and the occupations of the patients who seek relief there. Located amidst the theatres, restaurants, music halls, and places of amusement and refreshment, it becomes the receiving-place for those who are intemperate in the pursuit of pleasure; also for a number of people engaged, either directly or indirectly, in the liquor traffic, or whose occupations lead to prolonged intemperance. Among such are potmen, barmen, barmaids, publicans, prostitutes, waiters, cooks, and kitchen servants from hotels, stage carpenters, scene shifters, cabmen, 'bus drivers and conductors, and particularly numerous, the Covent Garden porters, who are addicted to drinking large quantities of beer. As a rule, all these people are, at the time they are brought to the hospital for such relief, in employment. I regard this as a very important point in connection with the nervous symptoms which may be manifested as a result of prolonged intemperance, because to the casual observer certainly, and to the skilled observer often, no mental deterioration may be discoverable in a large proportion of those chronic inebriates. Occasionally a head or other injury, slight or severe, the onset of disease, especially pneumonia or other infectious processes, or an extra bout of drinking may result in delirium tremens, for which the patient may be brought to the hospital, or which may develop after he has been admitted.

A few cases proportionally of polyneuritic psychosis occur, especially in women, and the majority of these leave the hospital completely cured. All the mental symptoms pass off by withholding the alcohol and by careful diet and nursing, the paralysis caused by the neuritis persisting, as a rule, long after the mind has cleared. It is, however, difficult to judge whether the patient really is the same as before the onset of the mental symptoms.

This form of polyneuritic psychosis met with in hospital, occurring especially in women but also in men, is identical with that met with in asylums, although not very common in either. It is far more frequently met with in women than men in both asylums and hospitals, the proportion being about one male to seven females. In hospitals it is the paralysis and the neuritic symptoms which obtrude themselves, whereas in asylums it is the mental symptoms. Very seldom in any case, however, are the mental symptoms completely absent if the patient be carefully examined in hospital cases. Conversely in asylums (in spite of the fact that the knee-jerks may be present or increased instead of absent) some evidence of neuritis is almost invariably present and may form an important causative factor in the production of hallucinations and delusions. Examples of these various types will be given and it will be observed that often it is a mere chance whether a patient suffering with polyneuritic psychosis be treated in hospital or asylum (*vide cases*).

Many of these cases with characteristic mental symptoms arise in married women who, without perhaps ever having been drunk and incapable, have acquired the habit of continuous secret tipping. I may here remark that grocers' licenses have facilitated secret drinking to an enormous extent among women. They drink because they feel miserable and depressed. Sometimes they commence the habit after an illness. Usually, according to my experience, it is married women who suffer with polyneuritic psychosis, and I have observed that it is so frequently associated with some other morbid factor—*e. g.* septic infection from a miscarriage or abortion, gonorrhœa, endometritis, parametritis, salpingitis, syphilis, pneumonia, or tuberculosis—that it is difficult to assert in these cases how far the mental and the neuritic symptoms are partially due to such cause and not solely to the direct effects of the alcohol on the nervous tissues.

In some cases a gastritis occurs, and the patient is unable to digest and assimilate food and takes only drink. I have found so often rotten teeth and pyorrhœa alveolaris that I am inclined to think that gastritis may become infective in nature and consequently microbial toxins may be absorbed and damage the tissues.

The mental symptoms, both in hospital and asylum cases, are especially liable to arise at the climacteric period. Here alcohol may be merely a coefficient, a small quantity only of drink being the exciting factor in a person in whom there is an inherent unstable mental condition, and the symptoms might have arisen if the patient had not taken any stimulant. Again, in people who are the subjects of arteriosclerosis in later life and renal change, of quiescent organic brain disease, especially syphilis, softening, and oncoming paralytic dementia, small quantities of alcohol become an important exciting factor. Again, alcohol, even in comparatively small quantities, may convert the potential lunatic into a raving maniac, and it is specially dangerous to the epileptic and feeble-minded, leading in the former to the production of motor and mental fits and making him irresponsible and anti-social and sometimes very dangerous to himself and others. There can be no doubt that drinking in pursuit of pleasure in the well-fed is far less liable to produce insanity than drinking in flight from despair and misery by the ill-fed, emotional, and neurasthenic or neuropathic individual.

The quantity of alcohol which is daily consumed by the pillars of society is quite sufficient to convert an epileptic or potential lunatic or certain feeble-minded individuals into criminals or certifiable lunatics. Alcohol thus serves to select and weed out those who are potentially unfit, and there is, from this point of view, much to be said in favour of the theory of Haycraft and Archdall Reid.

One would, however, think from the statements which have been made by persons in high and responsible positions, and from statistics quoted by an intemperate zeal for temperance, that if there were no alcohol there would be no insanity. While yielding to no one in the desire to see temperate measures adopted for the control and regulation of the liquor traffic, the care and segregation of chronic inebriates, and the prevention of inebriety, I am of opinion that there is no proof that insanity would diminish to anything like the extent that is believed by

some enthusiasts if alcohol were abolished. The President of the Local Government Board has recently pointed out that the drink bill is diminishing, yet the ratepayer knows that insanity is increasing. I am not sure, indeed, that if an island could be set aside for all those who were total abstainers whether there would not eventuate still a high percentage of insanity there. I feel certain, however, that there would be less disease and *far less crime and pauperism* than in the general population of this country. An important paper, by Dr. Bevan Lewis of the West Riding Asylum, Wakefield, supports this statement. He has shown by tabulated statistics that the admixture of a maritime with a mining and manufacturing class was fatal to the sobriety of the community; that, in fact, inland and *agricultural* communities were the least inebriate, but had the highest ratios of pauperism and insanity; that inland and maritime *mining* and *manufacturing* communities were the most inebriate, and had the lowest ratios of pauperism and insanity, while maritime *mining* and *manufacturing* communities, above all others, were the most intemperate and revealed the lowest ratios of pauperism and insanity. A dissociation between alcoholism and insanity was thus indicated, whilst the latter was allied with pauperism, want, anxiety, and other moral factors. He expressed his belief that alcoholism was not, in the true sense of the word, *inheritable*, but indicated the neurotic features which favoured its operation, and dwelt on its prejudicial action on the germ-plasm and ovum as evolving convulsive forms of mental disease—epilepsy, chorea, hysteria, etc., and also the degenerate forms of idiocy, imbecility, and the criminal type as emphasised in the offspring of an alcoholic parentage. He expressed his adherence to the doctrine of Weissman that *acquired* characters are not transmitted.

It may be observed that these very valuable and interesting observations of Dr. Bevan Lewis present points in similarity with the observations of Sir Hugh Beevor on tuberculosis.

He showed that an industrial population often exhibited a lower death-rate from tuberculosis than the surrounding agricultural population. He rightly attributed this to deficient nutrition on account of wage-earning capacity. There is another and still more important factor, and that is the poor mental and physical state of the agricultural population near to large industrial centres. The mentally and physically capable

migrate to the large towns for higher wages, leaving the physically and mentally feeble and unfit behind. Dr. John Macpherson, Morison Lecture, 1904, showed that in Scotland generally the ratio of insanity to population tended to be low in those communities with a rising population and high in those with a falling population, confirmed by Dr. Easterbrook. It is a well-known fact that the feeble-minded are especially prone to tuberculosis, which is a fortunate circumstance, for it tends to rid the race of poor types. Imbeciles and idiots are often infertile, which is another reason for the dying out of a degenerate stock, but a degenerate stock frequently contains feeble-minded in all grades, some of which will not die out but propagate in considerable numbers, and it is probable that no class of the community produces insanity to such a degree as the feeble-minded. The progeny begotten of a feeble-minded mother by a drunken father, according to my experience, is much more likely to be born mentally defective or become insane in later life than when both parents are intemperate but neither of inherent mental deficiency.

It is my opinion a sound stock may degenerate from stress of town life, with all its attendant evils of over-stimulation of nervous structures associated with a deficient nutrition engendered by an impoverished quality of blood and a diminished specific energy of cell-protoplasm. Alcohol is not the only stimulant: there are many other stimulating substances which are daily consumed by a large proportion of the population—the extractives of an excessive meat diet, tea, and coffee; but these are of comparatively little harm as compared with alcohol, for the reason that while they may stimulate the nervous system, they have not the same devitalising action on the living blood and tissues. The prolonged abuse of alcohol lowers the defences of the body against microbial invasion (Metchnikoff has shown that alcohol produces a diminution of the phagocytes); and the poisonous effects of alcohol are the result partially of the alcohol entering the system, but also to toxins absorbed from the alimentary canal owing to the devitalising effect of the alcohol on the mucous membrane of the stomach and intestines, causing chronic catarrh, failure of the action of the digestive juices, and liability to microbial infective inflammation of the stomach, especially if there exist rotten teeth and pyorrhœa alveolaris. When one important vital organ suffers, then the whole

chemical processes of the human laboratory become deranged and the blood vitiated. It is a question whether cirrhosis of the liver is not due as much to the absorption of various microbial and other toxins as to the actual effect of the spirits absorbed.

Again, alcohol inflames the emotions and excites the sexual passions, and many a young person under its influence (perhaps for the first time) contracts venereal disease, and this fact is of great importance in the consideration of the effects of alcohol in relation to the infertility of intemperate women.

But alcohol is not only directly responsible for the spread of venereal infection ; it is also responsible, in a large measure, for the ravages of the disease when acquired, by lowering the natural defences of the organism. It is a matter of common experience how intractable a severe syphilitic nervous affection becomes if the patient is an alcoholic subject.

All thinking people are agreed that *the abuse of alcohol* among civilised nations is directly or indirectly the most fruitful cause of over-full prisons, workhouses, infirmaries, hospitals, and asylums. According to the President of the Local Government Board, drink and gambling in this country are the curse of the industrial classes. Mr. Rowntree stated at the dinner of the Temperance League given by Viscount Peel that two months' wages of each year of the working man are consumed in liquor. Mr. Whittaker stated that only one in eight voters were total abstainers, and that it was necessary to enlist the sympathy of the great majority of people who were temperate in the use of alcoholic beverages. That leads up to the great question Why do the great majority of intellectual, sensible, and moral people, men and women of as high civic worth as total abstainers, drink alcoholic beverages? Dr. Parkes, than whom no one was more competent to speak, remarked, in connection with moderate use, " The strongest argument, however, is that it seems incredible that a large part of the human race should have fallen into an error so gigantic as that of attributing great dietic value to an agent which is of little use in small quantities and is hurtful in large." In my opinion alcohol is of little value on account of its direct dietetic value ; but if it stimulates the flow of "appetite-juices" of the digestive apparatus it indirectly becomes of important dietetic value by assisting the digestion and assimilation of food. Is a natural alcoholic

beverage, such as pure wine, beer, or cider, taken in moderation with food, to be considered a poison to normal healthy people? If so, why do the vast majority of civilised people, who know perfectly well the evil effects of the abuse of alcohol, take it in moderate quantities? Why do they not prefer tea, coffee, and other stimulants? They appreciate and know full well the truth of what Shakespeare makes Cassius say—"Oh that man should put into his mouth a poison to steal away his brains!" Is it simply the force of a bad national habit and an evil example, as total abstainers who are satisfied with tea and coffee for stimulants would say? For they would cite the fact that experiments have been made by German professors on their students to show the evil effects, even of small doses of alcohol in any form, upon the mind; but the argument against any logical inferences being drawn from such experiments is that they are artificial and conducted under artificial conditions. It requires no series of experiments to show the effects of alcohol in large doses, for, as Maudsley truly says, "A drunken man notably exhibits the abstract and brief chronicle of insanity, going through its successive phases in a short space of time. First, a brisk flow of ideas, inflamed emotions, excited talk and action, aggressive address, unusual self-confidence, a condition of stimulated energy with weakened self-control, so like the sort of mental excitement which goes before an outbreak of mania that the one is sometimes mistaken for the other; next, as in insanity, sensory and motor troubles, incoherent ideas and conversation, and increasing passion, which, according to the previous temperament, is expansive, quarrelsome, melancholic, or maudlin, and which may sometimes, as in insanity owning no cause, go through these stages in succession in the same individual; lastly, a state of stupidity or stupor, which might be called, and is, essentially a temporary dementia."

The beautiful experiments of Professor Pawlow show beyond question the importance of the appetite-juice in digestion and assimilation. He has also shown how this flow depends upon psychical influences. Every physician knows the important influence of a happy and contented mind upon digestion, assimilation, and good bodily nutrition. If a moderate quantity of alcohol taken with food leads to good digestion waiting upon appetite—and by many thinking men this is the case—then it may serve to explain its widespread use. But at all times,

and among all peoples, there has been a desire to be able to alter their mental reaction to their environment. What considerable part this has played in the human evolution of civilisation it is impossible to say. Archdall Reid would say that the widespread resort of the individuals which make up a nation, to alcohol or other stimulating drugs would eventuate racial immunity. Haycraft points to alcohol as a great agent in the prevention of the perpetuation of poor types, and there is much to be said in favour of this view if we regard all chronic inebriates as moral imbeciles, and therefore compulsorily segregable, although the law at present does not recognise them as such. Moreover, it will be shown beyond question that neuropathic and psychopathic degenerates, and criminals, lunatics, epileptics, and feeble-minded under the influence of alcohol, in many cases even *in small and moderate quantities*, become actively anti-social, thus leading to their detainment in infirmaries, prisons, and asylums. Still more obvious is it that all persons with a *locus minoris resistentiæ* of the nervous system, whether inherited or acquired, whether by injury or disease, are unable to withstand the effects of prolonged inebriety. They must either become anti-social or die from the effects of the drink. The survival of the fittest in the struggle for existence depends more and more upon mental capacity than physical strength. Natural selection thus always tends more and more to place the *locus minoris resistentiæ* of the individual in the nervous system, and in that part of the nervous system which has been latest evolved—the cerebral cortex, the seat of consciousness. If Nature made no failures it would make no successes. Variations must occur, and like in the parable of the sower, some seeds fall upon good ground and some upon stony ground. That inherent neuro-potential instability which may on the one hand in a well-balanced mind lead to constructive imagination and genius of the highest order—Nature's success—may on the other hand lead to epilepsy, insanity, degeneracy, and mental perversion—Nature's failures.

Between the two extremes is a wide and increasing class of eccentric and neuropathic individuals, often combinations of cleverness and crankiness, possessing imagination but lacking calm judgment, zealous, well meaning, and egotistical, but generally vain and unreasonable in their mental attitude

towards those who disagree with them, noisily clamouring for rights when they should be attending to duties, bulking largely in the public Press : they fulfill a mission sometimes good, more often bad.

We may ask, Does alcohol act as a test of fitness and sift out the possessors of inherent unstable neuro-potential, eliminating those in whom will-power is deficient and therefore insufficient to control and restrain the readily excitable feelings and easily aroused passions of a neuropathic or degenerate stock ?

Still, we have not answered the question, Why do the majority of people of civic worth in all classes and stations take alcoholic beverages as a stimulant ? Why do commercial travellers, brokers, and many business men find it necessary for their business to drink with their customers ? Because alcohol, even in moderate quantities, removes prudential scruples and a man tends to act in accordance with his natural feelings.

White ("Alcoholic and Drug Intoxication," *Handbook of Medical Science*, vol. v, p. 81), has well said, "The causes of drinking are infinitely varied and intimately bound up in the heart of man, at once an expression of his strength and his weakness, his successes and his failures."

It is not my purpose to justify the use of alcohol on these grounds, but in my opinion its moderate use may act beneficially by tending to remove that prudence and selfishness which restrain the natural and spontaneous feelings of human sympathy and sociability which spring from the affective side of man's nature. We can thus understand how wine maketh glad the heart of man. But moderation in one individual is excess in another, and it is easy to pass the line which carries from the region of safety into danger if alcohol is habitually taken as an article of food. Probably the teaching of Parkes is the correct attitude to take up on this question : "It produces effects which are often useful in disease and sometimes desirable in health, but in health it is certainly not a necessity and many persons are much better without it. As now used by mankind *it is infinitely more powerful for evil than for good*; and though it can hardly be imagined that its dietetic use will cease in our time, yet a clearer view of its effects must surely lead to a lessening of the excessive use which now prevails."

In *La Revue* (February, 1903) the opinion of the leading

French specialists is given upon the question, "L'alcohol est il un veritable aliment?" The general consensus of opinion of the majority of these savants is that in a wine-growing country like France the *natural fermented juice* of the grape, taken in moderation, is not injurious but even necessary for a people whose ancestors have dwelt in a wine-growing country from the earliest periods. But they are of opinion that the abuse of alcohol in the form of distilled liquors, essences, and fabricated wines has had a most pernicious influence upon the people, causing alcoholism, with its mental and bodily defects, far more frequently than formerly.

The Influence of Alcohol upon the Nervous System as exhibited in the Post-mortem Rooms of Hospitals and Asylums.

For a long time past I have been struck with the few cases of alcoholic liver that I have seen in the *post-mortem* room of the asylum as compared with my hospital experience in the wards and the *post-mortem* rooms. I can only remember seeing one case of hob-nailed liver with abundant ascites in my asylum experience, and this experience is very different to that which I have had in the hospital.

The case I refer to was that of Jane Cakebread, who was convicted nearly four hundred times before she was found incapable of taking care of herself and certified as insane. She was a constant object-lesson to society of the inadequacy of control of the liquor traffic and of our law to deal with chronic inebriates, for she was not in the ordinary sense insane. Mr. Holmes, in his *Pictures and Problems from London Police Courts*, strange to say, states, "The smallest amount of drink roused the worst elements in her; a pennyworth of four ale was quite sufficient, and after the nearest policeman she would go." Her liver, as the photograph shows, was the most pronounced hob-nailed liver I have ever seen, and suggested prolonged spirit-drinking, and I can hardly believe Mr. Holmes' statement.

I came to the conclusion that, as a rule, only people with an inherently stable nervous system could drink long enough to acquire advanced alcoholic disease of the liver, and I therefore instituted a comparative inquiry of clinical and *post-mortem* results of patients dying in Charing Cross Hospital and Clay-

bury Asylum. Dr. Candler, my assistant, has undertaken this, and I have told him not to be in any way biased in his opinions by my theories, rather to err the other way. I will now give his results, but I may remark that I have been over his statistics and findings with him, and I can vouch for the fact that he has exercised the greatest care and diligence in making them as accurate as possible. The error of the personal equation comes in to a much less degree in collating the *post-mortem* results, for at the asylum the notes have been made by two or three skilled pathologists in a systematic manner; at the hospital, although the notes are not so systematically kept, so that in a few instances the weight of the liver is not mentioned, yet they are the records of skilled pathologists whose opinions are authoritative. Moreover, in a number of instances the opinion of hepatic cirrhosis was confirmed by microscopic examination. As far as possible the *post-mortem* findings have been correlated with the clinical records. Here naturally we found the hospital notes more precise as regards the quality, the quantity of, and the length of period of alcoholic indulgence. The hospital results, which will be published in full in the *Archives of Neurology*, vol. iii, show a very close agreement with similar observations made by Drs. Rolleston and Fenton at St. George's Hospital.

The differences in the results are so striking that without claiming any precise scientific accuracy for these statistics it may be fairly deduced that my *a priori* premise is true. Alcohol in small or even moderate doses, and certainly alcoholic abuse even for comparatively short periods of time, as a general rule is sufficient to bring the epileptic, the imbecile, and the potential lunatic to the asylum long before he can drink enough to produce a cirrhotic liver.

I shall now compare the clinical differences of alcoholics in hospital and asylum practice. The people who are admitted into the medical wards of the hospital suffering with disease directly due to alcoholic abuse are cases of delirium tremens, neuritis, with or without psychosis, dilated stomach and gastritis associated with hæmatemesis and enlarged liver, and cirrhosis of the liver with ascites, also heart failure, the patient being often in a dead or in a dying condition. Alcohol often is an important coefficient in many other diseases for which patients are admitted, viz. arterio-sclerosis and degenerative processes

	Charing Cross Hospital.				Claybury Asylum.			
	Males.	Per cent.	Females.	Per cent.	Males.	Per cent.	Females.	Per cent.
Number of <i>post mortems</i> examined	735	—	364	—	627	—	644	—
Number with definite liver affection . . .	67	9.1	18	4.9	14	2.2	9	1.4
Number of cases with ascites	25	37.3	12	66.6	—*	—	—	—
Number of cases without ascites	42	62.2	6	33.6	13	—	9	—
Paracentesis abdominis	13	19.4	4	22.2	—	—	—	—
Average age at death—								
With ascites	49	} 47.5	47	} 47.4	51	—	46	—
Without ascites . . .	46		48					

* In one case there was a pint of fluid noted, but there was cardiac failure in this case. It will be observed that the age of the male insane patients is higher than that of the hospital cases, the reason being that a number of old men suffering with arteriosclerosis under the influence of drink are sent into the asylums. One striking fact was the much greater frequency of atheroma in asylum cases as compared with hospital cases. This may be explained by the fact that nearly half the total male cases in asylums are general paralytics. The relation of syphilis to general paralysis is probably associable with this result.

accompanied or followed by chronic Bright's disease, cerebral hæmorrhage, and cerebral softening, bronchitis, and emphysema, and heart failure, fatty degeneration of the heart and vessels, coronary sclerosis and angina pectoris, and aneurysm. Degenerative processes affecting the aorta and large arteries are most frequently the result of a combination of three factors, alcohol, syphilis, and occupation stress, but there may be also an inherent germinal deficiency.

Chronic alcoholism by devitalising the blood lowers the defences of the body against microbial invasion; consequently micro-organisms of pneumonia, tuberculosis, and other specific germs of infective diseases, as well as the ordinary septic and pyogenic microbes, find a suitable soil. A slight general depressing influence, such as a chill or local injury, which would have no harmful effect upon a healthy individual even if micro-organisms were present—because the vital reaction of the

living tissues would prevent a general infection—to a chronic alcoholic may be most dangerous and lead to fatal illness.

Abridged Statistics of Notes of 781 Cases admitted to the Medical Wards of Charing Cross Hospital during one year, 1905.

The notes of 781 cases have been examined; these include all classes of patients—*i. e.* 375 males, 183 females, and 183 males and females under 20 years of age; deducting the latter, there remain 598 persons over 20 years of age. These have been divided into:

- (1) Alcohol as a direct cause.
- (2) Alcohol as an indirect cause.
- (3) Doubtful cases where in all probability alcohol has played a considerable part in the causation of the disease.

In the first class there were 48 cases—*i. e.* 8·02 *per cent.*

“ second “ “ 48 “ “ 8·02 “

“ third “ “ 32 “ “ 5·03 “

Total 128 cases (111 males, 17 females) 21·3 “

Of these cases the heart and vessels were affected in 23 cases, the liver in 21, the lungs and pleuræ in 19, the kidneys in 12, the joints in 11, the stomach in 10, the nervous system, manifested by neuritis and generally mental trouble, was affected in 8, delirium tremens occurred in 5.

Occupation was found to have a very considerable influence:

(1) Those who drink because their occupation makes them thirsty—as dustmen, stokers, labourers, Covent Garden porters, actors, stage carpenters, scene shifters, cooks, scullions, etc.

(2) Those who drink because it pays them in business—as publicans, those engaged in the wine trade, commercial travellers, etc.

(3) Those whose work brings them in contact with drink—as waiters, bus and tram conductors and drivers, draymen, cabmen, cellarmen, employees in distilleries and breweries, barmen, potmen, barmaids, prostitutes, etc.

Alcohol in Asylum Cases, with an Appendix of Cases admitted to Hanwell, 1905.

A large proportion of the recoverable cases admitted to the

London County Asylums consists of pure drink cases, and of these 50 *per cent.* (1) are discharged within three weeks to six months of admission. They often return again in a short time and some cases, termed "recurrent mania" and "recurrent melancholia," are discharged and re-admitted many times, thus fictitiously raising the recovery rate. Many of these people would not come to the asylum were they not subject to the temptation of drink, for which they have an inborn or acquired intolerance. A certain proportion of the recoverable drink cases are delirium tremens, cases similar to those met with in hospital practice, but generally affecting persons of an inborn or acquired unstable nervous organisation; some of them, however, are pure drink cases sent to the asylum when nearly of sound mind, owing to the fact that the hallucinations and delusions have either entirely or nearly left them since the admission order was signed by the magistrate. The motor restlessness when they were admitted to the asylums may have proportionately subsided, and it would have been better for the individual and the ratepayer had such patients not been sent to the asylum. Such people may lose their employment if it is known that they have been in an asylum; it casts a stigma on their families; lastly, it costs the ratepayers from one to several pounds for each case transferred from the infirmary to the asylum.

Leaving out these quickly recovering cases, there still remain a large number of cases of alcoholic insanity which may or may not have had previously symptoms of delirium tremens, but affecting persons of an inborn or acquired unstable mental organisation, epileptics, degenerates, imbeciles, potential lunatics, general paralytics, subjects of head injury, local brain disease, syphilis, and arteriosclerosis; in all such cases the symptoms caused by the poison are liable to be prolonged and even become permanently installed.

According to the predominant features of the mental derangement, cases are diagnosed "alcoholic mania," "alcoholic depressive mania," "alcoholic melancholia," "alcoholic dementia," "acute hallucinatory insanity," or, as the Germans term it, "alcoholic hallucinosis" "alcoholic delusional or paranoidal insanity," "epileptic insanity" or "pseudo-paralytic insanity." If alcohol is the essential factor, however, in the production of the insanity there will be certain specific indications in all these varied forms

of insanity pointing to the more or less specific action of the poison. Even in the absence of a history of alcoholic indulgence there are certain physical signs and mental symptoms which point to alcohol as the cause. The more certain these signs and symptoms, the more certain can we be that the cause is removable and the more hopeful the prognosis. These signs and symptoms are found most pronounced in the two conditions of mental and nervous disorder which occur in hospital practice, *viz.* delirium tremens and polyneuritic psychosis. The symptoms are in such cases the results of the more or less prolonged action of the poison upon a more or less stable nervous organisation—that is to say, drink is the essential cause. Although every form of mental derangement may be closely simulated by alcohol when an insane temperament is acted upon by a sufficient quantity of the poison, yet when alcohol has been an efficient cause in the production of the insanity there are certain indications in the character and constancy of the illusions, hallucinations, and delusions, in the mental state as regards orientation in time and space and loss of memory of recent events, in the existence of a purposeful motor restlessness impelled by the hallucinations and delusions, and in the existence of tremor. Moreover, alteration of the deep reflexes, tenderness on deep pressure of the muscles, anæsthesia, paræsthesia, and hyperæsthesia indicative of neuritic affection are frequently present singly or combined.

The affection of the neural structures subserving kinæsthesia, both central and peripheral, has been pointed out by Bevan Lewis, and is evidenced, not only by the objective and subjective signs and symptoms of neuritis, difficulties of gait and station, in the performance of fine muscular movements, but probably also by the frequency of creeping, crawling, odious things being the subject of the hallucinations. It may be supposed, indeed, that the primary seat of the hallucinations of rats, mice, snakes, spiders, beetles, and bats, such frequent characteristic features of delirium tremens, may arise in the neurons subserving the kinæsthetic sense. Possibly awakened by peripheral paræsthesia, the kinæsthetic cortex revives, by association with the visual cortex, images of creeping, crawling animals, black, grey, and shadow-like, the images of which are projected outwards by the mind on to the wall or, in some instances, to the near point of distinct vision; hence the purposeful movements and

psycho-motor restlessness occasioned by these terrifying visions which are so characteristic of acute alcoholic poisoning. The following case is instructive. A general paralytic was admitted with signs of *mania a potu* to one of the asylums; he saw black devils, which flitted round him and lighted on his nose, putting stinking things in his nostrils and mouth. When the effects of the alcohol had worn off he passed into a state of marked euphoria, and angels now came and moistened his lips with honey and put sweet perfumes into his nostrils.

Visual hallucinations, also of a terrifying character, are the spectres of dead persons associated with coffins, of burglars, of policemen and detectives, of men hidden in the house, of people who follow, accusing the patient of crimes or indecency, and calling him opprobrious names. The visual hallucinations arise probably in the visual cortex and excite by association verbal auditory hallucinations. These terrifying hallucinations of vision and hearing may lead to the patient running into the street in a semi-nude state and being taken up by the police. The more systematised these hallucinations, and the more they tend to the development of fixed ideas of persecution while the mind clears up in other ways, the more certain can we be that the patient is of an insane temperament, and that the alcohol has been the exciting factor in converting a potential lunatic into a probable subject of chronic insanity.

The existence of hallucinations of smell and taste are rare; generally speaking, they are strongly in favour of an insane temperament. The frequency with which delusions of poisoning occur is possibly, in some instances, due to an insane interpretation of the pains caused by dyspepsia, occasioned by acute and chronic gastritis. I am the more convinced that this hypothesis may be true in not a few instances by the frequency with which one finds *post-mortem* evidence of morbid conditions of the stomach in the insane. In some instances, no doubt, the compulsory swallowing of drugs to make them sleep, or to quiet them, has given rise to delusions of poisoning.

That insane interpretations of the pains associated with inflammation of the cutaneous nerves may cause dangerous delusions is shown by the following cases: Several women who had the physical and mental signs of polyneuritic psychosis had delusions that they were on fire, that they had been set on fire with torches, and one patient, who was not then paralysed

in her limbs, tried to jump out of the window. The proof in this case that there was a neuritis was afforded by the fact that a bullous eruption occurred shortly after on the limbs and trunk, a condition which I have histologically shown to be due to a neuritis of the cutaneous nerves. Another woman tried to get bangles off her wrist that were not there; she developed wrist-drop the next day. Neuritic pains may also be insanely interpreted as the work of electrical machines.

Perhaps some of the most characteristic delusions are those related to the sexual functions, jealousy and suspicion of fidelity of the husband by the wife and the wife by the husband, which may end in murderous assaults. It must be, however, remembered that there is sometimes a basis of truth in these accusations. Not infrequently a woman takes to drink because of the cruelty or infidelity of the husband, and the converse is also true.

Women suffering with polyneuritic psychosis often have the delusion that a baby is in the bed. One woman saw two babies. The several hallucinations arouse appropriate auditory hallucinations; they hear the baby crying. This may in some instances be correlated with a recent miscarriage. In fatal cases of this affection, often known as Korsakoff's disease, I have observed the frequency of uterine and tubal disease, and this leads me to suppose that there may be a peripheral origin to this delusion. Again, women sometimes complain that they have been violated at night. The frequency with which married women have hallucinations and delusions about babies and, in their delirium, talk about babies, finds a parallel in the occupation delirium of men suffering with delirium tremens. The carman drives his horses, the publican serves and talks to his customers, and the actor performs his tragedy and shouts, "All the world's a stage," etc. But nearly all these hallucinations and delusions, especially auditory and visual, may occur in insanity in which there is no alcoholic factor. It is, therefore, difficult to decide simply by the hallucinations and delusions alone whether alcohol is the cause. Should they persist *while the mind otherwise becomes clear*, it is probable that the case is one in which alcohol has only played a subordinate part and the outlook of chronic insanity is probable. This is all the more likely to be so if the hallucinations and delusions become systematised and there is a complete absence of any peripheral cause.

wit and humour, the mental association is rather by rhyme and repetition of well-worn jokes, abusive epithets, and coarse, vulgar stories than keen, logical repartee. Again, boastful loquacity, untruthfulness, and the tendency to relate *pseudo-reminiscences* is a common symptom of chronic alcoholism. Especially characteristic is the mental confusion associated with the narration of pseudo-reminiscences.

A boastful loquacity frequently leads them into trouble, and of being suspected lunatics with delusions of grandeur. Their conversation may show a great deal of mental confusion and a tendency to wander incoherently from one subject to another without logical sequence, displaying a marked forgetfulness of what they had uttered a few minutes before. If their attention can be obtained it cannot be maintained, and there is a tendency to repeat themselves. They will talk unreservedly and unceremoniously in a familiar manner with either inferiors or superiors. This tendency to confabulate is a striking feature of chronic alcoholism in its manifold aspects. Personal illusions and affixing wrong names to persons are very common. Patients suffering with mental derangement from chronic alcoholism frequently are unable to correctly name the place where they are, or give the correct date or even the time of the year. Often a patient will tell you that she came to the asylum yesterday when she has been there months. Women suffering with polyneuritic psychosis are particularly liable to this loss of orientation in time and place. They may even forget where they live, although they remember where they went to school.

Loss of knowledge, or perhaps more correctly speaking, loss of recollection of events that happened since the patient had shown mental signs of the poisoning, is common in women with polyneuritic psychosis. One woman, a cook, with signs of syphilis, had been in Hanwell four months and told me that she came "last night." The curious part of her story is that she had been married twice; when her second husband visited her she believed him to be her first husband, who had been dead many years. Although this is strange it is not altogether unexpected, for it is the rule that these patients, who are unable to revive in consciousness any recent events, yet are quite able to recollect all the events of their childhood and early life. A bookmaker who was suffering with chronic alcoholic dementia could not remember the name of the horse that won the last Derby,

although he was told several times, yet he could repeat the winners for each year from West Australian up to a few years ago. Again, as showing the peculiar features of alcoholic poisoning, I may cite the following case: A woman at the climacteric period was admitted with alcoholic mania and suicidal tendencies. She was a good type physiognomically, although the flushed face with dilated venules on the nose indicated chronic alcoholism, to which she freely confessed. She said she wished to leave the asylum, there was nothing wrong with her, and the cause of her drinking was grief caused by the death of her husband, who fell in the dock and was drowned.

As many of these patients are not scholars I apply simple tests of memory, of attention, and of calculation involving simple judgment and reason. I applied the following tests to this woman, who was able to give a coherent history of her life and knew the date she was admitted to the asylum, how long she had been here, and where she came from. I said to her: "You want to leave the asylum?" "Yes," she replied. "Then you must remember the name of the superintendent; it is Dr. Jones." She struck up a rhyme, "Oh Mr. Jones, oh Mr. Jones, he broke his bones by falling over cherry stones." I then asked her to remember the name, which she said she would have no difficulty in doing.

I then applied the second test. "You are given half a crown and you go to a shop to buy half a pound of tea at 1*s.* 6*d.* per pound and a pound of sugar at 2½*d.*, how much change will you have?" She was quite unable to state the correct amount.

Again, they may be able to repeat the multiplication table correctly, but if you reverse the multiplication sum they will give wrong answers. Thus, they will give 7 by 5 correctly, but 5 by 7 they will make different. I now returned to my previous question "Who is the Superintendent?" She had quite forgotten. When I said, "Who broke his bones?" she replied, "Why, Mr. Jones," and finished the rhyme, but was unable to reason from it that that was the name of the doctor who would be able to discharge her. Another test which I have found useful for detecting slight mental impairment in cases that are recovering is that used by Marie in testing cases of aphasia.

Take three pieces of paper of unequal size. Tell them to carry out three separate and distinct operations for each piece.

They will be able to carry out each order when given separately to them, but if before they commence any one the orders for the three are given together, they will forget and carry out the orders imperfectly. Thus, tell the patient to fold up the large piece and put it in his pocket, the middle-sized piece to be folded and handed to you, and the small piece thrown on the floor. Whether it is the lack of power of attention or inability to recollect more than one order I know not, but the frequency with which failure occurs in alcoholic subjects shows mental impairment which is not discovered if only one order is given. With respect to this test I may remark that I recently had under my care in the hospital a case of polyneuritic psychosis complicated by syphilis, in which the patient on admission was apparently hopelessly demented, passing urine and fæces under him and showing marked mental confusion, tremors, and paresis, yet withdrawal of the poison and energetic anti-syphilitic treatment for a fortnight led to a complete clearing up of the mental state, so that he performed this test correctly and also the calculation test. This made me think of the dictum of Dr. Savage, "With alcohol all things are possible." Another very severe case of paralytic polyneuritic psychosis is now under my care in the hospital and is making a most remarkable recovery. After eighteen months in hospital she was considered by the students to be free from any mental defect, yet she was able to perform neither the calculation test nor the combined three-order test. I have not the slightest doubt that if we could see the patient's brain we should find some thickening and opacity of the membranes and atrophy of the tangential and supra-radial fibres. I have invariably found this condition in fatal cases of alcoholic dementia. The change however, is not so profound as would be expected. The question may be asked, "Are there any morbid microscopic changes pathognomonic of toxic polyneuritic psychosis?" I maintain this condition is not peculiar to alcohol; lead, arsenic, and other toxic conditions produce similar symptoms and similar pathological changes, and it makes me suspect that they are not caused by the direct effect of the alcohol, but rather by auto-toxins the result of a deranged metabolism. I have examined a good number of alcohol cases and several lead cases, and in all of these cases where there was a pronounced neuritis there were characteristic changes in the motor cerebral

holic insanity fall into two groups. The majority of the cases are either mania frequently with depression or melancholia, but a few cases are exalted, boastful, loquacious and have actual grandiose delusions so pronounced as to simulate general paralysis. In fact, these cases are often diagnosed as general paralysis, and no wonder, for in most cases of alcoholic poisoning in the early stage the pupils may be sluggish in their reaction to light, the facial expression altered, the tongue and lips tremulous, the speech is often slurred and syllables may be left out, the handwriting tremulous; and not only may the spelling be incorrect and the words cut up into separate syllables and letters and syllables left out, but marked mental confusion may show itself in the matter expressed. The knee-jerks are altered, sometimes exaggerated, sometimes diminished or lost. To these objective signs and symptoms must be added the symptoms of mental derangement. Loss of memory, loss of knowledge of time and place, hallucinations of sight and hearing, but most marked and perplexing in this class of case are, sometimes instead of delusions of persecution, delusions of wealth and grandeur, and it is the existence of these grandiose delusions which so often leads to an erroneous diagnosis of general paralysis. The dementia is, however, not progressive; the pupils, although at first sluggish in reaction, are usually not unequal, and the patient does not babble unsolicited of his wealth and grandeur as a general paralytic does, but only on questioning does he exhibit such delusions. The symptoms most alarming in their similarity to general paralysis may entirely disappear and the patient be discharged recovered; not infrequently, however, the opportunity of examining cases of this affection arises from death by intercurrent complications—*e. g.* pneumonia, dysentery, or heart failure. The naked-eye and microscopic appearances are quite unlike those of general paralysis. Although the membranes may be opaque and thickened, there is but little wasting of the cortex, the floor of the fourth ventricle is not granular, or only slightly so, in the lateral sacs. There is microscopically no disorganisation of Meynert's columns, and no evidence of lymphocytes or plasma-cells in the perivascular lymphatics of the cortex. The only definite microscopic change is some neuroglia cell proliferation in the sub-pial and septal structures of the cortex and replacement by it of the association fibres in the tangential and supra-radial

layers. Generally there is evidence of chromolytic changes of the pyramidal cells and active proliferation of young glia cells.

Dipsomaniacs are occasionally brought to the hospital and asylum. These are persons who have periodic cravings for alcohol who in the intervals lead a sober and respectable life. Suddenly, for no accountable reason, save an unnatural and insane craving for drink, dipsomaniacs neglect their home and their business, take little food, do not attend to their personal care and comfort, and drinking continuously to satisfy their morbid craving, sink into the lowest depths of moral degradation, and for a time lead an unnatural and vagabond life. Some reason or other may bring such a patient to the hospital or infirmary, or they of their own free will return home and in a short time recover and resume their normal life. A respectable photographer with all the signs of delirium tremens was admitted under my care this week at the hospital. He had a bottle of cyanide of potassium with which he wanted to poison himself and wife. He had delusions that he was followed by a man named N—. A hypnotic gave him a long sleep, and when he awoke all his delusions had disappeared, and he told me that he was not habitually intemperate, but that during the last few years he had had periods of craving for drink which he could not overcome. In the intervals he hardly touched anything and lived perfectly happily with his wife and family. Curiously enough, he had had a similar attack two years ago and had been brought to Charing Cross Hospital, when he had the same delusion about being followed by a man named N—. He informed me that this man was dead and that he had nursed him.

Epilepsy and alcohol.—It is well known that epileptics are particularly intolerant of alcohol even in comparatively small quantities. The fits occur more frequently and are more severe, and it is certain that men who have even never had fits become epileptics in later life by the abuse of alcohol. I have observed both in hospital and asylum practice numbers of such cases; in some the epilepsy is the direct effect of the alcohol upon an inborn, potentially unstable, nervous system; in others it is the action of the poison upon a brain damaged by syphilis, arteriosclerosis, or injury. One very interesting case of this was a soldier, who was entirely free from any hereditary taint,

and who rapidly rose to be a non-commissioned officer ; he acquired in South Africa *multiple cysticercus cellulosa*. He had several fits and was invalided home. About the worst thing possible was done for him ; he was put in charge of a canteen, acquired habits of drinking, eventually resulting in his developing alcoholic epileptic mania. He became a patient of Sir Victor Horsley's, who discovered the cause of the multiple tumours he had. He is now in Hanwell Asylum, and he is quite rational and does not suffer with any fits while he is unable to obtain alcohol.

It is not, however, in respect to the motor fits that alcohol is so dangerous to epileptics and potential epileptics ; but in respect to the development of an impulsive automatism, causing them to commit indecent acts, crimes of violence, murderous assaults, and attempts at suicide, of which they may have no recollection. Some of the cases, however, of homicide and of attempted suicide remember perfectly well, and the question of responsibility for their action arises.

Many of these epileptics are quite sane when they have been in the asylum a short time and have to be discharged ; frequently they are readmitted more than once owing to drink.

Other types showing intolerance to alcohol are imbeciles and degenerates. They are sometimes in prison, sometimes in the workhouses, sometimes in asylums. A good example among many I could cite is Case E. J—, who was sent to hard labour for three months and six months ; subsequently he was sent to Hanwell, and he is there now, but he has been discharged and readmitted six times. In the statistics such cases bulk large in the recovery rate. It may well be asked, From what have such cases recovered ? Not infrequently history shows that such cases belong to a family of criminals, lunatics, and feeble-minded. A considerable number of the prostitutes on the streets belong to the defective class, and it may well be asked, How many are brought there by drink and *failure to obtain employment* ?

All the evidence of the law courts, prisons, hospitals, and asylums point to the necessity of *educating the public conscience* to the terrible evils caused by alcoholic abuse, and nothing will attain the end so certainly as the movement instituted by Viscount Peel of enlisting the sympathy and support of that large section of the community who use, but do not abuse, alcoholic

receiving-houses associated with the asylums, or by making all the infirmaries of cities and large boroughs have proper acute insane wards, with properly qualified attendants.

In this way the pure drink cases could be separated more efficiently from the insane in which drink has been a coefficient rather than the essential cause. I am informed that this is practised at the Bellevue Hospital, New York.

Lastly, it behoves society as far as possible to remove the temptation to alcoholic abuse. The secret tipping of women of all classes is a fruitful cause of nervous and mental disease, and it should be made a statutory offence for a grocer or dealer with an off-licence to supply any form of alcoholic beverage to a woman, while charging it up in his account under the head of groceries or other provisions.

We cannot hope that people engaged in the liquor traffic will remit the custom of allowing their employees a daily quantum of liquor, but steps could be taken to make it a statutory offence for a publican to supply anybody intoxicated with liquor when he was engaged in any occupation concerned with the public safety. So that publicans should not only not be allowed to supply drivers of motors when intoxicated, but all persons who are engaged in vehicular traffic. The publican who supplied the last glass to a drunken driver should be heavily fined.

The municipalisation of tramways will do much to prevent drunkenness by not allowing the tramcars to stop opposite public-houses, as the 'buses universally do, and by not allowing their officials while on duty to go into public-houses. I am given to understand that conductors become intemperate by running into public-houses to obtain change or to dispose of excess of coppers. A 'bus conductor at Colney Hatch Asylum informed me that his drinking habits, which ended in his being sent to the asylum, were acquired by his going into the public-house at the end of each of his six out and six return journeys to obtain change. If this is a fact, it could easily be remedied. But the great remedy for intemperance is to provide something better than the public-house for the people's enjoyment and happiness.

Hanwell Statistics.

I have not only seen many of the cases at Claybury Asylum, but I wrote to the Superintendents of three other London County Asylums—

MALES.		FEMALES.	
1 month or under . . .	3	2 months or under . . .	1
2 months or under . . .	5	3 " " . . .	2
3 " " . . .	5	4 " " . . .	4
6 " " . . .	2	5 " " . . .	2
4 remaining in asylum more than six months, but discharged within the year . . .	4	6 " " . . .	2
Total 19		Total 11	

Six of the females are noted as having had polyneuritis, none of the males.

Various worries in business, domestic troubles, love affairs, head injury, brain disease, inherent instability, imbecility, criminal degeneracy, and intolerance of alcohol, as manifested by previous admissions to the asylum, are among the other causes which, together with a family history of insanity or intemperance, one or more of which conditions were associated with a history of intemperance in the patient, make it extremely difficult to decide how far the insanity was due to the effect of the alcohol and how far to other causes. Of one thing I am convinced—that in a large majority of these cases the alcohol is a coefficient rather than direct cause, particularly in women. The purely alcoholic cases are especially those which have toxic affection of the peripheral as well as the central nervous system, and all cases of delirium tremens, which, as Bonhoefer states, in the majority of cases occurs in the subjects only of chronic alcoholism.

(¹) *Vide* appendix.—(²) In connection with these polyneuritic cases the pains in the limbs and the weakness, progressive in character, are generally wrongly understood by the patient and sometimes by the doctor she consults. Port-wine and spirits are occasionally ordered by the doctor, but still more often taken by the patients in the belief that it will relieve the pain and strengthen their feeble limbs.

DISCUSSION

At the Annual Meeting of the Medico-Psychological Association, held in London, July, 1906.

The PRESIDENT said Dr. Mott always had a very hearty reception before this Association, and a very interested audience. He noticed that no less than six past-Presidents were present to hear Dr. Mott's paper. The question of alcohol and insanity, or alcohol in relation to the body politic, whether from hospital or asylum experience, was one of perennial interest, and he was glad to find that Dr. Mott had anticipated some remarks that he had made in his presidential address the day before. He (the President) referred therein to the National Temperance Legislation League, of which Viscount Peel was President, and he was glad to find that Dr. Mott agreed with him as to the line to be adopted in any temperance reform, viz. that it was best to be temperate even in regard to temperance itself, and that it was better to attract people from the public-house than to lock them out. Dr. Mott's paper was extremely valuable as showing the difference in the effects of alcohol upon individuals, which was another way of expressing the well-known and ascertained fact that the reaction of individuals to alcoholic stimulation also varied. The author had referred to his experience at Charing Cross Hospital in regard to bodily disease resulting from alcohol, and he (the President) believed that this experience was not very different from the experience in asylums.

Dr. Mott had a large number of cases which came under his care through over-indulgence in alcohol. The Strand Union had also a higher ratio of insanity than any other union in the whole county of London, not even excepting Mile End, Whitechapel, and Stepney Unions, areas in which poverty, privation, and want were extreme. No doubt the pursuit of pleasure in the Strand district was a very prominent factor, and a most trenchant comment upon this point is supplied by the Annual Report of the London County Asylums Committee for 1904, which gives the ratio of lunatics per thousand of the population in the Strand as 14.1, as against an average for all the Unions of London of only 5.36! It recalls William Perfect's paper, published about 1770, in which it is stated that insanity was particularly traceable to idleness and gluttony—that is to say, to inordinate sensual gratification of all kinds. He (Dr. Jones) referred to idlers who were in pursuit of banal pleasures, and not to those who were more or less irregularly employed. The cases of insanity caused by alcohol and which came to our asylums did not, as a rule, find their way into the *post-mortem* room, and what Dr. Mott had suggested in regard to reception-houses was a very strong argument in their favour, for they would deal with all the transient toxic cases at present admitted into the asylums, and which almost inevitably relapsed and were re-admitted. Dr. Mott referred to there being two effects of alcohol. One was the direct effect of alcohol as a nerve poison, and he was reminded in this connection of the remarks of Dr. Hayes Newington, that the system reacted to alcohol according to the quality of the alcohol itself, as to impurities and deleterious constituents created by the method of manufacture. He was sure there was much in this view. There was also the indirect effect of auto-intoxication through digestive abnormalities, and from such states as pyorrhœa alveolaris, which was most destructive to health, not only among the insane, but also among the sane. There was a recognised and well-known stomach derangement caused by alcohol which poisonous germs from the mouth tended to aggravate. Dr. Mott referred to that lying propensity which was rather characteristic of the alcoholic subject, but he (Dr. Jones) believed that those who lied as the result of alcohol—and these were mainly women—did so for three reasons: first, because of a forgetfulness of recent events which was so often found in these cases—and here Dr. Mott's suggested test for memory and attention was very valuable, and it should be in regard to those things which the patient had been in the habit of doing; second, there was in consequence the desire to cover forgetfulness; and third, there was the actual moral impairment which caused them definitely to assert that which was not. As a rule they did not like to be caught lying, and Dr. Jones thought actual lying only a third part of the defect. Dr. Mott referred to the effects of alcohol in asylum cases in regard to recovery, and very rightly pointed to the fact that recovery was more probable if the cause of insanity was alcohol alone rather than alcohol and a temperamental condition, such as an insane heredity. In the latter case recovery was much less likely to occur, and the prognosis was less favourable. There was also the question of diagnosis, some alcoholic cases, especially senile ones and those where syphilis was recorded, greatly resembling those of general paralysis. In his (Dr. Jones') opinion, there was a sex difference also in regard to alcohol. In asylum practice it was rare to find polyneuritic psychosis in a man, whereas it was not infrequent in women. There was also the frequency in women of affections of the generative organs, *e.g.*, salpingitis, which might account for the delusions in regard to infidelity and to the supposed presence of babies in bed with them. With regard to delusions and especially those of the sense of taste and of smell, his opinion was that they were very rare, and he did not think they were primarily peripheral and due to lesions of the terminal sense organ, and he thought the mind, which in all these cases was the interpreting machine, gave the colour to the delusion. He believed it was the cortical area which falsely interpreted peripheral impressions. For instance, a man had delusions of persecution, believing that people were against him. He sought for methods which were usual for an enemy to adopt, and immediately began to suspect his food, which he carefully smelt and imagined to be poisoned. It was the projecting peripherally of central impressions, and not an originally peripheral lesion. He was glad to hear Dr. Mott support the idea that the neurons would improve by peripheral excitation, such as massage and muscular exercise; and that supported his opinion of the advantage of drill and marching such as Dr. Ewart had carried out at Claybury, and which he con-

sidered very valuable adjuncts in the treatment of mental cases generally, and not only those caused by alcohol. It was quite interesting to see the patients taking part in physical drill several times a week, partly to the accompaniment of music or with singing. He was sure that by awakening dormant ideas in the association area we produced a beneficial effect upon the mental condition. He had previously stated in that room that there were a certain number of patients who were apt to lapse into incurable dementia unless they could be interested by some form of mental or physical stimulus, and he felt the difficulty that there was in large asylums, where a great number of apparently hopeless cases were collected together, in bringing individual attention to bear upon them and in consequence of which they could not be roused. He strongly believed that by waking up old dormant paths in the cortical area we had the means to resuscitate decaying neurons. He had listened with very great interest to Dr. Mott's paper and he felt sure there would be a good discussion upon it, because all felt very strongly on the subject of alcohol. There were no less than 20 per cent. of the male cases in our asylums there through drink, and probably more than half that proportion per cent. of women, and this subject had an economic and a sociological as well as a purely mental interest.

Dr. CONOLLY NORMAN said he, in common with every one else in the room, had listened with the greatest pleasure and interest to Dr. Mott's contribution. Nevertheless, there were still some matters on which he felt there was necessity for elucidation. In regard to the relation of cirrhosis of the liver to alcoholic excess, the table exhibited by Dr. Mott was apparently taken for granted; and yet he (Dr. Norman) was informed by those who had a better opportunity of judging than he had, and were more capable of speaking on pathological questions, that a cirrhosis of the liver indistinguishable from what was commonly called alcoholic cirrhosis of the liver had been observed in cows, occasionally in dogs, and sometimes in young children who had not been poisoned by alcohol. His friend Dr. Norman Moore recorded a case in the *Bartholomew's Hospital Transactions* some years ago of alcoholic cirrhosis of the liver occurring in a child who had been habitually sent out by his parents for gin, and used to take a small nip out of each supply. But, exclusive of cases of that kind, he was informed that cases had been found in children in whom there was no history of alcoholism. Again, the experiences of their colleagues in India seemed to point to the fact that alcohol, which exercised such a bad effect on Europeans in that country, rather produced a large fatty liver than a cirrhotic liver. So that there still seemed to be some doubt about the connection of so-called alcoholic cirrhosis with alcohol. It was many years ago that he pointed out the extreme rarity of cirrhosis of the liver in asylum *post mortems*. He pointed out that rarity at least as early as 1893; he was then working with Dr. Bevan Lewis at Wakefield Asylum, and told him in the presence of a surgeon to a large convict prison in the North of England. His own experience was there confirmed in this surgeon's words: "It is remarkable that a great number of the persons who die with me are drinkers, and yet I never see a case of cirrhosis of the liver." Shortly after Dr. Mott was first appointed to the position he now occupied at Claybury with such benefit to science and humanity and such distinction to himself, he (Dr. Norman) mentioned the matter now under discussion to him, and expressed the hope that he would look into it. He did not know whether Dr. Mott recalled that circumstance, or whether, as one would naturally expect, he took up the inquiry on his own initiative. It was one which would occur to him at an early stage of his investigations. Dr. Mott spoke of the injurious effects of alcohol in those who suffered from an insane or epileptic inheritance. But he did not say anything about alcoholic heredity. He supposed that was because it was the fashion nowadays not to believe that acquired characteristics could be transmitted. Yet was there anyone who doubted that the children of alcoholics were far more liable to alcoholic trouble than were other people? If there were any present who doubted it, their experience must have been small, or they must wear some peculiar kind of spectacles which prevented them seeing what took place under their noses. It was difficult to be sure, when coming across a person of unsound mind who had also been a hard drinker, how much of the condition was due to the alcohol alone, and how much could be attributed to other causes. And he (Dr. Norman) considered it his duty to report every month, for the purpose of educating the public, the number of cases which had come into his asylum in the previous month in which

In Scotland the authorities believed in boarding out; he was not now referring to boarding out lunatics; they boarded out pauper children. If one took the statistics of a large parish, such as Glasgow, with 600,000 population, relative to boarded-out children, children of depraved and drunken parents who had come into the charge of the parish because the parents were incapable of caring for their children, then the results of transplanting those children and bringing them up under the guidance of other adults had been most admirable. Those children got into situations and performed the functions of life indistinguishably from other children in the villages in which they had been brought up. That was a most encouraging feature of social effort. And while it was perfectly true that if one took the death certificates it would be found that the children of alcoholics, brought up by their alcoholic parents, certainly died in larger numbers and suffered more from debilitating diseases, it was encouraging to know that there was not such a handicap placed upon such children if the environmental conditions had been satisfactory. He thought the Association and the profession were under a very special debt of gratitude to Dr. Mott for contributing the paper to which members had just listened; it summarised the position from the hospital and the asylum points of view in regard to alcohol in a very demonstrative manner—in such a way, indeed, as only one well equipped from the pathological, bacteriological, and clinical points of view could have done. No mere clinician could have made the contribution which Dr. Mott had just given. In that paper he (Dr. Carswell) thought there were two distinct contributions. He had given a very valuable summary of the main clinical features of alcohol in producing mental disorders, and had also given one or two suggestions of a very practical character, and he would be very glad if those suggestions were homologated, to use a Scotch phrase. He had no criticism to offer, but, on the other hand, much to express gratitude for, in connection with the summary of the clinical varieties which Dr. Mott had put forward. Only one thing he would like the author to make clear, as it was not yet clear to his mind. The words used seemed to indicate that Dr. Mott's view was that *delirium tremens* was a pure alcoholic affection, the continued effect of an alcoholic bout. His own impression—and he thought it was supported by at least some pathologists, including Forbes Robertson—was that the delirium tremens (usually thought of as such), with the acute motor symptoms, hallucinations of vision, and so on, running an acute course for an average period of five or six days, was a disorder which occurred in alcoholics, but was probably primarily produced by an auto-intoxication from the gastro-intestinal tract. That view was supported by the fact that one occasionally, and from his experience he would say fairly frequently, saw cases presenting symptoms of delirium tremens in which there was no alcohol at all. He had two women under care recently, one a phthisical subject and the other took no alcohol. He showed the last of the two to a certain physician who was visiting, and asked him what he made of the case. He replied by asking whether she had not been drinking. She had not been drinking, and yet she exhibited all the symptoms of a depressing attack of alcoholic insanity. He thought the view he had tried to indicate was the correct one regarding the causation of delirium tremens, and it was very desirable that the correct causation and condition should be known. He heard recently of a man who had been absent from duty rather frequently for some time, and somebody was inquiring as to the cause of his absence from his subordinate, but it was difficult to get at the cause from the subordinate until at length he said, "You see, sir, old Wulley is a fair martyr to delirium tremens." The second distinct contribution was that Dr. Mott had suggested—and it was the first time Dr. Carswell had heard the suggestion—that the cost of treatment in the Poor-Law infirmary or asylum, or whenever it came out of the rates, should be a civil debt; that the patient treated should be called upon to pay, and that in default some disability should be placed upon him. He did not know that it was necessary to go the length of saying there should be imprisonment, but some distinct disability. He (Dr. Carswell) thought it high time that the Association expressed an opinion in favour of that position; the time had arrived for saying definitely that it was a point upon which those who had experience of such matters were agreed. Another point was that Dr. Mott would establish reception-houses, and he made that an argument in favour of such establishments. He (Dr. Carswell)

With very few exceptions had he seen cases of epilepsy with an onset subsequent to the adolescent period in which alcoholism was not if not the prime, at least one of the ætiological factors—that, or syphilis, or both. It was very difficult to differentiate which was the part which each played when in conjunction. One had to remember that, taking the general insane population of a large asylum, something like 20 per cent. had had syphilis at some period of their life. At all events, that had been his own experience. He agreed with what had been said about heredity. He was inclined to place that on a higher and more important plane than the alcohol itself, and he thought that the more opportunities one had of getting at family histories and details the more one must get back to that. One's opportunities were limited, but the more one could get hold of, not only the father and mother, but the various other members of the family, not only their record on paper but an opportunity to actually see them, the more largely would heredity loom in the picture of causation. His own experience of the cases in the colony was that the figures of insane heredity were not really as high in the case of epileptics as they were in regard to other classes of the insane. But if insane heredity and epileptic heredity were grouped together, the percentage of cases in which there was one or both would be found to be very high indeed. He had not the figures with him, but he believed the percentage was as high as forty. Dr. Mott did not appear to make much allusion to alcoholic heredity, but one or two other speakers had touched upon it. He had a considerable number of such examples. One's difficulty was to ascertain whether the alcoholic excess occurred before the patient was born, and he had not always been able to satisfy himself on the matter. His impression was that an alcoholic heredity did not produce such great liability to alcoholism in the children as Dr. Conolly Norman suspected, but produced a liability to other psychoses. But there were certainly cases which, in the ordinary course of statistics, would have gone down as examples of alcoholic heredity in which he had subsequently discovered alcoholism was developed in the adult subsequently to the birth of the child; and that of course would to some extent reduce its significance. There were a number of points on which he would have liked to have touched, but time was short. With regard to the amount of drunkenness in the patients, his experience was that they did not take any great excess daily. They confessed their habits fairly frankly, and it had been a moderate amount of drinking, otherwise they would not have been able to keep their work. But they would confess to big drinking bouts at the end of the week. His own experience when he was pathologist and assistant medical officer at Banstead Asylum was very much the same as Dr. Mott's with regard to the proportion of cases with severe liver trouble. Out of the 450 cases on which he made *post-mortem* examinations, there were eight only in which there was any "hob-nail" condition of the liver.

Dr. McDOWALL said there was only one point about which he desired to say a word, namely, reception-houses. One was quite familiar with the fact that acute alcoholic cases were received into asylums which, under other circumstances, need not go there. It was very much a question of locality and the arrangements for treating the insane generally. In large cities like London and Glasgow, where there were large workhouses with elaborate medical wards and all appliances for the care of every kind of case, he was quite satisfied in his own mind that the arrangement of taking those alcoholic cases to suggested parochial hospitals was an exceedingly good one. But in many districts, such as his own in Northumberland, he did not know that any advantage would be derived from erecting reception-hospitals. Except on Tyneside, the whole of the county was agricultural, and the small country workhouses were quite unfit, both medically and officially, for the reception of those people. And on the Tyneside, in the Tynemouth Union there was a large workhouse and quite a good infirmary in connection with it. As a matter of fact, a good number of acute alcoholics were detained there; but he did not think they did any better by them than if they were sent to Morpeth. If those people were to be detained in workhouses or reception-houses, the method in which those houses were to be officered, and the class of men, as well as many other things, would require very serious attention before they of the Association, as medical superintendents and men accustomed to the difficulties of asylum administration, would be ready to extend to them their whole-hearted support.

Dr. MOTT, in reply, thanked those present for listening so attentively to his

the transmission of acquired characteristics. He (Dr. Mott) did not believe that a tendency to drink was transmitted. What was transmitted was the deficient will-power and lack of higher control. One might almost as well say that the quality of the liquor was transmitted, that because the father liked brandy, the children would also like it. He (Dr. Mott) thought the truth was much nearer in what Dr. Carswell had said. If the children of chronic drunkards could be taken away from them and put under proper conditions, they would grow up as healthy children, without a craving for alcohol. But if a drunkard married an imbecile or otherwise defective woman, the children were likely to be insane. He had seen many instances of congenitally defective women married to drunken men, or not married to them and having illegitimate children by them, and those children were of defective mental capacity. He felt sure that in such cases there was mental insufficiency developed by the inborn tendency to a defective brain from the mother, combined with an inborn tendency to a defective will-power from the father. Dr. Stewart had asked him in what part of the brain he would locate chronic inebriety, or where was the function of will-power located. He admitted with Dr. Stewart that the trouble was defective will-power, but it was impossible to find anything macroscopically, and very often impossible to find anything microscopically, in the brain in cases of true insanity. His own opinion was that more would be learned as to the functions of the mind by studying simple reflex processes in the living state in the lower animals than by observing dead tissue in the higher, because, after all, the highest volition was simply the last term of a series of which a simple reflex was the first. And possibly from the chemical side more information might be obtained than the microscopical side had yet yielded. He was very glad to hear Dr. Stewart's remark about the importance of distinguishing between inebriety and drunkenness. There could be no doubt that dipsomania was a distinct condition. The person who had a periodical craving for drink had a form of insanity which was different from the state of the chronic drunkard who drank continuously, and about whom the only insanity was a lack of will power to control his feelings and his vicious habit of self-indulgence. That was the kind of people who came into hospitals, and who went on to develop cirrhotic liver. Many people occupying high positions in society, who manifested insane symptoms, got into that condition. He had been especially interested in the remarks of Dr. Carswell about delirium tremens. There could be no doubt that in the cases of delirium tremens seen in hospital the cause of the nervous phenomena was not so much the drink, but some added factor in a person who was a chronic inebriate; because he thought nearly all those cases occurred in chronic inebriates, and it was curious how differently alcohol affected various people, as shown by the morbid changes which were found. It was found impossible to produce in animals by the continuous administration of large quantities of alcohol either neuritis or cirrhosis of the liver. He thought the cause must be some auto-intoxication, or possibly also the absorption of toxins of microbial origin. The cases of polyneuritis in women were particularly instructive in that respect, because half of those examined had some uterine affection, or tubal disease, or pneumonia, or something of the kind, at the time that the degeneration of the nervous system occurred. He thought Dr. Holt took a little different view of the effects of alcohol generally, and its influence on the body, to his own. There was no doubt that some men could drink heavily and still live to a good old age; but he thought the results arrived at by insurance companies showed that drink did play a very important part in inducing death at an earlier stage than would otherwise have been the case. Moreover, every hospital physician knew that a slight head injury, or even a slight ordinary wound, in a chronic inebriate, was liable to lead to most disastrous results; in fact, one could never prognose what was going to happen, even with the slightest injury, or in an acute disease, if the patient had been a chronic drunkard. What he believed Dr. Holt wished to emphasise was that alcohol counterbalanced, in a measure, those deleterious effects by improving the man's sense of well-being for the time, so that he could very often digest his food and look at life in a more cheerful way than he otherwise would. He (Dr. Mott) would suggest that alcohol in the form of good wine taken in moderation may exercise a beneficial influence—*i. e.*, as it was taken by members of this association at their dinner the previous night. A little wine, to people

Part I of the present paper (*Journal of Mental Science*, April, 1905).

As has already been stated (*Ibid.*, April, 1906), under the term "dementia" are included all cases which agree, from the psychic aspect, in the possession of a decreased or decreasing mental capacity, and, from the physical, in the existence of a distinct and permanent loss of cortical substance in those regions of the cerebrum which especially serve as a physical basis for the performance of (voluntary) psychic processes. The term *dementia* is thus employed to connote in the widest sense *the mental condition of patients who suffer from a permanent psychic disability due to neuronie degeneration following insufficient durability.*

In the last section of this paper (*ibid.*, July, 1906) the writer dealt at length with the symptomatology which is the psychic equivalent of those physical states of the cerebrum which are the necessary precursors of dissolution of the cerebral neurones. To describe this symptomatology he employed the term *mental confusion*, which, thus used, connotes in the broadest sense *the mental symptoms which occur in association with certain pathological states of the cortical neurones which may be followed by the recovery or by a more or less extensive dissolution of these elements.*

Of the three necessary sequelæ of mental confusion, namely recovery, stationary dementia, and progressive dementia, the latter two will now receive consideration; and the description of the varieties of dementia which follows will be illustrated by examples derived from the 445 cases of mental disease which have been classed under the heading of "dementia" as above defined.

For reasons which will appear during the description which follows it has been considered undesirable to classify the cases into groups of stationary and progressive dementias, and the writer has therefore based the classification on certain broad lines suggested by the general causes of mental confusion which have already been cited and discussed (*ibid.*, July, 1906).

Three groups of dementias, namely "primarily neuronie," "progressive and secondary," and "special," have in consequence been employed as a basis for the classification under which these types of case will be considered.

paralysis) which is a frequent sequela of systemic syphilis in degenerates, and which rapidly or slowly passes on to a fatal issue.

In the other, gross dementia more or less rapidly develops in consequence of the onset of degeneration of the cerebral arteries, at the senile or presenile period of life, which similarly results in secondary toxic and nutritional affection of the cortical neurones. This morbid condition, when occurring in cerebra in which some degree of neuronic dissolution has already occurred at some former period of life, or in which deficient durability of the higher cortical neurones exists, causes the supervention of a more or less rapidly progressive dementia which only differs from dementia paralytica in the relative absence of active reparative reaction in the non-neuronic elements of the encephalon.

Finally, in the third group of cases are classed certain special varieties of dementia which, in cerebra possessing higher neurones of deficient durability, are precipitated or directly produced by sense-deprivation, epilepsy, or cerebral lesions. This group is necessarily temporary, provisional, and residual, and its subdivisions will be considered later under the appropriate headings.

Of the 728 chronic and recurrent cases of mental disease under consideration, 283 have already been referred to under "Amentia" in Part II of this paper. The remaining 445 cases are now classified as follows:

DEMENTIA.

	M.	F.	Total.
I. PRIMARILY NEURONIC (age, stress, or both).			
(a) <i>Senile or "worn-out" dementia.</i>			
<i>Higher grade amentia (without marked stigmata of degeneracy, and with original intelligence of average grade):</i>			
(1) Cases with previous attacks and now chronic dements	9	23	32
(2) Chronic insanity with dementia.	6	7	13
(3) Melancholia with dementia	12	8	20
(4) Mania with dementia	6	8	14
	—	—	—
Carried forward	33	46	79

GROUP I.

PRIMARILY NEURONIC DEMENTIA.

This group contains 360 cases in which an attack of mental disease, precipitated by one or more of the general causes above referred to, has resulted in a greater or lesser degree of cerebral dissolution and dementia.

The group of cases has been subdivided as follows :

	M.	F.	Total.
(a) <i>Senile</i> or "worn-out" <i>dementia</i>	53	70	123
(b) <i>Presenile</i> or "climacteric" <i>dementia</i>	18	47	65
(c) <i>Mature</i> or "adult" <i>dementia</i> (dementia of maturity)	26	34	60
(d) <i>Premature dementia</i> (dementia precoc)	57	55	112
	<hr/>	<hr/>	<hr/>
Total	154	206	360

In these classes the degree of mental enfeeblement in average cases is usually more marked in "premature" than in "mature," and in "mature" than in "presenile" dementia. Further, as a rule in premature and in mature dementia, and often for years in presenile dementia, the cases remain in a stationary condition of mental enfeeblement until senility ensues. Lastly, in cases of "senile" or "worn out" dementia, the mental enfeeblement gradually becomes more and more marked, though in cases of the class under consideration it is not as a rule at the time of death more than mild or, at the most, moderate in degree.

In this respect both the stationary and the progressive cases in this group differ markedly from the cases to be later described under the heading of "progressive and secondary dementia," in which extensive cerebral dissolution and dementia ensue.

It is unnecessary to refer here to the cardinal symptoms of dementia, as these are well known and have already been briefly summarised.

It is, however, desirable to again remark on the difference which is often noticeable between the mental condition of the patients who have developed dementia as the result of the direct action of toxins (including those of certain specific diseases) and that of the other cases included in the present group. It is commonly observable that the former cases exhibit a greater degree of dulness, apathy, and lack of initiative than the latter, though they may be useful workers of a mechanical type. It is

probable that in such primarily toxic cases there is a more general involvement of the neurones of the cortex, and a resulting greater dissemination of the neuronie destruction, than occurs in cases in which the process of dissolution has been precipitated in deficiently durable higher neurones under the influence of "stress."

It may further be noted, as a supplement to the above observation, that of all the types of "primarily neuronie" dementia, the presenile and senile forms, when due to natural involution of the cortical neurones, are undoubtedly the mildest in spite of their inevitable progression in grade.

GROUP I, CLASS (A).

Senile or "Worn Out" Dementia.

	M.	F.	Total
<i>Higher grade amentia</i> (without marked stigmata of degeneracy, and with original intelligence of average grade):			
(1) Cases with previous attacks and now chronic dements	9	23	32
(2) Chronic insanity with dementia	6	7	13
(3) Melancholia with dementia	12	8	20
(4) Mania with dementia	6	8	14
<i>High-grade amentia</i> (with marked stigmata of degeneracy, and with original intelligence of below the average grade but greater than in imbecility):			
(5) Recurrent insanity with dementia	4	12	16
(6) Chronic insanity with dementia	16	12	28
	53	70	123

This class includes 123 cases of various types and, as a practical working basis, the above six subclasses have been found more convenient than subdivisions based on purely symptomatological distinctions.

A large proportion of the included cases are old asylum inhabitants who have survived under asylum *régime* until, with the onset of senility, the cortical neurones have begun to undergo the normal process of involution. This has resulted in the development of dementia or in an addition to a long-standing grade of stationary feeble-mindedness.

In the remaining cases, many of whom had earlier in life suffered and recovered from one or more attacks of insanity, the onset of senile involution of the cortical neurones resulted in their admission to and permanent residence in an asylum.

A comparison of the average age of the patients in these sub-classes, and of the average duration of their insanity, reveals certain interesting details.

Sub-class (3), "melancholia with dementia," occupies the most favourable position in the series, with an average present age of seventy years and an average period of residence of six years.

Sub-classes (2) and (4), "chronic insanity with dementia" and "mania with dementia," come the next in order with, curiously enough, a common average present age of sixty-six years, and an average period of residence of fourteen and sixteen years respectively.

Sub-class (1), "higher grade amentia with previous attacks and dementia," has an average present age of sixty-five years, an average present residence of seven years, and an average period, between the first onset of insanity and the present age, of twenty-three years.

Sub-class (5), "high-grade amentia with previous attacks and dementia," has also an average present age of sixty-five years, an average present residence of twenty-nine years, and an average period, between the first onset of insanity and the present age, of thirty-six years.

Finally, sub-class (6), "high-grade amentia with dementia," has an average present age of sixty-one years, which is lower than in any of the other sub-classes—probably in consequence of an earlier onset of senile involution of the cortical neurones in association with the greater degree of degeneracy—and an average period of residence of twenty-six years.

Whilst such necessarily rough data do not justify definite deductions, they are sufficiently suggestive to merit attention. A detail which is especially worthy of note is the increasing grade of degeneracy which occurs in the several sub-classes when they are placed in the above order.

In nearly all the cases the grade of dementia is mild or moderate only, and the progress of the neuronic involution is slow and in many instances imperceptible. There is, therefore, as would be expected from a consideration of the section on "mental confusion" (*Journal of Mental Science*, July, 1906), a relative absence of this symptom-complex and a prominence of the cardinal symptoms of dementia.

Such cases, in fact, find their sane homologues in ordinary

sub-class is the incidence of senile involution of the cortical neurones, with resulting dementia, in cases of relapsing insanity.

Of the thirty-two cases fifteen were workers (six good, six ordinary, and three poor); three refused to work; and fourteen were unable to work, owing in the majority of instances to advanced age and feebleness.

The present sub-class therefore, for the age of the patients, contains a high proportion of workers.

The following cases are inserted as illustrative examples:

Mild Senile Dementia; at 65; certified one year; first insane thirty-six years ago.

No. 285.—G. P—, male, widower, gardener, æt 65. Certified one year on admission and previously insane at the age of 29.

A rather depressed-looking old man with a constant frown. Eyes close together, face long, forehead low. He gives his name, and, to a question concerning his age, replies, "I couldn't tell you, to be sure, sir. It's between 60 and 70." Asked where he is, he replies, "I don't know where I am sometimes. I can't make out what they want to bring me here to a place like this, I don't want to hurt anybody." He knows where he has come from, but, on being asked when he came, replies, "It doesn't seem long I've been here. Oh, Saturday it was. Saturday." (Correct.) Day to-day? "Wednesday." (Correct.) Date? "8th or 9th of September, 9th I heard somebody say." Year? "100—no, surely, 1,000—1902 or —3—3, surely, —3. It must be —3, sure." (Correct.) Was at the previous asylum "not more than 12 months, less, I think. I seem to forget the time, you know, sir." He used to "hear things and see things and think about things at night," but does not see why he should have been taken away, as he never harmed anybody. He feels rather miserable, and at times for some days as if he could *not* work. "I sinned so that I felt I must give up. I seemed overburdened on my mind." Why? "Well, I couldn't tell you," and sighs deeply adding, "This is a funny world to live in and no mistake."

Patient for some time after his admission was unemployed, but later on he at times did a little useful ward work.

Mild Senile Dementia; at 73; certified three years; first insane twenty-five years ago.

No. 286.—T. M—, male, married, painter, æt 73. Certified three years on admission and previously insane at the age of 48–49.

A dull, apathetic, heavy-looking man. Base of skull broad and forehead low. He gives his name and age, and also the day and date in full, where he is, when he came, and where he came from. He would have been in the previous asylum three years on November 27th next. He did no work there. He thinks he is too old, and they gave him no tobacco. He denies hallucinations. He states that he was

depressed when he was sent to the asylum, and that it was due to the fact that his wife and he could not agree. Since he was certified he has not had a single letter from his wife. He thinks that he could work at his trade outside, but considers that he has "no business to work inside." He says that he came here for a rest, and does not see any reason, as the ratepayers pay for him, why he should work. Then, as an after-thought, he adds that if he were outside, his friends would keep him, and he would, therefore, not be required to work.

This patient settled down comfortably, and under judicious treatment, and in spite of his advanced age, he became a good and useful worker.

Mild Senile Dementia, with Recurrent Attacks of Mania; æt. 70; certified fourteen years; first insane nineteen years ago.

No. 294.—S. D.—, female, widow, dressmaker, æt. 70. Certified since the age of 56. Previously insane at the age of 51.

A pleasant-looking, wrinkled old woman. She is somewhat deaf, especially on the right side, but is intelligent, and replies readily to questions. She knows the day, where she is, where she has come from, etc. She easily reasons out the date, as she had to come to this asylum on the 20th of July, and, therefore, it is the 22nd to-day. She notices that I am making notes. She tells me that her memory fails for events of the past few months, but that she remembers what occurred long ago much more readily. She gives instances readily and voluntarily. At the previous asylum she did a good deal of dressmaking. She states that she occasionally relapses. "I get off at times when I am run down, and remember nothing of it, but cannot sleep." . . . "The bottom of it all is, being too sensitive, anxious-minded, or something."

Patient, whilst under observation, continued quiet and well-behaved. She read a good deal and did a certain amount of needlework.

Well-marked Senile Dementia; æt. 76; certified seven years; first insane thirty-one years ago.

CASE 302.—C. P.—, female, widow, no occupation, æt. 76. Certified since the age of 69. First insane at the age of 45.

A deformed, apathetic, and feeble old woman. Ears enormous. Temporal ridges extremely marked.

She gives her name correctly. Her age is "more than forty." She knows what asylum she has come from and says she was there "forty years." She denies having been there all her life (in reply to a question) but repeats both replies again. She says she came here on a Sunday (Thursday—to-day is Sunday) and is not sure of the day to-day. "I'm a little forgetful lately; Friday I think it is." She states that at her previous asylum she was always at work mending shirts and socks, and can do any sort of plain needlework.

The following is her condition after four months' residence: she does not know the day; she thinks it is morning and that she has not had her dinner (it is 11.15 a.m. by the clock, but she does not notice

it); she cannot state the dinner-hour; she is very dull and lethargic, and stands looking blankly forwards with her cold and blue hands clasped in front of her waist.

She cannot find her way about the ward, and can neither find her own bed nor make it. She is clean and can wash herself, but cannot properly dress or undress herself. She talks to herself a little and at times cries. She only speaks in reply to questions. She knows that she is forgetful. She tries to sew but is unable to work usefully.

It may be noted that, whilst in this case dementia is well developed, there is no evidence of mental confusion.

Moderate Senile Dementia; æt 60; certified three years; first insane nineteen years ago.

CASE 304.—J. C.—, female, married, no occupation, æt. 60. Certified since the age of 57. First insane at the age of 41.

A pleasant-looking old woman. She at once asks not to be sent away to-night. She frequently makes curious cooing noises. Her age is "turned fifty." She was at her previous asylum two to three years. She doesn't know the name of this place but "it is more like a prison than anything else, an asylum of some kind." She knows the day and when she came and also the month, but not the date. The year is "93—1993" (1903). She then volunteers that her youngest son is nine, and she doesn't want to part with him. She tells me that she has been accustomed to work in the wards, and that years ago she did folding in the laundry.

When asked about her illness she gives an account which probably refers to the time when she first went insane. She was depressed when she went to the asylum with not getting her lunch and stout. She does not know why they took her there. Some time before her removal a trap was put down with some bread in it for a mouse and was forgotten. The bread had poison on it, and her child nearly ate it and had many complaints which were probably due to it though she caught it away before he ate it. He died some months afterwards. He never walked alone and was two and a half years old when he died. "He hadn't time to eat it and could just have touched his face with it." This incident is well remembered and still seems to her the cause of her illness.

She is very nervous and apprehensive and strongly resists physical examination, being apparently afraid of being indecently assaulted.

Whilst under observation she was well behaved and a good and useful worker.

Well-marked Senile Dementia ("Second Childhood"); æt. 66; certified one year; almost continuously insane for forty-one years.

CASE 308.—E. M.—, female, widow, no occupation, æt. 66; certified since the age of 65. First insane at the age of 25, and "off and on" ever since.

A dull-looking old woman, with many fine, horizontal wrinkles on her forehead. Right pupil 2 + mm., left pupil 3 + mm. React

somewhat to both light and accommodation. Ears enormous. Palate flat, and possesses a deep chink along the medium raphé. Right knee-jerk +, left knee-jerk dull. Heart dilated and somewhat hypertrophied. No skin-cracks on abdomen. Vessels extremely calcareous and tortuous.

Patient at once remarks, "I want taking home and putting in a box like I came here in, a letter-box with the lid pushed down. I think I broke my nose with trying to push the lid." She then sobs and says, "A baby in a cradle and I couldn't rock him any more." She gradually becomes excitable and her eyes suffuse. "The one that locked me in a box is not the first mother I did see." When asked where she is, she looks up at me and says, "Dada, you knows where I am." She gives her name as N. O—, and later as P. M—, neither of these in any way resembling her present name. Married? "Don't know whether I am or not; to my doll I think I am." She replies that she is 100 years old. Asked whether she knows anyone here, she says, "A milkman when he comes with the milk. He puts a little in the bottom of a can and I drink it, and my throat feels *so* nice. But they won't have me anywhere. I can't sit on my bottom, it burns and is so sore, and I can't sit anyway else." "I wish I was at my own home with my father and mother and baby in a cradle." "They tried to get my head into fader's Wellington boot one night. It *did* hurt." During physical examination she remarks, "I don't shave myself down there" (pubes) "like fader does his face."

During the time the patient was under observation she continued unchanged; she could do very little for herself, and she was unable to do work of any kind.

This case is an almost unique example of "second childhood." The patient had obviously possessed considerable intelligence, as she is a widow. She is now mentally a child, and the process of involution must have been very slow and complicated in order to result in such an exact reproduction of a long anterior state.

Chronic Mania, with Moderate Senile Dementia; æt. 62; certified four years; first insane seventeen years ago.

CASE 311.—E. A. S—, female, married, housewife, æt. 62; certified since the age of 58. First insane at the age of 45, and several times since.

A wrinkled old woman, who gives her name but says she doesn't know her age. She tells me that she came here on Monday (Thursday), and that she has been here a week to-morrow (three days). Married? "I suppose I have had a good many children, and killed a good many by everybody's talk in the place." She states that I am Mr. A—; and on my denying this, she persists that, if I am not, I have changed my name. She accuses me of talking to her. She hears everyone talking "at the bottom part of the place where you've got your rings to listen like telephones."

Whilst under observation the patient was often excited and usually restless. She did a moderate amount of ward work.

Chronic Insanity, Deafness, Mild Senile Dementia; æt. 79; certified thirty-eight years; first insane fifty-six years ago.

CASE 314.—E. M—, female, single, needlewoman, æt. 79. Certified since the age of 41. First insane at the age of 23.

Patient is a very wrinkled, restless old woman, with a high-pitched and cracked voice. She is almost totally deaf. She tells me that her age is 78 on November 25th, and mentions the name of the asylum from which she has come. She also states that she can do needlework. When I touch her wedding-ring finger she tells me that she is single.

She is very garrulous and restless. She talks away to herself in a whisper. She is able to dress and look after herself in spite of being so feeble and shaky. She suffers from bronchitis and emphysema and from cardio-vascular degeneration.

Sub-class (2). Higher Grade Amentia.

Chronic Insanity with Senile Dementia.

This sub-class contains thirteen cases, of whom six are males and seven are females.

The cases are examples of senile involution of the cortical neurones in patients who were originally possessed of average intelligence. The clinical symptom-complex exhibited is mild or moderate dementia, with or without delusions, which when present are only semi-systematised. It is therefore evident that in such latter cases the regions concerned with lower association are involved in the process of involution. In some cases this has occurred *pari passu* with the incidence of senile dementia, and in others these regions of the cortex cerebri may have been subjected to pathological changes earlier in the course of the attack of insanity.

The average age of the cases is sixty-six years, and the duration of asylum treatment varies from three to thirty-nine years (average fourteen years).

Of the thirteen cases five were workers (one good, two ordinary, and two poor), four refused to work, and four were unable to work. The proportion of potential workers is, therefore, very high.

The following cases are inserted for the purposes of illustration :

Very Mild Senile Dementia; at 79; certified four years.

CASE 317.—A. B—, male, widower, æt. 79. Certified four years, and symptoms for a year previously. Brother's daughter insane.

Senile Delusional Insanity, with Mild Dementia; æt. 71; certified six years.

CASE 323.—E. D—, female, married, housewife, æt. 71 years. Certified since the age of 65.

A pleasant-looking old woman, who smiles happily and tells me that her name is "E. D—, lady heiress." Her age is 50 years. She is "in premises of my own, and my son is superintendent of its being built." She gives the names of several large neighbouring towns in which she states that she possesses property. She informs me that her husband "is living with Mrs. S—, and ought to be with his lawful wife." She thinks that "Mr. P— has caused all this set out." She objects to any more questions, as "you are here with your lady wife to attend to the place. I have doctors and others in my hospital at H— also." In spite of this, however, she calls me "sir." She has only been in this place a few days (three days), as she hires people "to attend to these places." "I have had such a lot of worry through my husband's going on with Mrs. S—, and also P—. . . . I hear my sons calling out and crying how he ill-uses them and murders them, and I am very wild of how insulted I and all are by this man. He has done this for years. I blame my sons for putting up with it. He has been very rude to me in his low talk. Sometimes I have sent a word or two down to let him know I hear what he is saying." She thinks the sounds "come from below, but it depends on where they are, on roofs and all sorts of places. The nurses think they are mistresses here instead of me." She hears the voices night and day and all over *where she is*. She identifies the voices with me, and insists that I am a humbug when I cannot hear, or say that I cannot hear, them too. She refuses to reply to ordinary questions on the ground that, being her paid servant, I am taking a liberty in asking them.

Whilst under observation she continued mentally unchanged, and she persistently refused to do any work on the ground that she paid for it to be done for her.

Senile Delusional Insanity, with Mild Dementia; æt. 67; certified seven years.

CASE 325.—E. B—, female, widow, laundress, æt. 67; certified since the age of 60. Paternal cousin insane.

A pleasant-looking but dull old woman. Ears large. Somewhat deaf. She gives her maiden name, and says it was altered to B— when she was married. She was 67 last November, and was 60 when taken on August 22nd to her previous asylum. The present month is July (September). She thinks that she ought to have left after seven years; and when told that the month is September, she at once wonders why she is still here as August is over. She says that she ought not to have been kept at the asylum more than three hours, as she went on business but was detained. She was miserable all the time owing to being kept there "in such an undermined manner." They used her dreadfully, and took her little money from her house and would not let her have it for pocket-money. She hears people at night, especially a

man, "talking from underneath." That is how she got to know about her business. "They terrify me. That old man that they 'numbed' here, S. C—, he has followed me here. Also a 'brazier' they 'numbed,' and that man what wants such a lot of meat costs 3s. 6d. a day."

Whilst under observation the patient was frequently excited and abusive owing to the hallucinations, and she persistently refused to work.

Sub-class (3). Higher Grade Amentia.

Melancholia with Senile Dementia.

This sub-class contains twenty cases, of whom twelve are males and eight are females.

All are cases which were originally possessed of average intelligence, and which at present are examples of senile melancholia with dementia, which latter is mild in degree in sixteen cases and moderate in four. In some cases the melancholia is simple, and in others it is associated with hypochondriasis.

The average age of the patients, seventy years, is higher than in any of the sub-classes of the present group of cases of primarily neuronc dementia.

With the exception of two cases, who respectively suffered from periodic melancholia from the age of twenty-eight for thirty-five years and from the age of thirty-two for twenty-six years, and then began to develop senile involution and dementia, this condition set in between the ages of fifty-six and eighty-one years, and at the time of observation had lasted from one to nineteen years (average six years).

Of the twenty cases eleven were workers (five good, one ordinary, and five poor) and nine were incapable of work.

In the capacity for useful work and the relatively small amount of dementia which is present, in spite of the advanced age of the patients, such cases present a marked contrast to the examples of senile progressive dementia which will be considered later and have already been referred to under "Mental Confusion and Dementia" (*Journal of Mental Science*, July, 1906).

Certain illustrative examples will now be cited :

Senile Melancholia (Hypochondriasis), with Moderate Dementia ; æt. 83 ; insane fourteen years.

CASE 329.—S. S—, male, single, labourer, æt. 83 ; certified since the

age of 72, and previously without real recovery insane since the age of 69.

A lost-looking old man, with bleary eyes. The hair has been nearly all rubbed off from the front part of his head. He gives his name, and states that his age is 60. Asked where he is, he says that he is "this side H—, that's all I know." He came "two days ago about" (four) from H—. When asked how long he was in that asylum, he very irritably replies, "Don't know, I can't tell ye." He informs me that "a lot of shot has got into my head some way, I can't say how. It goes in at the crown of my head and comes out at my inside. Whores do it somehow." He tells me that rubbing his head eases the "rattle" in it. He has several sores on his legs, and he tells me that there is glass in them. He suffers from chronic conjunctivitis, and he states that "a lot of rotten pins comes out of 'em." He finally informs me that his head does all the rattling which is heard in the wires in the asylum.

He is clean in his habits, and dresses himself. He is very surly and irritable, and is unable to occupy himself owing to his age and infirmities.

Senile Melancholia, with Mild Dementia; æt. 78; insane one year.

CASE 332.—T. B—, male, single, farm labourer, æt. 78; certified one year. Family very eccentric.

A shaky and dull-looking old man, with staring eyes and a very wrinkled face. He gives his name, and his age as 78 "just before next month's out." He knows the day and the date in full. When asked when he came here, he mistakes the question for when he went to his first asylum, and replies, "First come, I don't know justly, but end of January" (approximately correct). He came "down here Tuesday, I think" (Monday) from "H—, I think" (correct). He doesn't know what is wrong with him, but he "can't get praying or finding the right way of dying." "I often thinks I will drop dead, the influence of another world is so strong in my soul." "I often thinks I would rather have some stuff and go to sleep than worry so much about it, owing to the influence and impossibility of getting the right way to get saved." He would like "to get a pious man who's gone through distress to pray with me." Patient does not suffer from hallucinations.

He is unemployed from both inability and unwillingness. He is at times garrulous, but as a rule quiet and well-behaved. At times he becomes fiendishly and desperately excited, noisy, violent, and destructive, and shows a strength remarkable for his age.

Senile Melancholia (Hypochondriasis), with Moderate Dementia; æt. 70; insane three years.

CASE 342.—E. F.—, female, widow, dressmaker, æt. 70. Certified since the age of sixty-seven. Sister insane.

A miserable-looking old woman. She gives her name as "Mrs. F—." She is a widow. "I can't think why I'm sent here, I'm sure. I thought

"I was going to E—." She knows exactly where she is but does not know whether it is a "home or an union or what." She knows the day and the month and approximately the date, but cannot state the year. Where have you come from? "They call it H—, but I know it isn't H—. They call it an asylum, but I don't know whether it is a home or what it is. I went there three years last February." She was never noisy "but when people covered me with that nasty stuff—galvanised me from head to foot. Nothing to be disrespectful for except my injurious treatment. Who was to blame except the head of the house." Who? "So many I'd no peace night or day. I'm just like a galvanised wire. I'm galvanised in my bones and flesh and all over and when they strike they hurt me as I'm not a wire."

Whilst under observation, the patient was restless and querulous and constantly complained of ill-treatment. Owing to her state of health no attempt was made to induce her to work.

Senile Melancholia (Hypochondriasis), with Mild Dementia; æt. 79; insane nineteen years.

CASE 347.—E. H.—, female, married, housewife, æt. 79. Certified since the age of 60.

A dull but dignified old woman. She is somewhat deaf and in feeble health and subject to bronchitis. She gives her age as 87 years on June 9th last and was at her previous asylum 25 years. She knows where she is and the day and the approximate date. She tells me that last Sunday was the sixth after Trinity (correct), and that she has no almanac and so does not know the exact day of the month. During her asylum life she has done needlework, etc.; she complains that she has never seen her £15 and watch and chain and teeth since she was admitted. In the early days she had a good many "rows" owing to complaining to the doctors about the nurses, etc., in order "to defend myself." She was then twenty-four years in No. 4 ward without a change or a quarrel. She does not go to such small churches as asylum churches, but when outside she was a great deal amongst the clergy. She constantly uses her Bible and prayer-book and calls them "my holy luggage." She has numerous hypochondriacal ideas. She has a small black wart near the left nipple and she says that it is due to someone putting a syringe in and drawing her heart's blood out. She states that the muscles of her chest are gone, and that her arms are longer than they were, and that the triceps should be where the biceps is, etc. A good number of these ideas apparently arise in consequence of the comparison of present with former appearances.

Almost at once after admission she began to do needlework and when in good health she used to sew all the day long. Whilst under observation she was more than once seriously ill with bronchitis and cardiac dilatation, and after each attack was more feeble than before, and therefore was less able to employ herself. She exhibited, however, relatively little mental deterioration.

*Sub-class (4). Higher Grade Dementia.**Mania with Senile Dementia.*

This sub-class contains fourteen cases, of whom six are males and eight are females.

All the patients, as far as can be ascertained, were originally possessed of average intelligence, and at the present time are examples of chronic mania with senile dementia, which latter is mild in degree in ten cases and moderate in four.

The average present age of the patients in this sub-class is sixty-six years.

Contrary to what occurred in the preceding sub-class, where with two exceptions the age of onset was fifty-six years and upwards, in the present sub-class nine of the fourteen cases became insane between the ages of twenty-six and fifty-four years, and only five after the age of fifty-six. The duration of the attack varied from three to thirty-six years, the average being sixteen years.

Of the fourteen cases eight were workers (three good, one ordinary, and four poor), and six were unable to work.

The present sub-class therefore, taken as a whole, consists of patients who, apart from the incidence of senile involution of the cortical neurones and consequent slowly developing feeble-mindedness, might have been classed under the second group of cases of amentia ("Excited and Moral") in Part II of this paper (*Journal of Mental Science*, July, 1905).

Several reasons may be given for the great difference which exists between the present and the preceding sub-classes.

Excited cases are naturally, as a rule, certified early owing to the trouble they cause to their friends. Depressed cases, on the other hand, may either (and judging from newspaper reports probably often do) commit suicide at home, or if of mild type, may be looked after for lengthy periods by their friends. Further, such cases are likely, owing to their general habits, to die under asylum régime of tuberculosis, etc., before arriving at an advanced age. Finally, large numbers of cases of hypochondriasis, even when advanced, frequent the out-patient departments of hospitals and dispensaries, and are often never certified at all.

The following cases are inserted as illustrative examples of the contents of the present sub-class:

Chronic Mania, with Moderate Senile Dementia; æt. 58; certified eighteen years.

CASE. 350.—S. H—, male, single, railway porter and labourer, æt. 58 years. Certified since the age of 40. Paternal cousin insane.

A dull-looking man, who sits uneasily and mutters to himself. He gives his name when asked, and then turns away. In reply to a question as to where he has come from, he says "Don't know," and whispers on to himself. Day? "20th June" (14th August). Where are you? "The Hall." Year? "I come from H—. I come to get you some tea. Oh! The driver is afraid. Oh! When do you come back? Seventeen miles. Mr. Faux—George Edwards." He jumps up and down and about, and is very restless.

He is unemployed, but does as he is told. He takes no interest in his surroundings, but he becomes surly and irritable if interfered with.

Chronic Mania, with Mild Senile Dementia; æt. (?) 60; certified nineteen years.

CASE 353.—J. N—, male, æt. (?) about 60 years. Certified nineteen years.

A curious-looking man, with prominent and staring eyes, and a "heathen-Chinee" appearance. He gives his name, and states that his age was 53 on February 4th last. He knows when he came here and the day and date in full. He knows how long he was at his last asylum. He was a grave-digger there during the last two years and previously worked on the garden and farm, receiving 3 oz. of tobacco a week for his services. He volunteers the information that his first trouble was a term in gaol for setting fire to a stack, but he says that that was a misfortune whilst he was lighting his pipe. This fact seems to have been suggested to his mind by the question about tobacco. He suffers from auditory hallucination, but when asked to describe them he says: "Put it down as mutineers and nothing else." "They generally like to help me at work a little." They talk to him and are only the patients. At night, however, he hears other things than patients, and "afterwards I study my own little business." "I used to be a little Norman boy—a very good scholar—Duke of Normandy. Property not worth much over £1000 a day."

On the whole patient was well behaved, and he was a good, willing and useful worker.

Chronic Mania, with Mild Senile Dementia; æt. 55; certified twenty-nine years.

CASE 354.—J. L— or W. H—, male, married, labourer, æt. 55. Certified since the age of 26.

A dull, vacant-looking man, of surly aspect. He gives his name, and his age is "nearly 100 years now." He knows the date. The year is 1893 (1903). He knows the day and also the day and date when he came into the railway station from H—. He was in his last asylum

for nine years. He says that his name was "W. H.— before they pulled the outside face off my head and prevented it from growing." He is very garrulous, and talks rapidly, but so indistinctly that one cannot understand him. He is, however, obviously grumbling and complaining. Asked about work, he states that he has been accustomed to make beds and scrub, and work in the garden. He received no tobacco for it, but he does not smoke. He then goes on talking rapidly about himself. "When the biggest man hung me I fastened up my own head and neck." "It has taken ninety years to grow, and then my head was the size of a five-shilling piece." He has illusions of identity. He insists that he knew me long ago, and also the attendant; but he cannot remember either of our names.

He was on the whole well behaved, and was a willing and useful worker outside in the grounds and also in the ward.

Chronic Mania, with Mild Senile Dementia; æt. 62; certified nine years.

CASE 356.—E. B—, female, married, housewife, æt. 62. Certified since the age of 53.

An excited and garrulous old woman. She at once asks me if I know who she is and says "Countess of England, Samson the Great, the old King's grandfather; the marks on me correspond with my leaflets." She tells me that this place is worse than the last. "You help to do it all and then pretend to cure 'em afterwards." "Why didn't they burn me with my royal uncle? They don't know who I am and have sent me here. I didn't know the Isle of Wight belonged to my family. King's doctor and vaccination on the right shoulder and royalty on the left arm." (She has a small sebaceous cyst on the right clavicle which is "royal vaccination," and a scar on the left arm "from a silver knife.") She says that this asylum is a new part added to the Bluecoat School, when asked where she is. She knows the day (Sunday) and when she came, and then remarks that she is a Jewess and that Saturday is the Jew's Sunday. She continues that the King gave her beauty spots on both eyes and they have turned to cataracts (early cataract exists in each eye). She knows where she has come from and says she was there four or five years and was previously for twenty-eight years a married lady at N—. Age? "If you can trace to the distressing Egyptian war in Palestine I was born then, called 'Old Christmas Day.'" She was born in 1874 and has four royal names of which three are Grace Darling, Martin Gould, and Ethel Darling. Her mother was Lady C—, and her father Lord A—, and the Prince of Wales is her royal cousin.

Whilst under observation she continued to be garrulous and abusive, but, in spite of this, she was nearly always amusing in conversation and was a favourite. At times she was spiteful and even violent. She frequently accused different people of impersonation. She thought I was a woman and said she had seen me disguised in feminine clothing. She told me to change clothes with a nurse as I must be petticoated owing to my previous filthy behaviour. She used to blame me for her lameness, telling me to "put your foot round my leg again as I have

been tortured for years." She heard "all the voices in the pavilion, a cabinet of curiosities. They are quite under your bed and quite distinct." She constantly talked irrationally and in a persecutory vein—e.g., about women giving birth to lions, about chairs moving and fire flashing under her at night, about being robbed of her life as Queen of Scots and locked in here, and about the Bluecoat School, when pulled down, being found to be built on purgatory, etc.

She washed her head every morning and was fairly tidy. She made several beds each day, cleaned brasses, and took blind patients to the lavatory and she paid especial attention to a certain feeble old woman. Though variable in temper, and apparently enjoying "speaking her mind" in the form of violent and even indecent and foul abuse, she was on the whole good-natured and was very good to those more feeble than herself.

Chronic Mania, with Moderate Senile Dementia; æt. 67; certified thirteen years.

CASE 357.—E. V—, female, married, housewife, æt. 67. Certified since the age of 54.

A stout, healthy-looking old woman, of excited appearance. She asks me what I want with her. She gives her name as "Mrs. E. V—" and her age as 65. She doesn't know her exact age, as she is an adopted child. "The Earl of R—, he's Prime Minister, and knows me by the wart under my nose." This peer gives her £1,000 a week, and the Earl of D— is her husband. She is worth millions, and has never spent a halfpenny. She lives at A— Court, and is a "perfect lady." In her previous asylum she did "cleaning about, and scrubbing and needlework." She was there thirteen years, and the journey here has upset her. She came on Monday (Thursday), to-day is Wednesday (Saturday), and she has been here three days.

Whilst under observation she hoarded rubbish, but looked after herself, and was a fairly useful ward helper.

Chronic Mania, with Mild Senile Dementia; æt. 79; certified twenty-two years.

CASE 359.—L. B—, female, married, housewife, æt. 79. Certified since the age of 57.

A pleasant-looking old maniac, who talks most rapidly, and, as a rule, entirely incoherently. Her husband is crown commander under the King. She was brought up under Lord A—. She caught people stealing waggons belonging to him. A trial came on, and they said she was a gay lady, and sent her to the asylum. General P— was her grandfather. Her age is "over 70 a good way." She knows where she is, when she came, the day and the date correctly to a day or two, but "never sees an almanac." She was "forged in here from E—, and my lord begged for protection of his just servants, and so Dr. W— protected me." She was twenty-three years at her previous asylum. Whilst there she used to do folding, etc., in the laundry, and M. J— was very kind to her, and shook hands when she came away.

During the time she was under observation the patient worked in the laundry at sorting, and, though slow, was useful. She was very irritable and excitable, and at times extremely garrulous. Whenever I spoke to her she became violently excited, shouted "murder," etc., and ran to the window and called loudly for the police. She seemed to think I had unlawful intentions towards her, and if I did not go away she became almost frantic.

Sub-class (5). High-grade Amentia.

Recurrent Insanity, with Senile Dementia.

This sub-class contains sixteen cases, of whom four are males and twelve are females.

These cases are the homologues of those included in sub-class (1), all the patients being examples of recurrent insanity. The contents of the present sub-class, however, consist of distinct degenerates who suffer from a degree of original mental deficiency (high-grade amentia) which is less marked than that in imbecility, whilst in sub-class (1) are included cases of recurrent insanity which were originally possessed of average intelligence (higher grade amentia).

The average age of the cases in the present sub-class is sixty-five years, which is identical with that in sub-class (1).

Eleven of the cases were first certified between the ages of nineteen and thirty-eight years. The average interval between the first and last certified attacks is seven years (five to thirteen), and the average length of residence in asylums during the present and final certified attack is twenty-nine years (twenty-one to forty-one).

Of the remaining five, one case had suffered from relapses all her life and was first certified at the age of sixty years, and the other four had each several relapses during an average interval between the first attack and the present age of forty years and an average present residence in asylums of thirteen years.

The average period, in the cases in this sub-class, between the first attack and the present age, is thirty-six years.

The cases all suffer from commencing or progressing senile involution of the cortical neurones. The individual symptomatology is various, but original feeble-mindedness combined with dementia of a mild or moderate grade is a common feature to all.

Of the sixteen cases six were workers (five good and one

High-grade Amentia, Moderate Senile Dementia; æt. 70; certified forty-one years; one previous attack.

CASE 367.—C. T—, female, single, formerly a servant, æt. 70; certified since the age of 29, and first insane at the age of 21.

A phlegmatic old woman with a short beard, who has little to say for herself, except in reply to questions. She, however, when her baldness is noticed, remarks that it is due to the sun. She says that her age is 78 next March, and she knows neither the year nor the time of year. She does not know where she is. "It looks like a workhouse outside, perhaps it is." It is seventy years since she lived at home. When asked about employment, she states that she can "do rough sewing, but nothing else." To a question regarding marriage, she laughs and says she has "not been to church," and endeavours to suggest that she is married except as regards the ceremony. She informs me that "most of the people here haven't no sense in 'em." It is difficult to obtain a satisfactory mental state beyond the readily elicited important details that she exhibits no mental confusion, and shows in many of her remarks an unexpected amount of shrewdness, in view of her age, the length of her residence in asylums, and her extremely feeble bodily condition.

Whilst under observation, until her death from carcinoma of the large intestine, she was mentally unchanged. She was physically unable to do any kind of work.

High-grade Amentia, Mild Senile Dementia; æt. 59; certified seventeen years; several previous attacks.

CASE 368.—E. F—, female, married, laundress, æt. 59; certified since the age of 42, and first insane at the age of 27. She was several times insane between these attacks.

A pleasant-looking, garrulous woman, with a very high palate, a lisp, and a meek and almost pathetic expression. She at once rapidly informs me that the wicked people at her previous asylum hit her on her poor face and hurt her, and becomes lachrymose. She knows the day, when she came here, and where she came from. She can tell me the month, but neither the date nor the present year. She "could not say the year, as I am only a patient, and I like my medical doctors to know best." She talks rapidly, and in a very childish manner. Her age is "about 55 last January." She remembers her first incarceration in an asylum, and says that she was there two years. She went shortly after her youngest child was born, "a dear little son, who died at the age of 5½ months."

She hears "those that are not believers in God" at night, and tells them not to talk to her. She says that she has repeatedly reported to her "medical doctors" that she has "not even seen those wicked people." She is sure that it is really people who are speaking, and she frequently asks them to "please use better language." They are invariably women who speak. She tends to repeat her stories, etc., over and over again, and especially to refer to her "dear little son, aged 5½ months."

Whilst under observation she was clean and neat, and a hard worker in the ironing-room of the officers' laundry. She was willing and obliging,

and her bird-like chatter was, within limits, pleasant to listen to. She was intensely religious in a child-like manner, and exceedingly devout.

High-grade Amentia, Moderate Senile Dementia; æt. 74; certified thirty-two years; two previous attacks.

CASE 374.—E. G.—, female, married, housewife, æt. 74. Certified since the age of 42. Previously insane at the age of 33 and also on an earlier occasion of unknown date.

A wrinkled old woman, who constantly makes rolling and jerking movements of her head. The direction is as a rule up and down, and the frequency averages forty-two in five seconds. The movements vary in range and are apparently more or less voluntary in origin. Curious coarse tremors also occur at times in the right upper limb. As a rule the right index finger becomes coarsely tremulous, the right thumb then follows suit, and the tremor in a few seconds passes to the forearm as a wave, the index and thumb becoming motionless. If the index-finger is now squeezed the tremor of the forearm ceases, and shortly afterwards the cycle is repeated. The left hand is usually held in grotesque positions and shows no tremor. The condition described is probably associated with cortical degeneration and of a similar nature to Huntingdon's chorea.

It is extremely difficult to attract and especially to retain the attention of the patient as she takes little or no interest in her surroundings. Name? "I've told you. I can't tell you again. They all know." Question repeated. "I don't very often speak to them." Her age is 36. When asked if she knows the name of the asylum from which she has come she replies "No, I never mentioned it to anyone." *Heard of it?* "No, I never speak about it myself." She replies that she has had nine children and voluntarily adds "and four died, one at fourteen weeks and one at thirteen." She states that she was married at the age of 20. Her attention then wanders. Further and later attempts elicit similar replies and her attention can only be retained, and then incompletely, for a minute or two at a time.

She exhibits a mechanical response to the stimulation of questions, with flashes of mental association, rather than a condition of confusion.

Whilst under observation she continued unchanged, and she was extremely feeble and helpless and physically unfit to look after herself.

High-grade Amentia, Mild prematurely Senile Dementia; æt. 51; certified twenty-three years; two previous attacks.

CASE 375.—C. J. F.—, female, married, of no occupation, æt. 51. Certified since the age of 28, and previously in asylums at the ages of 21 and 24.

A neurotic-looking woman who smiles when spoken to. Her name is "Mrs. F—." Her age is 53. She knows where she is and where she has come from, when she came, and the present day. She does not know the date as "I've being ill two months and no one's told me and I haven't been well enough to know." She was in her previous asylum for twenty-three years. Whilst there she for five or six

years made beds in a ward in which there were seventy beds and she did "sweeping and dusting and scrubbing and polishing, and I think I overworked and made myself bad." She hears voices but "I don't remember and don't keep it in my head. I let it all pass away. I've been told not to notice it." She first "went wrong as I thought my sister didn't ought to look at my husband as she did, a little thing and yet it wasn't a little thing." The magistrates told her mother that she was capable of taking over the entire management of the asylum, so there could not be much the matter with her. "I was told I should get my discharge as soon as I got here."

Whilst under observation she was an extremely useful worker and continued unchanged mentally.

High-grade Amentia, Mild Senile Dementia; æt 69; certified thirty-three years; two previous attacks.

CASE 377.—E. T—, female, single, domestic servant, æt. 69. Certified since the age of 36, and previously insane at the ages of 27 and 33.

A very wrinkled old woman, who is sitting up in bed on her hams, with her arms curled round her legs. She gives her name and her age as 67. She knows the day on which she came, the present day, and the full date within a day or two. She informs me what asylum she has come here from, and states that she was there thirty-one years. During her residence she did "all sorts of work, first in the laundry and then in the vegetable room for two and a half years, getting night nurses' vegetables ready." She converses in a very childish and feeble-minded manner. She states that she has been very quiet, and has behaved herself. She tends to repeat her remarks. With reference to the vegetable room, she informs me that she "worked in a very damp cellar, damp cellar, damp cellar, damp cellar." When I ask the nurse if she is quiet, the patient replies, "I've been very quiet. I was much obliged to you for the custard. I was very quiet." She thus is aware that I am a doctor, though she mixes me with the medical officer of her section. "Do you think I'm better than when I come, sir? I feel a bit better than when I come."

Whilst under observation the patient was quiet and well-behaved, and was a useful and willing worker in spite of her age.

Sub-class (6). High-grade Amentia.

Chronic Insanity, with Senile Dementia.

This sub-class contains twenty-eight cases, of whom sixteen are males and twelve are females.

These cases are examples of senile involution of the cortical neurones in high-grade aments possessing marked stigmata of degeneracy and an original degree of intelligence which was below the average, though above that of imbecility.

the fact that his right eye is half shut and his right pupil is occluded. He knows the day, but not how many days here or on what day he came. He does not know where he is, and he "isn't scholar enough" to read his name on the admission sheet, though he gives it. He says that he "never could learn at school. I forgot day by day, and my children I don't think will learn not fairly either." He says that he is "over three times forty-five" years of age, and when I remark that he is then 135 years old, he says: "Well, I suppose I be." "They did wrong to bring me here. They ought to have let me be out and earn my own living. I'm a very good hand at counting anything, but not in writing, signing, and reading." At his previous asylum he worked in the garden. He does not smoke, and therefore did not earn any tobacco. He was there upwards of twenty-six years (correct). To a question concerning voices at night, he says that he "sleeps very soundly, and can be pushed about like a brick in a house" without awakenin. When he does talk he is garrulous and rather jolly and jovial, and is at times amusing.

Whilst under observation he was an industrious and useful worker.

High-grade Amentia, Mild prematurely Senile Dementia; æt. 49; certified two years; feeble-minded since birth.

CASE 380.—J. G. A—, male, single, æt. 49. Certified two years. Simple-minded since birth.

A childish-looking man with a blank but rather despondent expression, owing apparently to some drooping of the angles of the mouth and of the outer canthi of the eyes. Ears large and possess good lobules. He is very deaf, especially in the right ear, and takes little or no notice of his surroundings. He does not know where he is, but knows when he came and from what asylum he has been transferred. He knows the day, and when I ask him the date replies that it is the "day after yesterday." "I know it is, and I ain't wrong in that." He is quite indignant at the question and obviously deliberately misunderstands it. He knows the month, and the part of the month, but does not know what year it is. He tells me that he is "not disabled at all," he is vexed at being here, and he says that he can work, etc., and gets excited and irritable. When I continue to question him he informs me that he has "been far enough and won't say any more." He tells me to go to H— (his previous asylum) and find out about him. He grudgingly acknowledges that he did gardening work at H—, and says that he doesn't wish to do it here. He has "giv up doing it." He becomes now quite huffy. I ask if he was miserable at H—, and he shows much displeasure and asks "How dare you say such a thing? There is nothing the matter with me and I am going to have it out." When I ask about voices he gets extremely indignant, vehemently denies that he has ever had hallucinations, and looks as if he would like to strike me. He is very displeased with me for taking notes, and says "I don't know who you're going to send that to. I shall only laugh at it. It will only be laughed at." He now refuses to have anything more to do with me. "I'm not going to say any more. I've done with it."

He is irritable, bad-tempered and spiteful and refuses to work. He

is physically much older than his actual age, and is becoming prematurely senile.

High-grade Amentia, Mild Senile Dementia; æt. 94; certified seventeen years.

CASE 385.—J. R.—, male, widower, hawker, æt. 94. Certified since the age of 77.

An excited, garrulous, and violent old man. Many fine transverse wrinkles on forehead. Huge ears without lobules. Palate high. Genital organs undeveloped. When asked his age he shouts "J for John R. Pollard." When I question the accuracy of the name he yells out that he would like to know whether I "think I'm going to tell you a d—d lie, because my father was named Pollard and my mother was ——" (a lot of foul names.) Age? "Six hundred years old and seven or eight days" and shrieks this over and over again, and each time louder than the last, and tells me to put it down right. He is "the cousin to the almighty power of God." He becomes violently excited when I ask him what he says, and he howls his remark over and over again, and says "You're a b—r (etc., etc.) and won't hear because I have been a hard-working man all my life. You want to get at me." He uses most foul language and has a habit of repeating what he says three or four times or more, each repetition being more loudly and more viciously spoken than the previous one. At times he becomes nearly black in the face owing to his vocal exertions. On being asked where he is says "Some d—d old 'sylum, I expect." He has heard of the name of the asylum from which he has come, and he went there "about corn for people that sow on the land."

He is a most irascible old man, and is remarkably strong and wiry considering his advanced age. He is both unable and unwilling to work.

High-grade Amentia, Mild prematurely Senile Dementia; æt. 52; certified twenty-three years.

CASE 390.—F. F.—, male, married, farm labourer, æt. 52; certified since the age of 29.

Head low and broad. Ears projecting. Palate high and shelving forwards. Has a crafty smile and a criminal appearance. He gives his name, and his age as "44." He knows the day of the week, and approximately when he came here. "November 21st—October 20th, I think" (29th October). Year? "37, I think, sir." He is in a new asylum, but does not know its name. He knows where he has come from, and says that he was there nineteen years (twenty-three). Whilst there he "worked in the garden, and scrubbed inside, and carting, and a lot of other things." He received for his services "three half-ounces of tobacco a week and more." He then mutters to himself in a perfectly unintelligible manner about "money," and "Lavington's spare table," etc.

He is a well-behaved patient, and in this belies his appearance, and he is a good and useful worker.

High-grade Amentia, Mild Senile Dementia; æt. 60; certified fourteen years.

CASE 392.—E. D. S—, male, single, no occupation, æt. 60; certified since the age of 46.

A dull-looking man, with intelligent eyes. He informs me that he has a cold, "catarrhal fever," in his head, and is dull of hearing. He gives his name; and when asked his age, says "he's somewhere about 60." He speaks of himself as "he," or "the man." He was born in '44 or '45 (probably nearly correct). He knows the day and date in full, where he is, where he has come from, when he came, and also the exact date of his admission to his previous asylum, and the number of years, months, and days he spent there. He gives a detailed account of his residence at that asylum, and of the various duties he performed, which varied from tailoring, carpentering, and helping the butcher, to tarring fences and looking after the medical superintendent's horse and the bicycles. He states that he wandered about unattended, and would have been discharged but he could not find anyone to take him, or act as a guarantee for him. Before he was sent to an asylum he "hit a peeler," and was locked up for some days. "The man didn't know he was wrong in his mind, that's how he got locked up. Detective on one hand and policeman other, and flicked peeler on face. That was the beginning of it, and he had to be took care of." The detached way in which the patient speaks about himself is interesting.

He is now developing senile feeble-mindedness, and is of very little use as a worker, though he is a very decent and well-behaved old man.

High-grade Amentia, Senile Dementia; æt. 63; certified twenty-seven years.

CASE 395.—L. S—, female, æt. 63. Certified since the age of 36 years.

A wrinkled old woman, who is muttering to herself. She has corns all over her hands, which on the palmar surfaces are smoothly polished from a constant habit of rubbing the one over the other. She replies that her age is "forty-one years a month and a day," and gabbles something to the effect that she has "lived in servitude." She says that she is not married. She has been "in servitude as a servant-of-all-work." She "does not exactly know" where she is. She thinks it must be summer, as it is "nice hot weather" (August). She "does not exactly know" where she has come from, and then adds the name of the asylum, and states that she has come "a long way in the railway." She rubs and works her fingers, and repeats her name, and other recent replies to questions, exactly as if the cortical region for speech were in a similar condition of activity to that presiding over the movements of the fingers. She has much tremor of the tongue. Her pupils are small, but react well to light and accommodation.

Whilst under observation the patient continued unchanged, and was feeble, unemployed, and incapable of looking after herself.

High-grade Amentia, Prematurely Senile Dementia; æt. 47; certified eighteen years.

CASE 396.—E. G. S—, female, single, no occupation, æt. 47. Certified since the age of 29, and also in an asylum during the previous year. A near relative is at present in this asylum.

A marked degenerate, with a small head, no lobules to ears, a projecting nose with thick nostrils, large lips, and prominent upper teeth. The head is very narrow across the forehead.

She fidgets a good deal, and gives no reply to questions. When given a sheet of paper she picks it up and looks at it, and turns it over like a monkey. As, however, she holds the sheet with the writing upside down, it is probable that she cannot read. She takes no notice of anything said to her, but merely fidgets, and she seems unconscious of or careless of the most uncomfortable attitudes. Her hands are rough and coarse on the palmar surfaces, but smooth on the back. Her knees are smooth, but there is much thickening of the bursæ patellæ.

Further investigation showed that her articulation is defective. She is very untidy. She is fond of washing herself and of hoarding rubbish, and of sewing her aprons and dresses up. She will put on two or more aprons if she can get them, and would, if she could, put on two pairs of stockings. She ties pieces of string, etc., round her hair, and on one occasion tied a handkerchief tightly round her neck. She frequently laughs to herself, and at times appears to be reading hymn-books and bibles. She does rough ward-work, such as cleaning lavatories, etc., and is very noisy whilst at work, and also frequently at other times, and at night. She is clean in her habits. It is almost impossible to attract her attention. When spoken to or taken notice of she is restless, pats her clothes and her hair, shuffles her feet on the floor, examines her nails, mutters to herself, etc. She is, as a rule, extremely dull and stupid.

High-grade Amentia, Mild Senile Dementia; æt. 59 years; certified thirty-one years.

CASE 398.—M. V—, female, single, gentlewoman, æt. 59 years. Certified since the age of 28, and symptoms since the age of 25.

A marked degenerate, with a narrow head. Eyes close together. She smiles in a childish manner, and tells me that her name is M. D—. She denies the name of V—. Her age is 27, and she is unmarried. She knows correctly where she has come from, when she came, where she is, the day and the month. She knows the date within a week and the year within five years. She says she has been in an asylum fourteen years (thirty-one) and that that place is "quite eighty miles away from here" (nearly correct). Whilst at her previous asylum she tells me that she made all the beds and spread the table-cloths, and helped to get the dinner things. She was there "so many years that it turned out very expensive." She says that she had a "good bit of money left her—thousands—£500,000—but it has been spent at random by her brother." She laughs in a childish manner as she gives me this information. She tells me that she was "two or three

and twenty" when she went to her last asylum, that she is now "twenty-six or seven," and that she was there "twelve or fourteen years." When I point out the discrepancy she laughs and remarks: "We have to make it fit somehow, don't we?" She says that she was quiet and well-behaved in her previous asylum, "but they didn't altogether consider me so." She also states that she has "a sister and a brother or so" in that asylum (untrue), and adds, "for all that were at home." She writes her name "M. D—" in an educated manner.

Whilst under observation she persistently refused to work, and she was often noisy and garrulous, and also at times impulsive and spiteful.

High-grade Amentia, Mild Senile Dementia; æt. 67; certified twenty-five years.

CASE 400.—S. D—, female, single, domestic servant, æt. 67 years. Certified since the age of 42, and insane from the age of 40, when she was first certified. Maternal aunt insane.

A wrinkled old woman, who says her name is "Timothy Tom," and then whispers to herself. She afterwards gives her correct name. Age? "Forty, ain't I?" She thinks she is "near Hammersmith." After most replies she whispers away to herself. She came here a month ago (two days). After a short interval the same question is asked, and she informs me that she has "only been from home a fortnight." She states that the day is Monday (Saturday). She has not had her tea (correct), as "I wait till you have had yours." She has an illusion of identity with reference to the nurse. During her whisperings I frequently catch the word "pencil." This suggests that she notices that I am using one.

Some six months later she was rather more garrulous. When asked her name she began in a partially intelligible manner to tell all that had happened to her during the day. Age? "I shall leave that. It wouldn't do. . . ." Asked who the nurse is, she replies, "Oh, that's where it is. You run in the trains with the food," and hence partially recognises an official. Day? "Day after New Year's Day" (quite incorrect). A piano is being played in the ward above, and when I ask her what the sound is she replies, "Playing with wires. That goes to the closet and then goes somewhere else." As she left me she remarked, "You may as well let me see in that little book."

She is clean in her habits, and asks when she wants to go to the lavatory. She is very obstinate, and often refuses her food. She almost constantly mutters to herself when alone. About once in three weeks she becomes more troublesome, and unfastens her clothes and pulls her hair down. She interferes with the other patients, but never strikes them. On such occasions she talks a good deal at night, and requires a side-room. Occasionally she dresses herself, except as regards boots and stockings. She cannot keep herself tidy. She never reads or writes, or talks to the other patients, although she often talks *at* them.

She continued unchanged during the period in which she was under observation.

(To be continued.)

In the crusades all these powerful motives were combined. The expedition was at once a religious pilgrimage, a military adventure with promises of renown and a share of the rich spoils of the East, and an escape from a dreary life.

Jerusalem, a holy city even to the Mussulman, was amongst the first conquests of Islam. Omar, the second Caliph, who came from Medina to receive the surrender of the place (A.H. 17, A.D. 607), agreed to allow to the Christians liberty of their worship and the security of their property, terms which successive rulers did not faithfully keep, yet for 400 years the Caliphs allowed the Christian pilgrims to visit the Holy Sepulchre although they were often exposed to extortion and scornful treatment. Hakem, the mad king of Egypt, demolished the Church of the Resurrection and chased the Christians from Jerusalem, but after his assassination the church was rebuilt and the pilgrims from the West resumed their visits.

Religious persecution was almost unknown to the pagans of antiquity, or to the adherents of Brahminism and Buddhism; but with the Christian as well as the Mussulman salvation from eternal torments was held to be the reward of belief in a fixed exclusive creed rather than of a good life, hence the followers of these rival creeds regarded one another with a hatred which, as they thought, was justified by their religion.

Ameer Ali in his *History of the Saracens* insists that they were less intolerant and kept better faith than the Christians of those times. In general the Mohammedans, while claiming to rule, observed the bounds set by the Prophet to the oppression of unbelievers. In Syria too religious bigotry was softened by daily intercourse with the native Christians and the Israelites; in western Europe, on the other hand, a powerful priesthood enforced uniformity upon all save the Jews, who led a hard and insecure life, pursued by calumnies blindly received by the credulity of hatred. The clergy told the people that the Mohammedans, amongst other abominations, worshipped the image of the Arabian prophet and that, lying in a state of insensibility from an epileptic attack, Mohammed was devoured by hogs, nothing being left but the heels, which explained the dislike his followers had to pork. The Mussulmans on their side had neither pope, councils, nor creeds to keep aglow the fires of religious hatred. At that time too they had a more

enlightened civilisation and a better organised government than the Franks.

The Seljukian Turks from beyond the Oxus conquered Persia, routed the Greeks, and planted their capital at Nicæa, within a hundred miles of Constantinople. Jerusalem fell into their hands in A.D. 1076. These rough invaders had scant respect for treaty, precedent, or policy, and were not content with the slow returns of the toll levied upon the Christian visitors. The pilgrims who made their way back to European lands had heartrending stories to tell of ill-treatment, of companions who had sunk under robbery and famine, of the insults heaped upon the native Christians, of the Patriarch of Jerusalem dragged from the Holy Sanctuary by the hair and thrown into a dungeon to extract a ransom from the compassion of his flock. At this time the military spirit of Islam had declined, the power of the Caliphs of Bagdad was gone, and the Moslem world was divided by rival Sultans and Amirs. Sicily had been rescued from the Saracens by the Norman adventurers, and the Moriscos were being driven back in the Spanish peninsula. The fleets of the Italian Republics of Pisa, Genoa, and Venice held the Mediterranean.

The great Pope Gregory VII, in 1074, gathered together at Rome 50,000 men to drive away the Turks who were threatening Constantinople, and to bring back the Greek and Armenian churches to the Roman fold and rescue the tomb of Christ from the Moslems; but the ambitious pontiff died in the midst of his quarrels with the German Emperor, and the vexations of the pilgrims might have been passed by without any effort for their relief had an impetus not been given by an obscure monk. Peter de Acheris, a gentleman of Amiens, had, in a paroxysm of religious fervour not infrequent in those times, left his wife and retired to a solitary cell, hence he got the name of Peter the Hermit. He is described as a man of little stature and contemptible appearance, but lively and vigorous, with a keen eye and a gift of fluent speech. Leaving his hermitage, Peter had made his way to Jerusalem, seeking through an interpreter a conversation with the Patriarch. They bewailed the miseries endured by the pilgrims and the native Christians under the iron rule of the Turks. The Patriarch explained the helplessness of the Greek Emperor; Peter advised him to apply for aid to the Pope and the warlike

princes of the West, and promised himself to bear a message. Flown with excitement, Peter went to the Church of the Resurrection, where he passed the night in prayer. Worn out with fatigue and watching, the devotee fell asleep on the pavement, when a vision of Jesus Christ appeared to him, saying : "Arise, Peter, and courageously carry out what has been enjoined to you, for I will be with you. It is now time that the holy places be cleansed and succour brought to my servants."⁽³⁾

Accepting this as a Divine mission, Peter sailed for Italy. Landing at Bari, he sought an interview with the Pope, Urban II, who encouraged him to prosecute his mission. It was a wretched time even in those hard and cruel ages, the serfs ground to the dust by their feudal lords and plundered by robbers, the barons and knights despising everything but war, seeking feuds with one another as a change for their dull lives within their moats and castle walls, the citizens insecure behind their turreted ramparts, crowded together in narrow winding streets, dirty and insanitary, swept by fevers and plagues. The arches of the old Roman aqueducts, broken and dry, reminded men of other times. Little help could be had of the King of France or the Emperor of Germany; every duke, count, or baron had the power to oppress and righted his own quarrels.

But through this turbulent, disunited Europe stretched the Church, with its priests, monks, friars, bishops, abbots, all obeying one head, having one common aim, commanding unquestioning belief in its dogmas, terrifying the laity, unlettered, licentious, and brutal, with threats of punishment beyond the grave. Thus wickedness had its pangs and its terrors. Remorse was too profitable not to be encouraged by the clergy, who claimed to hold the keys of heaven and earth, and were ready to relieve wealthy sinners from purgatorial pains. Visions and miracles were every-day tales. A most lucrative traffic was carried on in the sale of relics of saints, some of whom appeared to have had during life several heads and more bones than are now recognised in modern osteology. Many of those who had still longings for better things retired, if they could, to monasteries, where they spent their time in prayers for their own salvation, leaving the world to get worse or better as it might. To these constant evils was added a

general famine, hunger piled upon misery. Such was the scarcity of grain, writes the abbot Guibert, that numbers of poor people tried to feed themselves on the roots of wild plants.

Jerusalem had been in the possession of the Saracens for 458 years; the oppression of the Turks which had now lasted for twenty years was little in comparison with the devastations of Hakem; but men's minds were now strung to such a key that when Peter entered France in this season of anxiety, gloom, and depression, to proclaim his divine mission, the people, suffering themselves, were touched with his pathetic stories of wrongs which lost nothing in the telling. Clad in a woollen tunic, covered by a mantle of coarse druggel, with bare arms and feet, and mounted on a mule, he traversed the country, calling the peasants from their watted huts, in the vaulted churches, in the market-places of the town, mounting the castle on the heights, his voice vibrating with emotion and broken with tears, he bade men of all degrees to assemble to rescue the tomb of the Redeemer from the infidels. The people crowded round him and overwhelmed him with gifts, which he distributed to those in want. He brought back unfaithful wives to their husbands, adding presents along with them and showed a wonderful authority, re-establishing peace and concord amongst those who were disunited. It seemed, Guibert tells us, that there was something Divine (*quiddam subdivinum*) in all he did or said. The people pulled hairs from his mule to keep as relics. Yielding readily to ideas, passing quickly from ideas to action, enthusiastic, vivacious France has the power of giving an impulse to the nations, as was seen in 1793, 1830, and 1848, and the thrill which Peter aroused in France vibrated over all Western Europe.

The Pope Urban, himself a Frenchman, now called an assembly at Clermont in Auvergne, in November, 1095; a vast gathering of nobles, priests, and citizens filled the town, or were encamped around. A throne was erected in the great square, from which the Pope addressed a numerous assembly. His speech has been reported by several writers who were present. After enumerating the cruelties which the faithful had suffered from the Turks and calling upon the assembled warriors to take up the cause of Christ, he quoted the words of Scripture: "He that loveth father and mother more than Me is

not worthy of Me; and he that loveth son or daughter more than Me is not worthy of Me. And he that taketh not his cross and followeth after Me, is not worthy of Me. There is no man that hath left house or brethren, or sister, or father, or mother, or wife, or children, or lands for My sake and the gospels, but shall receive an hundred fold now in this time, and in the world to come life everlasting." At these words the great assembly cried with one voice "*Dieux le volt!*" ("God wills it"). "No doubt," resumed the orator, "it is the voice of God. Christ comes from his tomb and presents to you his cross."

No one in that frantic multitude dreamed of the unutterable woes that were to follow these false and foolish words, of the myriads that were hurrying to find nameless graves on their eastward way, or to feed the jackal and the vulture, their bones to whiten in the valleys of Asia Minor. Unaccustomed to think on all the higher matters of religion and policy, they yielded to the current of many voices. It was what the French call *folie communiquée*, the impact of a dominant idea upon an impressionable nervous system, passing from mind to mind.

The Pope told all who vowed to set out for Palestine to wear upon their tunics or mantles the figure of a cross. To all who went to the Crusade the Pope granted a remission of sins. If they never reached Jerusalem, they were sure to get to heaven. Urban visited other towns in France to spread the enthusiasm, and the clergy everywhere took up the message. Once aroused, there were many means used to keep the feeling warm.

Excommunication was threatened against those who broke their vow, having once worn the cross, and an anathema was pronounced against all who should do the smallest injury to the wives, children, or property of the Crusaders. And so pilgrims, selling their goods and chattels for any sum, gathered from every village and homestead, bands growing into crowds, carrying along the people on the way with their increasing momentum, debtors freeing themselves from their creditors, criminals escaping from justice, freebooters willing enough to gain salvation by plundering those in the way and slaughtering the Saracens in Syria—all went to swell the multitude, which, like a swarm of ants without rank or rule, pushed in one common direction, in the expectation that the God who had fed the children of Israel with manna in the wilderness and caused

water to flow out of the rock would help them through the perils and toils of the way.

The princes and counts who had put on the cross, familiar with warfare, required some time to prepare, but the common people could not wait. You might see the peasants shoeing their oxen like horses and yoking them to their two-wheeled carts, on which they put their slender stores and their little children, who when they came to a castle or a town eagerly asked, "Is this Jerusalem?" A rude multitude of from 80,000 to 100,000 persons of all ages and sexes took the road through Lorraine, with Peter the Hermit as their guide mounted on his mule. A knight, Walter the Pennyless, led a vanguard of fifteen thousand men with only eight horsemen through Germany. The unexhausted charity of the districts through which they passed supplied their wants so far; but when they came to Hungary the irruption of a disorderly crowd was regarded with alarm. But the Huns were not prepared to stop the torrent, and so Walter managed to struggle through the country. In Bulgaria the needy pilgrims, seizing upon everything they laid their hands upon, were set upon by the inhabitants of Belgrade, who slew many and put others to flight. Famished and footsore, they arrived at Nissa, where they were hospitably received by the Greek Governor, and after a miserable march of two months the survivors reached the neighbourhood of Constantinople.

The second swarm, French and Germans, bearing Peter with them, soon came to blows with the people of Hungary. According to the Abbot Guibert the provocation came from the pilgrims; forgetting the hospitality with which they had been at first received, they set fire to the stacks of corn, outraged the women, and assaulted the men. No one thought of paying for what he needed; they lived as they could by pillage or murder, boasting that they would do as much to the Turks. They set upon the town of Semlin and massacred 4000 of the inhabitants, whose bodies, whirled down the Danube, scared the people of Belgrade, who fled from the town. Hearing that the King of Hungary was approaching with an army, the throng hurried onwards to Nissa. Here they provoked the inhabitants by their lawlessness and incendiarism. The garrison issuing out from the walls set upon their rear and carried away 2000 carts with their baggage. Peter, who had

struggled in vain to check the disorders of the crowd whose passions he had excited, now turned back to plead with the Governor of Nissa, but while he was negotiating some of his insubordinate host attempted to enter the town by escalade. Without proper leaders, and without discipline or concert, they were soon repulsed and put to flight, many slain, and most of the women and children, the rest of their horses and cattle, and the chest which contained the alms of the faithful fell a prey to the Bulgarians. Peter passed the night upon a hill, whence trumpets were sounded to call together his dispersed host. In a few days he could count 30,000 pilgrims; 10,000 had perished in the battles near Nissa. Saddened by defeat and famine, they made their way to the frontiers of Thrace, where the envoys of the Greek Emperor Alexis met them, rebuking their disorders and announcing his clemency. Peter, now humbled by reverses, wept for joy when he learned that they had found grace with the Emperor.

The enthusiasm of the Crusaders did not pass to the Greeks, who would not recognise the claims of the Roman pontiffs. Curiosity led the Emperor to grant an audience to the hermit, although he refused to admit his followers within the gates of Constantinople.

A third multitude of about 15,000 persons hurried after Peter's host; led by a German priest called Gottschalk, they made their way to the frontiers of Hungary, where they were guilty of great disorders. The military forces of the kingdom were mustered to oppose them. Many of them were slain, others driven back, and only a few made their way through the hostile country. Yet, instead of being checked or exhausted, this crusading movement again sent a new shoal marching towards the Holy Land. Pilgrims, amounting, it is said, to 100,000 persons with 3000 horse, gathered from France, England, Flanders, and Lorraine, led by a dissolute nobleman called Emicon. Indulging in the most flagrant immoralities, they fell upon the Jews on the Rhine and murdered all they could reach. Although some of the higher clergy had the courage to condemn these cruelties, the dire spirit of persecution against this unfortunate race has survived in Christian countries to our own day.

This ignorant and brutal multitude, causing the people of the districts they traversed to fly in terror, carried before them a goat and a goose to which they gave a superstitious veneration.

Finding the gates of a town called Mersebourg, now Altenburg, on the Leytha shut against them, they laid siege to the place, but were repulsed with great havoc. The survivors who refused to turn back were followed by the Bulgarians, who massacred the pilgrims wherever they found them. Only a small number of this disorderly host was able to reach Constantinople.

In sight of the shores of Asia were now assembled the survivors of these disastrous expeditions. Reinforced by pilgrims who had come by sea from Pisa, Genoa, and Venice, they amounted to 100,000 persons. Alexis, a crafty and selfish politician, sensible of the advantage of utilising so many warriors against the Turks, advised them to wait till the more regular army of the princes should arrive. He directed that they should have provisions on paying for them, but as most of the pilgrims were now destitute of money, we need not wonder that they soon began to lay their hands upon everything which they could reach. Impatient of their excesses, he caused the whole host to be ferried across the Bosphorus. Making little distinction of the Christian subjects of the Greek emperor and the Moslems, thus they pushed on towards Palestine, soon to be overwhelmed by armies of the Turks, who put most of them to the sword and bore away some into captivity. Walter the Pennyless, worthy of a better army, died fighting. Peter with a few survivors returned to Constantinople, not abashed by the fate of the wretches whom he had led to destruction, which he attributed to their own misdeeds.

When we consider the utter folly of these expeditions to capture a distant city with a tumultuous horde without a base, and without provision for the needs of so large a multitude, we should bear in mind how much these credulous enthusiasts counted on miraculous aid. They had perished ere the better organised army conducted by Godfrey of Bouillon, St. Stephen of Blois, the dukes of Normandy and other chiefs, by divers ways, reached the narrow straits which separate Europe from Asia. Here their army gathered in the spring of 1097, amounting to 600,000 fighting men, besides priests, monks, women, and children. No more than 40,000 of this great host fought their way to Jerusalem, which they took by storm. Foulcher de Chartres tells us that if all those who took the vow and left their homes for the Crusade had reached Nicaea, no doubt there would have been six millions of combatants.

The massacre of 70,000 of the inhabitants, Moslems and Jews, was the fulfilment of the crusade preached by the Pope two years and eight months before, a time rife with such toil, hunger, thirst, death agonies, and slaughter, with religious delusions and frauds, as the world had never before heard of. The cruel murders of unresisting victims, continued for a week, are narrated with hideous frankness by eye-witnesses. "Not even a sucking child, male or female, escaped from the hands of the slayers." The Archbishop of Pisa, in a letter to the Pope, tells that in the portico of the Temple of Solomon they rode up to their horses' knees in the vile blood of the Saracens. Three hundred Saracens who took refuge in the Mosque of Cemar were murdered, in spite of the entreaties of Tancred, who had promised them quarter and sent his banner to cover them.

The sensation through the Mohammedan countries was deep and strong. The militant spirit of Islam was much heightened, and it was only through continual reinforcements of fresh crusaders from the West that the Frankish kingdom of Jerusalem was defended for eighty-eight years. The recovery of Jerusalem by Saladin in 1187 caused a revival of the crusading spirit in Europe, and a great army led by King Richard of England came in sight of the Holy City without being able to take it.

How deeply the popular mind was affected by the loss of Jerusalem may be gauged by the "children's Crusades," events unparalleled in history. The first of these was set agoing by a shepherd boy of twelve years of age in the Orleannois. He gave out that Christ had appeared to him, saying that God was no longer to leave the task of rescuing the Holy Land to knights and warriors. It was to be carried out by the children. They were to go to the sea, which would divide to let them pass.

Processions were formed with crosses and banners, and shouting and singing which had an irresistible attraction for the children. About 30,000 of these young people, most of them under twelve, and comprising many girls and some ecclesiastics, assembled at Vendome. Neither the entreaties of their parents nor the orders of the King of France availed to stop them. Assisted on the way by credulous and compassionate people, many of them made their way to Marseilles,

The Possibility of the Limitation of Lunacy by Legislation.⁽¹⁾ By Dr. M. J. NOLAN, District Asylum, Downpatrick.

THE enormous increase in the number of registered lunatics and the correspondingly heavy burden cast on the taxpayers has at length caught on to the attention of the general public. This desirable end has been attained, not so much by the efforts of responsible officials as through the irresponsible editors who cater for the sensationalism which the satiety of modern life so eagerly demands for its renewed gratification. Blue books are peculiarly unattractive and inaccessible to the man in the street, who, however, finds the highly-flavoured information always at hand in the columns of the daily press much more to his taste. Yet his opinion, which, after all, when sound constitutes that most valuable national asset, healthy "public opinion," is formed on the information so palatably administered and so readily absorbed. From this we learn that the seeds of knowledge carefully saved in special cultivated fields of labour are scattered broadcast in loose and general terms. That they fructify, however, is certain, and it then behoves us to cultivate the harvest of opinion in order that we may turn it to good account in the public weal. We must, however, weed out all accidental stuff, and take care that the golden grain alone is digested by the public. Now, if this new knowledge of the incubus of insanity is to be turned to any good account it would seem that while it still germinates it should be most carefully handled by those best qualified to deal with its useful application: a consensus of skilled professional opinion on a purely professional matter should, if possible, be formulated and submitted to those whose duty it is avowedly to safeguard the national public health. In this consideration the first point which naturally arises is whether or not the prophylaxis of lunacy comes within the purview and scope of practical politics. Such a consideration fortunately admits of little debate, for while one hesitates to place full belief in the specific cure of ills by means of Acts of Parliament, yet it must be thankfully admitted that, in every case where the State interfered in the interest of the public health, much has been done for the arrest of bodily ailments; the

consideration of the subject. Lunacy is as incidental to life as decay ; there is now, and ever will be, an irreducible minimum of mental degeneration—not least of the old thousand ills which is the entailed heritage of mankind. The normal standard of mental soundness may vary in different nations, and be modified in succeeding generations, but there shall be in all time a percentage of relatively mentally unfit.

The second group of contributory causes is associated, directly or indirectly, with the individual considered in his immediate relationship to his personal environment. These causes are hygienic and moral, and to a large extent they may be favourably affected by socialistic legislation. It is to the practical application of such measures we must look for some measure of success in staying the havoc caused by ever-increasing insanity. These measures may be said to be of two classes—general and specific. General remedial legislation for the masses is already a largely accomplished fact ; much has been done to diminish stress and to place individuals in better surroundings ; general measures have been formed to safeguard physical health, to alleviate suffering, to promote education, to encourage industry, and to regulate labour. But with regard to the specific measures, the immediate subject of consideration, it may be said that so far as the prevention of insanity is concerned practically nothing has been undertaken. Legislation, it is true, cannot stop death, but it can very materially influence the death rate ; likewise, if powerless to crush out insanity, it may nevertheless do much to arrest the ravages of the living death which results when rational conduct is replaced by irresponsible action. Physical death ends all alike, in every class ; with the closing of the bronze gates of the millionaire's mausoleum and the tramping of the pauper's grass patch in the union graveyard there is an earthly end. In the mental death, however, the body still lives, demanding sympathy and support for years which often exceed the number of the allotted span ; it remains in psychical decomposition in its corporal shell, the fearsome tenant of a haunted house. The spreading asylums throughout the length and breadth of the land contain a hecatomb of such victims, and while these institutions speak for our humanitarianism they are also as many colossal monuments of national decay. Possibly the artistic New Zealander may include a sketch of the vestige of one of these great

county institutions as a memorial of the manners and the follies of the bygone twentieth century—an architectural megatherium exemplifying the extinct method of dealing with insanity in times that in the reflected glow of retrospect may be regarded by later generations as “good,” however “bad” they may be considered by those who live in them.

To return to our subject, the all-important fact remains that we do live in the present, and there is every reason to think the times are out of joint, so far as lunacy and our treatment of it is concerned. Our present system, if, indeed, our inconsequent efforts can be so dignified, is in a sense small, and such as it is, its day in the life-history of the country is nearly done—

“Our little systems have their day,
They have their day and cease to be.”

The mere housing and curing and treating of lunatics, however successful and laudable it may be, is surely but a small part of the handling of the great problem of increasing rational mental instability. The reproach, so often drawn as a red herring across the path of investigation, that the medical world has failed to determine the microbe of insanity, is an unworthy method of avoiding a much dreaded task. Science still falters at the solution of simpler and more obvious facts. We are even yet awaiting the botanist to tell us how the sap rises to a great height. We know that the zoologist still hesitates to “place” some of the lower forms of animal life; indeed, it is but in our own time the familiar barnacle has passed from the ranks of the Mollusca to the more correct company of the Crustacea—not until embryology gave the key to the secret of development. The “higher criticism” on points of “simple faith” still engages the learned researches of theologians. Matter and “mind stuff” are still under discussion, and how far from or how near to the solution we have arrived may be deduced from the following recent statements of one of our ablest investigators: “The student of mind finds that the phenomena of mind are largely, if not altogether, dependent on the phenomena of matter; or more accurately upon the phenomena of electrons or of æther, and those in time are not more than modes of motion, and therefore nothing more than perceptions. For of motion we know nothing more than that it represents a

continuous change of certain perceptions in their relations with those of time and space."

And so in all departments of knowledge we are seeking, and finding, and still carried on to further searches for finalities. Strange truly it would be were that most elusive of all subjects, the human mind, the first to fall before the scrutiny of its own imperfect introspective methods. The words of St. Augustine ring true in this connection: *Modus quo corporibus adhærent spiritus omnino mirus est, nec comprehendendi ab homine potest; et hoc ipse homo est*—"The manner whereby souls adhere to bodies is altogether marvellous, and cannot be conceived by man; and yet this union is man." Still, the searchings are far from useless; they carry us at least the length of a partial knowledge of our deficiencies.

So it is that though we cannot fully understand the basis of all the mental operations in connection with morbid mentality, we can to some extent indicate with approximate accuracy the preventable conditions which tend to mental decay and legislate accordingly.

Of all laws, those affecting lunacy must be calculated to operate with absolutely equal justice and uniformity on all classes and conditions of the people. In this connection it must be specially borne in mind that no disease is so materially influenced by the monetary circumstances, in its diagnosis and treatment, as insanity. With vast wealth at his command, a nobleman lately deceased could indulge in conduct which was so irrational in character that it would be interesting to speculate what alternative tendencies he would have exhibited if he had belonged to another class, and whither his "eccentricities" would have led him.

We do not hear very much of "borderland cases" or "incipient insanity" in connection with the poorer class, still we presume poverty is not proof against such psychological problems. With the pauper it is a simple question of sanity or insanity. Yet if we had enforced sterilisation of the unfit in active operation, it is more than likely that a gelded weak-minded, licentiously inclined Lazarus should grin and bear it, while an equally weak-minded, debauched, but gilded Dives could freely indulge an unbridled appetite.

We are all well aware that there are scores of persons of such conduct that were it not hedged in by the privacy that

be so easily cleared away, and, it may be said, nothing has resulted from this fearless attack on the unsoundness of much of our conventional and *laissez faire* methods. Possibly the attack was too forcible, and stunned where it was meant to stimulate. Perhaps, also, the author had too full a faith in mere legislative measures *per se*, forgetful that "laws have no magical, no supernatural virtue; that laws do not act like Aladdin's lamp or Prince Ahmed's apple; that priestcraft, that ignorance, that the rage of contending factions may make good institutions useless; that intelligence, sobriety, industry, moral freedom, firm union, may supply in a great measure the defects of the worst representative system." To sterilise, as has been suggested, all sufferers from leprosy, cancer, idiocy, cretinism, mental, cardiac, pulmonary, and renal disease, or, in fact, any specific disease liable to be passed on from parent to offspring, is certainly an unscientific proposal, and one of doubtful humanity, even though the proposition is palliated by the altruistic motive of improving the breed. One might as readily suggest a fresh deluge and an up-to-date ark of the most approved sanitary construction, suitably occupied by an ideally taintless brace of *genus homo*, fully equipped to re-people a new and better world. The suggestion would have as much prospect of accomplishment.

At the same time, it must be admitted that there is scope for much useful legislation of a kind specially directed to the prophylaxis of insanity. Nor is it very difficult to outline the aims of such much needed measures; the subjoined roughly cover the ground:—

The physical and mental education of children.

The instruction of adolescents in psychological laws.

The State regulation of prostitution.

The enactment of stringent temperance laws.

The registration of the mentally unfit.

The prohibition of early and consanguineous marriages and the marriages of mentally unsound persons.

The appointment of a Minister of Public Health (matters dealing with mental disease to get adequate recognition).

The establishment of a State Laboratory for Investigation of Mental Pathology.

Such an armament of legal measures should effectively direct its broadsides against the faulty conditions incidental to

slow, and the needs of the age adjust the regulator. The student of biology knows that though certain laws of life pervade all existence, still, there are many byelaws, not so easy to understand, which work out against the more general principles. It does not necessarily follow that all defectives are active detrimentals to the race—the deaf, the dumb, the deformed, and others so handicapped sometimes make creditable performances, and even bacteria have their uses.

On the other hand, we have had able advocacy for further development in our present methods of dealing with lunacy, "incipient insanity," "borderland cases" *et hoc genus omne*. Can we honestly say such methods, if adopted, will lead to a betterment of general national mental health, however much more effectual they may prove in relation to the individuals so treated? Will not all cases so successfully tided over the critical period become so many potential sources of insanity? Stress will surely tell again in later years when fresh responsibilities involving others have been entered on. Not one of the many proposed amendments to our lunacy laws is calculated to stem the tide of insanity; on the other hand, as pointed out, some lead directly to its still further increase. In such a dilemma it seems a difficult task to steer between Scylla and Charybdis; and the happy mean would seem to lie, not in a legislative campaign against existing insanity, of surgical extermination, or of protective incubation, but in decreasing the media which tend to promote insanity. Let each generation help at least to work out its own salvation. Let us in our time restrict the growth of the evil primarily, by persuasive tactics, and secondly, by coercion where milder methods fail.

The great pity of it all is that our present system reacts most injuriously on the best of our people; there is first a primary selection of the most physically and mentally fit for the greater and minor services of the State, and the persons so selected are subsequently exposed unnecessarily to syphilitic contagion—hence disease, sickness, worry, infected offspring. Likewise many of the industrial classes, the wage-earners, rush into early and improvident marriages which bear a progeny of ills every one of which constitutes an exciting cause of mental breakdown. So the most promising material of each succeeding generation is largely subject to deterioration and adds to the pre-existing residuum of the unfit, and

Insanity and Indicanuria (Indoxyluria): A Note of Criticism. By C. C. EASTERBROOK, M.A., M.D., F.R.C.P.Ed., Medical Superintendent Ayr District Asylum, N.B.

Two papers have recently appeared in the *Journal* indicating a causal relationship between indoxyluria, alimentary toxæmia, and melancholia. One paper, published by Arthur A. D. Townsend in January, 1905 (*Journal of Mental Science*, 1905, p. 51), is entitled "Mental Depression and Melancholia, considered in regard to Auto-intoxication, with Special Reference to the Presence of Indoxyl in the Urine and its Clinical Significance"; the other paper, published by Lewis C. Bruce in July, 1906 (*Journal of Mental Science*, 1906, p. 501), bears the title "The Clinical Significance of Indoxyl in the Urine."

Dr. Townsend's *method of investigating* this problem is as follows in his own words: "The test that I have used for demonstrating the amount of indoxyl present is that known as Jaffé's. The urine is mixed with an equal quantity of strong hydrochloric acid, by which means indoxyl sulphate is decomposed and indoxyl liberated. A very minute amount of calcium hypochlorite is now added (great care is necessary to avoid excess), oxidation of the indoxyl takes place, and indigo blue is formed. The mixture is then shaken up with chloroform, which takes up the indigo blue, the depth of colour indicating the amount of indoxyl present. The colour reaction in normal urine is very slight, the faintest tinge of blue; frequently it cannot be obtained. I have always used Jaffé's test, as by keeping to one method uniformity of result is more easily obtained. To indicate the amount of indoxyl present I use the terms (1) faint trace, (2) moderate excess, (3) large excess—No. (1) a faint blue colour, as appears in the most normal urines; No. (2) a brilliant bright blue colour; No. (3) a very deep blue, in some cases almost approaching to black."

Dr. Townsend's *conclusions*, based on observations by this method in sixteen cases of melancholia and thirteen cases of mania admitted into Barnwood House, are as follows: "So far as my investigations have been carried they have, briefly to recapitulate, enabled me to make the following deductions: 1st, that in depressed states indoxyl is excreted in excess; 2nd, that patients excreting indoxyl in excess exhibit symptoms and

health, I am of opinion that any shade of blue over medium or cobalt colour is a pathological excess."

Dr. Bruce's *conclusions*, based on observations by this method in twenty-seven cases admitted into Perth District Asylum, are as follows: "As the result of these observations I conclude (1) that there is some connection between this symptom of the presence of excess of indoxyl in the urine and the mental symptom of depression; (2) that, to judge by the result of treatment in one of the cases, the indoxyl may have been the chief causative factor in the mental disease; (3) the evidence is in favour of the indoxyl being the cause of the depression rather than the depression being the cause of the presence of the indoxyl; (4) the fact that four typical cases of melancholia had no indoxyl in the urine appears to be evidence that we cannot regard all cases of melancholia as suffering from indoxyl poisoning; (5) that the presence of an excess of indoxyl in the urine means a loaded alimentary tract, which should at once be treated by the use of large enemata—two or three pints of normal saline solution by preference—and the placing of the patient on a purely milk dietary or a milk and farinaceous dietary."

Dr. Townsend, in short, being struck by the frequency of excessive indoxyluria in his cases of melancholia, concludes that in these cases the intestine is in a condition favourable to the formation of toxins and the establishment of toxæmia, and that the toxins so formed may be the primary causative factor of melancholia. He, however, states in an earlier part of his paper: "I may here remark that all the cases that I have examined came under my care after the mental symptoms were fully established, and thus I have not had the opportunity to observe whether the putrefactive process preceded or followed the mental symptoms; any opinion that I have formed regarding this most important question is the outcome of my observations during the progress of the cases."

Dr. Bruce boldly asserts that the toxin in question is indoxyl itself. "I take for granted that there is no question as to the existence of the substance indoxyl or to the fact that it is a toxic substance," he says, and he practically concludes that most cases of melancholia are cases of indoxyl poisoning.

Are the conclusions of these two observers to be accepted? Are their observations in accordance with one's own ex-

indican in the urine in the first place to fix the amount of proteid in the food and secure the regular daily action of the bowel. This is most satisfactorily done by confining the patient to bed during the period of observation, putting him on a fixed mixed diet containing proteids in moderate amount, and securing at least one alvine evacuation daily by means of a sufficiency of fresh vegetables or fruit in the diet prescribed or by the use of simple aperients or simple enemata if necessary. With the patient brought thus into a condition of what may be called intestinal equilibrium, the persistence of an excess of indican in the urine would be pathological. Such indicanuria, however, would not necessarily signify excessive proteid putrefaction in the intestine; for indicanuria may arise from proteid putrefactions elsewhere in the body—for example, fœtid suppurations, putrid phthisis, or gangrene of lungs—which factors must therefore be eliminated before coming to a diagnosis of morbid intestinal putrefaction. If, however, the latter condition is suspected, and if the observations on the amount of indican in the urine are to be taken as a measure of the intestinal proteid putrefaction, control observations should be made of the fæces, in which the parent substance, the indol of the gut, is largely removed. The degree of fœtor and flatus of the stools roughly indicates the extent to which intestinal putrefactions are going on. The indol and closely allied skatol (methyl indol) of proteid origin give to normal fæces their characteristic unpleasant putrescent or "fæcal" odour; they are separable from the fæces by distillation and are soluble in water, and addition of fuming nitric acid to their aqueous solutions gives a red colour (indigo red) with indol and a milky turbidity with skatol. Besides this indol and skatol, the fæces contain volatile fatty acids, ammonia, and the intestinal gases (marsh gas, sulphuretted hydrogen, hydrogen, nitrogen and carbonic acid), all of which are bacterial decomposition products of the proteids, carbohydrates, and fats of the food in health. Adolf Schmidt has shown that an estimation of these gaseous fermentations can be made, on a fixed diet, by incubating for twenty-four hours five grammes of the fæces placed in a Strasburger's fermentation tube. The gases formed cause the water to rise in an indicator tube to a height proportional to the activity of the fermentation; and further, if the gases have a putrid odour and the fæces are alkaline, the fermentation

is mainly proteid, whereas the rancid odour of butyric acid and an acid reaction indicate a fermentation mainly of carbohydrates.

Given, then, a daily fixed supply of proteid in the food, given a daily action of the bowel, and given controlling daily observations at least of the degree of foetor and flatus of the stools, the observations on the urine itself, in a metabolic inquiry of this nature, must likewise be daily and continuous, maintained for a week at a time at least, and repeated subsequently on similar lines; and obviously the urine of twenty-four hours must be collected daily during the period of observation, and the amount of indican in each day's urine estimated by a reliable process. The only precise method of estimation is a quantitative one, such as Salkowski's colorimetric process. Jaffé's test is, properly speaking, a process for the detection rather than the estimation of the indican; and, further, it is subject to fallacy if albumen is present in the urine, for Halliburton has shown that strong hydrochloric acid gives a blue colour with albumen, which therefore, if present, must be removed before the test is applied. If, however, the amount of indican is to be gauged by the depth of blue yielded by Jaffé's test, it is not only advisable to have a series of standard tints of indigo blue solution for comparison, but it is also necessary to insure that a fair comparison is being made between the various samples of urine examined. For example, suppose that two patients happen to be excreting in the urine the same amount of indican, and that one patient passes 30 oz. of urine in the twenty-four hours and the other 60 oz. The former urine, containing a more concentrated solution of indican, will obviously give a darker coloration than the latter, and the wrong inference might be made that the former patient was secreting more indican. It is clear, therefore, that if the amount of indican in the urine is to be gauged by the depth of tint produced, the total daily urine must, by dilution or concentration, be brought to a standard bulk (say, of 60 oz.) before the test is applied. No reference is made by Dr. Townsend or Dr. Bruce in their two papers to the adoption of any of the precautions above described, and to my mind necessary in an investigation of this kind.

In examining a specimen of urine it has been my invariable practice, after noting its physical characters and reaction, to

begin the chemical analysis with the following test: About 10 c.c. of urine are heated to boiling point in a test-tube, and pure nitric acid is then added gently drop by drop down the side of the tube. This simple test, which is sufficiently accurate for ordinary clinical purposes, gives positive information as to the presence in the sample of urine examined of (1) an excess of urates, (2) an excess of phosphates, (3) an excess of chromogens, (4) bile, and (5) albumen (confirmed in doubtful cases by the picric acid test). The excess of chromogens is indicated by a violet or red colour, or a mixture of these, this coloration being due to the oxidation of the potassium indoxyl sulphate (indican) to indigo blue, and especially to its isomer indigo red. The first drop of nitric acid often gives the violet colour, and with succeeding drops the colour usually becomes red, and as drop by drop is added the red colour gradually reaches a maximum intensity and then begins to fade, and finally disappears. Nitric acid, in short, as acid decomposes the indican and liberates indoxyl, and as oxidising agent oxidises the latter to the red isomer of indigo chiefly; and as soon as all the indoxyl has been thus oxidised any excess of nitric acid added begins to oxidise the indigo red itself, and so discharges it. If excess of nitric acid is added at the start, any indigo red formed is at once decolorised, and so may escape detection. The above test is simpler than Jaffé's, and gives equally reliable information about the indican present in the sample. In many cases I have carried out both tests with the same urine, and found the results of the examination identical, the same urine giving with both tests either a faint reaction, or a moderate reaction, or a marked reaction as the case may be. Gowland Hopkins states that indigo red and indigo blue have the same physiological significance, and, quoting Rosin, points out that indigo red is more apt to form than indigo blue if heat is employed in carrying out Jaffé's test, cold favouring the appearance of the blue isomer and heat favouring the red. This probably explains the predominant formation of indigo red in the test above described. In applying the above test a faint turbidity sometimes appears, not after boiling the urine (and therefore not due to the presence of albumen or an excess of phosphates), but on the addition of the nitric acid, and possibly this is due to a higher oxidation product of potassium skatoxyl sulphate, which has the same significance in the urine as

indican. Some observers, following Brieger, state that there is a "skatol red" corresponding to indigo red, but Gowland Hopkins says that a "skatol red" is never obtained from human urine, and in a private communication he tells me that there is now no proof of a skatol (as distinguished from an indol) derivative appearing in the urine at all. Both in Jaffé's test and in the test above described a reddish colour may appear, due to urorosein, but addition of chloroform on cooling the urine takes up the indigo red, but not the urorosein, and so serves to distinguish the two substances. The constitution and significance of urorosein are unknown, but it is thought by some to be of intestinal origin also.

During the past fourteen years I have examined with the above test the urines of approximately 500 "fever" cases, 500 ordinary "medical" and "surgical" cases, and 2000 "mental" cases, at the time of admission of these patients into hospital or asylum. As before mentioned, I frequently obtained a marked indican reaction in the urine of these patients which disappeared after the action of calomel and magnesium sulphate or other aperients, or enemata, and therefore probably signified nothing more than constipation, with its attendant excessive putrefaction. The indicanuria was often marked in the fever patients, and specially so in typhoid cases admitted with meteorism and a loaded bowel. Amongst ordinary hospital cases the indicanuria was met with in a great variety of conditions, and seemed to have no significance apart from that of constipation. Similarly amongst asylum cases on admission I have obtained a marked indican reaction in many varieties of insanity, including melancholia, mania, delusional insanity, stupor, dementia, congenital insanity, alcoholic insanity proper, and general paralysis. Many of these patients after an interval of asylum residence, owing to the failure of general therapeutic measures, were given special treatment with animal extracts and other remedies, during the carrying out of which I made special observations of the apparent effect of these remedies on the metabolism of the patient. The patients were consequently confined to bed, and put on a fixed mixed diet, and the action of the bowels, the amount of sleep, and other functions were regulated as carefully as possible, so as to bring about metabolic equilibrium before a commencement was made with the administration of the drugs in

question. Periodic observations were made on the urine, and in many cases daily estimations of the total solids, urea, and phosphoric acid excreted, and an excessive indican reaction if present was always noted. In the great majority of the cases, probably owing to regulation of the bowels prior to confinement to bed for this special treatment, there was no excessive indican reaction. In some cases of thyroid treatment, with large doses of the dried and compressed gland tissue, indigo red and uroscopin reactions were increased during the administrations, possibly owing to the extra proteid supply. The only cases in which indicanuria persisted amongst the patients whom I had under special observation in this way were certain cases of general paralysis, exhibiting marked mental confusion and resistiveness, and other confused and stuporose patients who also exhibited marked passivity, immobility, and resistiveness, and a certain amount of emotional depression. In these cases there was a tendency to marked constipation or to diarrhoea, with loose fœtid stools. Various so-called intestinal antiseptic remedies were tried in these cases, but without avail, and in those which ended fatally, both the general paralytics and the stuporose patients, distinct catarrh of the intestine with atrophic changes was found *post mortem*. In these cases there was distinct evidence of excessive intestinal putrefactions, and probably an accompanying toxæmia from the bowel; but in the earlier stages of these cases intestinal symptoms were not present, and there was no history of gastric or intestinal derangement prior to the onset of the general paralysis or stupor.

A perusal of Dr. Townsend's cases shows that in all his cases of melancholia except one (No. 16), in which, however, the motions are described as very offensive, the bowels were constipated and usually "very costive"; and this suggests that the indoxyluria observed was attributable to constipation. A perusal of Dr. Bruce's cases similarly suggests that the indicanuria observed was associated with and explained by constipation; and naturally the indican in the urine in his cases was not only reduced, but apparently temporarily dispelled by his effective method of emptying the large bowel by means of copious enemata. The indoxyluria met with in their cases seems to me, therefore, to have no significance in melancholia apart from the constipation which is so frequently met with in

indication of the extent, and possible toxic significance, of the bacterial putrefaction of proteids which normally occurs in the intestine.

Recent Medico-Legal Cases.

REPORTED BY DR. MERCIER.

[The Editors request that members will oblige by sending full newspaper reports of all cases of interest as published by the local press at the time of the assizes.]

THE TOWNSHEND CASE.

THIS was an inquisition held to determine the competence of the Marquis Townshend to manage himself and his affairs. It was held before Mr. Justice Bucknill and a jury, and lasted ten days. It attracted a great deal of notoriety in consequence of the introduction of various side issues into the case. The history of the case is long and complicated. The Marquis, now a man of thirty-nine years of age, had been estranged from his family, and had been living in the house, and much under the influence, of a clergyman named Robins. By the influence of a clerk in Somerset House named Dunne, and a woman of title, a Lady Fawcett, who bargained to receive commissions for their services, the Marquis was introduced to a Mr. Sutherst, who was at the same time a barrister and an undischarged bankrupt, but who lived in an expensive way and was believed to be a wealthy man. The object of the introduction was the marriage of Lord Townshend to Miss Sutherst, and after various negotiations, of which Lord Townshend was ignorant, the marriage duly took place. It was not long before differences arose in this strangely constituted family. The Marquis found that Mr. and Mrs. Sutherst assumed, as he thought, an undue authority in his household. They invited to his table persons to whom he objected, and, on his making his objections known, his mother-in-law slapped his face. There was another source of difference between the Marquis and the Marchioness of a graver character. The Marquis's position became so intolerable that he left the house and rejoined his old friend Mr. Robins, who lived at Brighton. From thence he was induced by the Suthersts to return to the house in London. Dr. Milne Bramwell was consulted, and subsequently Dr. Savage also. They

quite up to the normal standard of intelligence. Dr. Blandford was practically of the same opinion. Much evidence was given in the course of the ten days of the trial to show that the Marquis was easily influenced by other people, but no conclusive evidence was given that he was at the time of the trial insane in the ordinary sense of the word. In the event the jury found a special verdict, that he was of unsound mind so as to be unfit to manage his affairs but not so as to be unfit to manage himself.—The *Times*, July 25th and following days. Mr. Justice Bucknill.

This case attracted the attention of the whole country, from the social standing of the parties concerned; and, as already said, a great many side issues were introduced. Its medico-legal interest is, however, considerable. If Sub-section (d) of Section 116 of the Lunacy Act of 1890 had been somewhat differently worded, there would have been no need for this inquisition. The sub-section in question provides: "That the powers and provisions as to management and administration of the estates of lunatics apply to every person not detained as a lunatic and not found a lunatic by inquisition, in regard to whom it is proved to the satisfaction of the judge in lunacy that such person is, through mental infirmity arising from disease or age, incapable of managing his affairs." It was proposed by the legal advisers to the Marquis that proceedings should be taken under this section, but as I was consulted in the matter, I pointed out that the Marquis's mental infirmity did not arise from disease or age, but was congenital, and that therefore he was excluded from the benefit of the section. The point had been considered by the College of Physicians in their report to the Royal Commission on the Care and Control of the Feeble-minded, and in that report it was pointed out that a class of persons of unsound mind who are entitled to the benefits of the section are excluded from such benefits by the insertion of the words "arising from disease or age." The Marquis Townshend is a man of ordinary intelligence. He is quite capable of holding his own in general conversation. He is well read; he is well acquainted with the extremely complicated affairs of his own estate, and intellectually he is quite as competent to deal with them, with the assistance, of course, of the necessary expert advice, as any ordinary man. His weakness is what is termed in Scotch law "facility." That is

March 7th, 1906. On March 9th he was in a public-house from three o'clock until seven, drinking and talking. Here he said to a commercial traveller, "I suppose you call yourself a commercial traveller? I think you are a detective." He then went to the landlady and told her not to disclose his secrets to this man. At seven o'clock he left the house with the deceased John Evans and went home with him. At nine o'clock he, Evans, and Mrs. Evans were heard talking loudly, and again at twelve o'clock (midnight), by passers-by. On the following morning Evans and his wife were found in the house with their throats cut, dead. Prisoner was missing. Search was made, and prisoner was found hiding among bushes in the neighbourhood. As soon as he saw the police he took out a knife, began roaring, rushed at the policeman, and tried to stab him. When charged with the murder on March 13th prisoner replied, "Good God! I have never seen the man." When asked "How is your head to-day?" (he had been struck on the head at the time of his capture) he replied, "I remember tapping the bottle on the road." On the same day he was seen by Dr. J. A. Crump, formerly Assistant Medical Officer at Buxton Asylum, who found no sign of insanity in the prisoner. Dr. J. G. Piggott, surgeon to Shrewsbury gaol, proved that the prisoner had been under his close observation for eleven weeks. He had not seen any signs of delusion or anything suggesting insanity. The prisoner had said to him, however, that he had been followed by detectives during the time that he was in London, that he was prepared to blow the detectives up with dynamite, and that they followed him in London but not in the country. Dr. Rambaut, Medical Superintendent at Bicton Asylum, examined the prisoner on four different days, and came to the conclusion that the prisoner was sane, but was shamming insanity. He had a dull and stupid appearance, and hesitated before replying. He was indefinite in his replies and frequently qualified his remarks. The prisoner informed him that he remembered walking from the inn with John Evans, the deceased. Mr. Griffiths (counsel for the prisoner): It is a very dangerous line for an expert to take. The Judge: Much too dangerous. Cross-examined, the witness admitted that the prisoner made statements which, if genuine, would have led him to believe that the man was insane. He said that the police had ill-treated him in London by whistling after

printed about him. There was a play in the Star Music Hall about him. He used to secrete razors under the lining of his clothes. When coming down to Wales he pointed out a man on the Euston platform and said, "That man is watching me." He used to go to Dr. Morgan Davies. He gave up going because, he said, "I have seen Dr. Morgan Davies write something down. He is going to make a report and have me put away." He told witness that he went to Wales to hide himself among the hills, where it would be difficult to find him. Several witnesses deposed to the prisoner telling them that he had been followed by detectives and that he complained of pains in his head. Dr. Percy Smith stated that he had examined the prisoner and it had never occurred to him for a moment that the prisoner was feigning. He had never heard of madness being feigned for two years continuously before the perpetration of a crime. He considered the prisoner was suffering from chronic delusional insanity. In summing up, the judge laid stress upon the fact that while Dr. Rambaut was of opinion that the prisoner was sane, he was not sure of this at the conclusion of his first test. Dr. Percy Smith, one of the most distinguished authorities on mental diseases, had no doubt whatever of the prisoner's insanity. There was also very strong evidence that prisoner had suffered from delusional insanity for a considerable time before the murder.—"Guilty but insane." On being sentenced the prisoner burst out: "It is a bloody lie. I am not guilty. Don't tell lies." He then had a violent struggle with the warders, in which the sides of the dock were broken down. He was at last carried off by the united efforts of six policemen.—Montgomery Assizes. Mr. Justice Sutton, June 1st. The *Montgomery Express*, June 5th, 1906.

It seems that Dr. Rambaut could not have been acquainted with the prisoner's history. He must have gone entirely on the result of his examination. It is a wise and praiseworthy precaution to go to such an examination prepared for all possibilities, and particularly to bear in mind the possibility of malingering. The general intelligence, in ordinary matters, of persons who suffer from chronic delusional insanity is not usually impaired; and when a person of middle age, who has been for years engaged in trade, is unable to recognise a florin and a halfpenny, and says that ten

is a simple doctrine of perfection. It expects that every man should perfectly obey the laws of nature, and then no other laws or government would be required. This, of course, only demands that all mankind, from childhood to old age, should be perfect.

Proudhon insisted especially on complete individual liberty, with which all laws and government of every kind are an interference. Most of his followers have demanded the abolition of personal property, and have only admitted the principle of contracts on the basis of their being perpetually revocable. Bakunin, the Russian anarchist leader, advanced to the point of insisting that it was wrong merely to teach this doctrine, but right to attempt to overthrow all law and government by every possible means. Between Proudhon and Bakunin there are innumerable shades of anarchist opinion.

That any of the modes of advancing to an anarchy in its original meaning would, however, lead to anarchy in its popular signification, of a chaos of social order, is obvious to the vast majority of mankind. That the anarchists do not see it is probably due to their violent emotional prepossessions, emotion always tending to inhibit reason.

Anarchy has always been advocated by men who really had, or believed that they had, a grievance against the social order as it exists: and this feeling is expressed in the resentment against interference with personal freedom of Proudhon and the malevolent hatred of all government of Bakunin.

The writings and oratory of the anarchists display this strong emotionality, but it is especially in the meetings and debates of the less intellectual anarchists that the speakers vie with one another in the violence and virulence of their expression of hatred of law and order. These meetings, especially where a female element introduces additional excitement, are veritable orgies of emotionalism, with hate as its keynote.

The habitual association of emotion with a subject tends, as emotion always does, to reduce the reasoning faculty in regard to it. This in the convinced anarchist of intelligence results in mere crankism, while in those of poor mental endowment it results in a concentration of attention, an obsession, or monidism, which not infrequently culminates in action. Other elements, such as the desire for notoriety, etc., no doubt come into play in those still more feeble-minded.

The homicidal acts of the anarchist criminal are certainly to be regarded as the outcome of unsound mind. The emotional inhibition of reason which prevents the anarchist from recognising the irrationality of his theory still more fully prevents him from seeing the irrationality of his act, the result of which must always be diametrically opposed to the end in view, since if these acts were frequently successful society would be roused to exterminate anarchists rather than to accept their doctrine. The mental unsoundness is sometimes shown in the utter callousness to the injury of others, whose wrongs could only be more fully inflame public feeling in other ways.

If, however, it be admitted on this, or other grounds, that the anarchic homicide is insane, is he therefore to be deemed irresponsible for the crime ?

Here opinions may differ; but if it be considered that in most cases the individual has indulged in emotional debauchery, very much as drunkards indulge in alcohol, and that the mental state has been therefore to a large extent self-induced, the emotional debauchee, even more than the alcoholic drunkard, should be held responsible for his acts.

The further question also arises whether the Bakunin school of anarchists who incite to homicide in speech and writing should not be treated as persons inciting to crime rather than as politicians. These persons urge a war on all social policy, and may therefore be considered as beyond the bounds of politics.

Repression of the freedom of speech or opinion is contrary to our convictions, but we have laws of libel for individuals, blasphemy laws, and legal restrictions of indecency; why not have a limitation of anti-social utterances ?

The argument of expediency, that repression of public expression only leads to the formation of more dangerous secret societies, does not appear to apply to anarchism; for nothing could be more dangerous than the form of this society, which exists secretly while fostered and recruited by the more ostensible and less extreme anarchist associations.

Such considerations would appear to make it desirable that the crime-preaching anarchist should be punished for inciting to crime, and that in all cases in which lunacy antecedent to anarchism could not be proved the anarchist should be punished for his criminal acts.

Lunacy Law Reform.

A Royal Commission on Lunacy would seem to be the most probable outcome of the many expressions of opinion that are finding vent in the press. Judging by the general character of these, it would appear to be advisable that it should be preceded by a commission of another kind, to ascertain whether the public is really *compos mentis*.

The great increase of lunacy is our constantly recurring note of alarm; and no amount of explanation can make the public comprehend that this accumulation in asylums is almost entirely due to the four shilling per week capitation grant which was enacted to obtain the favour and votes of the Boards of Guardians, and that these stupendous institutions are not the outcome of necessity, but are monuments of the folly of legislating for party purposes.

The Medico-Psychological Association at the time that this great crime was perpetrated strongly protested, and vigorously urged that the money grant should be applied to the maintenance of asylums and their staffs. This would not have appealed to the Boards of Guardians, but it would have made the asylums more efficient, and would have prevented their usefulness being interfered with by the enormous influx of imbeciles and senile cases, who might have been as well cared for in other ways. The boarding-out system might also have been developed instead of being absolutely arrested.

The national conscience, therefore, should not indulge in self-gratulations in pointing to these vast asylums as evidence of its abounding benevolence, but remember that in very truth they are merely stupendous monuments of the folly of legislation in the momentary interests of a political party. They are the legacy of a party move that was both a crime and a blunder.

Private Asylums.

The sea-serpent and great gooseberry season has again resuscitated a correspondence in the daily papers on the private asylum question.

Those members of the specialty who are thus attacked are, from their position, unable to reply to the baseless abuse that is often directed against them, and knowing the popular pre-

Part II.—Reviews.

Principia Therapeutica. By HARRINGTON SAINSBURY. London Methuen. Price 7s. 6d.

The administration of drugs has hitherto produced results of limited value in the treatment of mental diseases. Perhaps this has had its advantages, for every careful medical officer to an asylum has had many opportunities of watching what might be called the natural course which disorder follows.

The book under review is most pleasantly written, it is characterised by sound sense, and is replete with pleasant literary ornament.

Its merit may be recognised by the fact that anyone taking it up casually is not likely to put it down till it is finished, and he will re-read it with pleasure and profit from cover to cover.

It is a philosophical treatise, not on the thousand and one drugs, but on the true principles which should be followed in treatment. The author is no pessimist, but he recognises the danger in doing either too much or too little. In the introductory chapter there is a dialogue between the pathologist, who is inclined to say, "Here is the dead body, what have your drugs done?" and the physician who was able to point out that though he could not cure a diseased organ he was able to call up reserves from other organs to prolong life.

The chapter in the balance on health and disease is full of suggestive ideas, and then comes a chapter headed "*Primum non Nocere*," which certainly should be considered carefully by each of us. The old days of chemical restraint have to a great extent passed, but still the general practitioner is often inclined to give drugs to produce sleep, forgetful that the sleeplessness may depend on some removable bodily cause, and that the mere production of sleep may after all be adding to the original trouble.

As Wilks, many years ago, said, hypnotics seemed to him to be like graduated prize-fighters, capable at a blow to produce insensibility of various durations. Let well alone, but do not always be satisfied that you cannot assist Nature. "Take heed" (as our author says) "that we do no harm."

The limits of a review in the Journal do not permit us to go through the various chapters in order.

Dr. Sainsbury says, "Negative treatment at best, however important it may be, will not satisfy therapeutic aspiration," and he accordingly deals with the practical question of remedies, their selection and combination, and gives most sound general dietetic advice.

In the chapter on the order of treatment our author becomes poetical and brilliantly eloquent as to the effects of change of air and scene. Take this as an example: "The out-of-door life, be it in the open fields or on the high seas, or on the edge of the waters, brings a very quincunx of power to bear," to borrow an expression from the author of *Garden of Cyrus*. "The eye is spoken to in a thousand ways by diversities of light and shade, of colour and of form, and the ear

sometimes cases where the two diseases closely approach one another. A great variety of symptoms attend epilepsy: eccentricity, irritability, intense egotism, sleep-walking, double consciousness. To generalise these into one definition seems very difficult. The author presents as characteristic marked intolerance to alcohol, with periodical depression, extreme egotism, and recklessness. Their explosions of excitement seem based rather upon an inward feeling of unrest and a check to the workings of thought than to any outward motives. Attempts to escape are frequent, from what he calls home-sickness (*Heimweh*). Epileptic imbeciles have a character of their own. They are droll in their sayings and doings; their egotism is very pronounced; they are passionate and irritable. Whether epileptic lunatics have a distinctive character from those affected with other forms of insanity is a question which many of our readers have good opportunities for resolving; certainly Dr. Aschaffenburg's views deserve attentive consideration.

WILLIAM W. IRELAND.

Part III.—Epitome of Current Literature.

I. Anthropology.

Lombroso's Place in General Anthropology [Cesare Lombroso e l'Antropologia Generale]. (Reprint from *L'Opera di C. Lombroso*, 1906.) Morselli, E.

The recent Congress of Criminal Anthropology in Turin was the occasion of a special tribute to Lombroso. To a collection of essays published in this connection, Professor Morselli, who is well equipped for the task, has furnished a somewhat lengthy appreciation of Lombroso's work. Without dwelling on the minor but serious defects of that work—the over-hasty generalisations, the inaccuracy of detail, the lack of critical temper—or more than touching on his own dissent at many important points, the author is mainly occupied with the creative aspects of Lombroso's work in medicine and biology, and with his exact relationship to his predecessors, when regarded as “the founder of criminal anthropology and the initiator of the naturalistic and anthropological method in psychiatry and criminology.”

When Lombroso's scientific career began, half a century ago, anthropology was only just born, and Lombroso was practically the first to realise the immense significance of the new science and its applicability to every phase of human activity. It becomes possible, as he puts it, to study man with the methods of the physical sciences, to substitute facts for metaphysical dreams, and to bring the whole history of humanity into the circle of natural knowledge. In this spirit he proceeded forthwith to study the insane, the epileptic, men of genius, and, above all, criminals. Until in 1859 Lombroso published his notable essay on the experimental method in the diagnostic and medico-legal examination of the insane no one had realised the importance of anthropological data.

In the reform of psychiatry along naturalistic or bio-anthropological lines Lombroso had, however, a predecessor in Morel, whose famous book was issued in 1857. Morel's work also sprang from the conviction that medicine has points of contact with the whole history of the species, and that the study of the physical man cannot be separated from that of the moral man. But practically Morel almost entirely ignored somatic data, devoting his great abilities mainly to the illustration of psychic characteristics; in 1860, indeed, he stated that a fusion of anthropology and psychiatry seemed to him premature. In a similar way the studies of Lélut, Sutherland, Baillarger, and Virchow were partial and limited. The fusion of psychiatry and anthropology was reserved for Lombroso.

Lombroso's applications of this method were not, however, confined to the field to which medicine has usually been restricted; he sought to embrace all the moral and historical sciences. In applying anthropology to the study of genius, and in seeking to penetrate to the organic foundations of exceptional personalities—to the morphology and physiology corresponding to their particular psychology—he had precursors in Lélut and especially in Moreau de Tours, though their conceptions are incomplete and too narrowly alienistic. Morselli is far from accepting Lombroso's conception of genius, with its insistence on degenerative and epileptoid characteristics; he considers that we may rely to a much larger extent on the possibilities of normal human variability. But we have to admit "a laboriousness without equal, a persevering harmony in construction, and a sincere faith in the methods adopted."

The chief and least questionable distinction of Lombroso is as the founder of criminal anthropology, as "a new positive discipline derived from the natural history of the human species, an enlargement of anthropology, understood as the study of man and his normal varieties, a fusion of biology with pathology and teratology." Here, too, there were precursors. English physicians—"with their practical instincts and sagacious vision"—more especially anticipated Lombroso, and Morselli refers to Prichard, Bruce-Thomson and Nicolson, while on the psychic side Despine had covered much of the ground. But it had only been with very great timidity that students of the criminal had sought "in the corporal structure, in somatic anomalies and imperfections, in functional asymmetries, the basis and reason of moral deformity and innate perversity." This was Lombroso's task, and from the moment when he attempted it the new naturalistic movement, with all the vigour of youth—and much of its exuberance and intemperance—began to exert its reforming and innovating force in the juridical sphere also, substituting for the old conception of penal law the more useful and rational conception of social protection, while at the same time the same naturalistic method began to invade and agitate the whole domain of the moral sciences, ethics, æsthetics and sociology.

Morselli then proceeds to summarise and characterise briefly the nature of Lombroso's contributions to general anthropology, anthropometry, zoological anthropology, pathological anthropology, general and special ethnology, ethnography, demography, political anthropology, and linguistics. Finally he discusses some of his chief general concep-

tions, especially that of the "criminal type," pointing out that much of the discussion around this point is due to Lombroso's dislike of definitions—the critic being thus led to supply his own definition of "type"—and also to the common failure to realise that the idea of the "type" is restricted to that small group of criminals whose tendency to crime rests on their psycho-physical constitutions.

HAVELOCK ELLIS.

2. *Ætiology.*

Insanity and the Percentage Risks in Marriage [*Die Prozentual ausgedrückte Heiratsrisiko bez. Anspruchs und Vererbung von Geistes- und Nervenkrankheiten*]. (*Allg. Zt. Psych.*, Bd. 63, 1906.) Näcke, P.

Näcke is somewhat sceptical as to the reality of the alleged increase of insanity, and believes also that (putting aside delirium tremens) the intimate connection now so often found between alcohol and insanity is largely due to the laziness of investigators who fail to examine cases with the care necessary to reveal the presence of other factors. He further points out that when we talk of the increase of crime we do not always take into consideration the vast number of offences which modern codes make possible; and that even the increase of suicide is probably due to greater stringency in the environment and not to lessened power of resistance. The supposed degeneracy of modern peoples is a myth.

While recognising these general truths, Näcke continues, we must not fall into the error of under-estimating the importance of degeneration in the family or the individual, nor the vital significance of the question of procreation in such cases. The question as to how far the subjects of dubious heredity may be advised to marry is one for grave consideration, and Näcke thinks we do not always deal with it in a sufficiently precise manner. To tell a man that there is no fatalism in this matter, and that things often turn out better than one expects, is true enough, but it is vague and unsatisfactory, and the man goes cheerfully away without any real sense of the grave risks he is running. Moved by these considerations, Näcke has lately, when consulted on the matter, adopted the plan of attempting to estimate the risks in a numerical form. Thus a highly intelligent, somewhat nervous but otherwise sound man came to Näcke to ask his opinion concerning his proposed marriage with a woman whose heredity is fairly satisfactory, but who has three brothers insane or imbecile. The man's position is good and environmental influences likely to be favourable. Näcke estimates the risk of nervous or mental disorder overtaking the young lady herself as 30 to 35 *per cent.*; he estimates the risks in the case of the offspring as 35 to 40 *per cent.* The man goes away saying that he will think over the matter before deciding, and returns later to mention one or two further very slight weak points which he has discovered in the family history of his betrothed. Thereupon Näcke taxes the risks with an extra 5 *per cent.* Whether in this particular case the marriage eventually took place

Näcke never heard, but that fails to affect the question of the desirability of attempting to place the risks as clearly and definitely as possible before the candidate for matrimony. Näcke admits that the estimate must be rough and largely subjective. The suggestion seems, however, to deserve consideration.

The question of the oft-alleged "degeneracy" of many modern nations, especially those of "Latin" race, touched on in this paper, is further discussed by Näcke in another paper, "Zür Angeblichen Entartung der Romanischen Völker, speziell Frankreichs" (*Archiv für Rassen-und Gesellschafts-Biologie, May-June, 1906*), and he argues that there are no true indications that the French or any other Latin nation shows signs of such degeneracy.

HAVELOCK ELLIS.

A Note on the Influence Exercised on the Offspring by Sexual Incontinence during Pregnancy [*Note sur l'influence de l'incontinence sexuelle pendant la gestation sur la descendance*]. (*Arch. de Neurol., vol. xix, No. 112, April, 1905.*) Fééré.

In this paper Fééré describes a case of epilepsy in a child $\text{\ae}t.$ 8, interesting chiefly because of the apparent origin of the neurosis. The boy, who presented several teratological stigmata, was the eldest son of healthy parents. After his birth his mother had three stillborn children and then a miscarriage. Syphilis could be absolutely excluded, and careful inquiry failed to show any other degenerative taint in either of the parent stocks. It was ascertained, however, that the parents, who were ordinarily very abstemious in their sexual pleasures, through fear of a large family, were in the habit of extremely free indulgence when pregnancy was established. In the absence, therefore, of all other probable causes, Fééré attributes the degeneracy in the offspring to this agency, and points out in this connection that the repulsion which some pregnant women feel towards their husbands—a repulsion which is paralleled in the case of the lower animals—is perhaps to be looked on as a defensive instinct.

W. C. SULLIVAN.

3. Clinical Neurology and Psychiatry.

Sexual Excitement in the Psychopathies with Anxiety [*De l'excitation sexuelle dans les psychopathies anxieuses*]. *Arch. de Neurol., Feb., 1905.*) Cullerre.

While various disorders in the circulatory, respiratory, and other functions have been described among the physical symptoms accompanying the syndrome of anxiety (*angoisse*) in the insane, the occurrence of sexual excitement has not hitherto been mentioned, though it has been noted in connection with that condition in neurasthenics and in cases of simple obsession. In the present paper Dr. Cullerre repairs this omission by recording seven cases in which he has observed the association of the two phenomena. The cases, selected as specially representative, belong to three categories: (1) psychoses with depression arising on a basis of neurasthenia; (2) agitated melancholia (*aliénés gémissieurs*); and (3) the polymorphic insanity of the degenerate.

In the first observation, which is particularly instructive, the patient, a woman *æt.* 50, with an insane heredity, and of alcoholic habits, developed, soon after the menopause, melancholic symptoms, with crises of panphobic terror. With or in lieu of these latter crises she had also a whole series of *coenæsthetic* crises—pseudo-angina, asthma, boulimia, and finally paroxysms of painful and voluptuous excitement in the genital organs.

In the second observation, the patient, a woman *æt.* 26, hysterical and with a neuropathic heredity, presented symptoms of great emotional depression with ideas of damnation; this condition was frequently marked by crises of melancholic furor, with suicidal and homicidal impulses. In her calmer intervals she complained that she had periods of extreme sexual excitement and desire. It could not be ascertained in what relationship these latter symptoms stood to the melancholic crises, but there was reason to think that they were rather equivalents than results.

In the third and fourth observations, referring to cases of agitated melancholia, the most remarkable features were the relatively long duration of the symptoms of genital excitement, and its more or less regular increase with the intensity of the panphobic state.

The fifth case recorded is that of a hereditary degenerate presenting symptoms of incoherent religious delirium on a melancholic basis. During the five years the case was under observation it was marked by phases of stupor, crises of spasmodic laughter, periods of intense melancholia with suicidal impulses, and lastly crises of the wildest sexual excitement. In this patient, as in the two remaining observations, which also referred to the *folie des dégénérés*, there was a close parallelism between the intensity of the mental anxiety and the genital symptoms.

Commenting briefly on the cases as a whole, the author points out that they appear to indicate that the two conditions—*anxiety and genital excitement*—depend on the same mechanism. This mechanism, he suggests—while rather deprecating such speculations—may perhaps be found in the overaction of visceral centres in the optic thalami set free by the inhibited state of the higher centres accompanying the acme of the anxious paroxysm.

W. C. SULLIVAN.

On the Clinical History, Diagnosis, and Prognosis of Amentia [Zur Klinik, Diagnose, und Prognose der Amentia]. (*Monatss. f. Psychiat. u. Neurol.*, May and June, 1906.) Strohmayer.

Dr. Wilhelm Strohmayer tells us that *amentia* has in Germany gained a recognised significance to denote a form of insanity which has previously gone under the names of acute delusion, acute confusional, or insanity with hallucinations (*akuter Wahnsinn, akute halluzinatorische Verwirrtheit, akutes halluzinatorisches Irresein*). This form comprises the acute insanities which have for their main symptom mental confusion, the result of dissociation or incoherency of representation. The most marked manifestation of this derangement may be described as a dreamy bewilderment of consciousness. Around this mental confusion are grouped various disorders of perception, changing illusions, hallucina-

tions, and fleeting, unsystematised, delusive ideas, which arise from the incoherence of the mental representations. The same incoherency prevails in the emotional and motor capacities.

Dr. Strohmayer occupies forty-nine pages with the definitions between amentia and acute paranoia and other types of insanity in vogue in Germany, and with an analysis of the cases which he found in the Clinique of the University of Jena. Amentia is a rare form of insanity; out of 3000 male and 2500 female admissions he found forty and ninety cases; 30 *per cent.* of these latter were owing to the puerperal state. In 66 *per cent.* there was ascertained a tangible external cause.

Out of 110 patients twenty-one died in the asylum, *i.e.*, 20 *per cent.*; sixty-six were dismissed cured or improved, *i.e.*, 60 *per cent.*; and twenty-three remained uncured, *i.e.*, 20 *per cent.*

Strohmayer several times observed notable improvement in the mental condition of insane patients during febrile diseases, twice in croupous pneumonia, and once severally in empyema, diphtheria, stomatitis with fever, angina, and gastritis. In one case of typhus there was observed increased clearness of mind during the febrile stage; in another patient no change was noticed. To imitate this natural process injections of typhus toxine were tried (bouillon culture of dead *Bacillus typhi*). In two cases of acute confusional insanity thus experimented upon there was no change; in a third the mind of the patient was clear and quiet for a while after the injections. These raised the temperature from 39° F. to 40.5° F. Soon after the cessation of the injections the patients fell back into their excited state. It was not clear whether the temporary improvement was really owing to the treatment. These interesting experiments had to be abandoned owing to external interference which the doctor does not explain.

WILLIAM W. IRELAND.

On the Association of Epilepsy with Muscular Conditions fitting best into the Cadre of the Myopathies (Journ. Nerv. Ment. Dis., Jan., 1906). Onuf.

The author here describes at length and illustrates by photographs six cases of epilepsy in males in which the muscular conditions in their *ensemble* seemed to most properly belong among the myopathies, although they presented some features deviating from the usual attributes of this disease group.

These patients presented partly muscular atrophies, partly defective muscular action without clearly demonstrable atrophy. In some cases lordosis was most marked, in others a wing-like standing off of the scapulæ; pes valgus was present in all the cases but one, while the facial muscles were involved in two cases only. Qualitative galvanic changes were found in at least four cases, fibrillary twitchings in two, which the author admits is rather against these cases being classed as myopathies, but he quotes Sachs to the effect that these two phenomena have been seen in some cases that appeared to be typical myopathies. In this connection it is to be regretted that information as to the presence or absence of the disease in other members of the families to which these patients belonged was very defective. Such information would have been helpful in making a differential diagnosis between a myopathy

and a case of the spinal form of muscular atrophy. In two cases only was the family nature of the disease fairly established.

The author calls attention to the fact that an interesting question here arises whether a case of epilepsy thus complicated can be called idiopathic or not. If the muscular affection is to be classed among the myopathies he thinks that this appellation may be permissible, but hardly if it be classed as a spinal form of muscular atrophy.

In conclusion he points out that the possibility of the muscular conditions being due to the effects of epileptic seizures and also a suggested possible causal connection with rickets are worthy of consideration.

A. W. WILCOX.

Clinical Investigations of the Digestion in the Insane (Amer. Journ. Med. Sci., Sept., 1905). Cowie, D. M., and Inch, F. A.

This paper records the results of a series of investigations upon the work of the digestive glands in the insane, made by the authors during a period of five years at the Michigan Asylum at Kalamazoo.

These investigations, which appear to have been carried out with great care and thoroughness, led them to the conclusion that hyperacidity is the rule in melancholia, as it occurred in 81.8 per cent. of the 22 cases examined by them. They found that males and females were equally affected.

This hyperacidity is due to a true hyperchlorhydria (hypertotal acidity also occurred in their cases), which is of moderate degree, is fairly constant, and is associated with increased peptic power and rapid evacuation; the peptic value is never below normal, and is frequently increased.

The increased secretion is due to the neurosis or psychosis, and not to proliferative changes in the glands, as is evidenced by the presence of increased secretion, associated with degenerative changes in the glandular elements, and of the entire mucosa.

The evacuation of the stomach is usually normal or somewhat hastened after the Ewald breakfast test, while after the large stimulus of the Riegel meal and ordinary asylum meal it is more frequently hastened.

Although many of the insane are suffering from various forms of gastro-intestinal disease, yet these conditions are very frequently overlooked, probably, as the authors say, because complaints of and delusions concerning the digestive tracts are so common in these patients. They therefore urge the absolute necessity for systematic routine examination of all the secretions and functions of the body, including that which is often a very difficult task, the examination of the stomach contents. As the signs of disease in the insane are almost wholly objective, it is therefore even more essential than in normal mental states that every modern method of value should be exhausted in order to arrive at a complete diagnosis of the case. Cancer and ulcer of the stomach may thus often be recognised in their incipiency. Chronic gastritis in its several forms, as well as the painful neuroses, will also often be encountered. If proper treatment be instituted the authors think that it is not at all improbable that the mental symptoms in these cases will proportionately decrease.

A. W. WILCOX.

A Study of Dementia Præcox (Journ. Nerv. Ment. Dis., Nov. and Dec., 1905). Hecht.

This exhaustive treatise on dementia præcox, which occupies fifty-two pages of *The Journal of Nervous and Mental Diseases*, was read by Hecht at the May, 1905, meeting of the Chicago Neurological Society.

In a complete review of the literature of the subject the author points out that Heinroth in 1818 hinted at various forms of dementia, and in one of these perhaps anticipated later descriptions of dementia præcox.

From the time of Esquirol (1838) to Rousseau (1857) French labours in this field ceased, but were renewed from 1860 to 1886 with vigour by Morel, Legrand du Sault, Fabret, and Legrain, who aimed to correlate arrested development with the pubescent age and emphasised the mode of onset.

The English school of psychiatrists, led by Tuke and Clouston, added the weight of their authority by teaching that the essential nature of adolescent mental disease lay in the "tendency to dementia from the very beginning."

German interest was awakened in 1871 by Hecker, who it is believed employed for the first time the term "hebephrenia," and defined its scope quite as accurately as it is at present constructed.

Following directly in the footsteps of Hecker, Kahlbaum by subtle analysis evolved a milder, abortive, curable type, which he chose to call heboidophrenia. Kahlbaum's somewhat later paper on katatonia the author regards as a classic, and points out that even at the present time his katatonia is by many regarded as a clinical entity.

The subsequent writings from 1883 to 1903 of Weisser, Pick, Griesinger, Sommer, Krafft-Ebing, Wernicke, and Diem served to materially advance the knowledge and study of adolescent insanity.

Kraepelin, recognising the imminent need of clarifying all thought on this subject, set himself what Hecht aptly calls the Herculean task of classifying anew, and under the title of dementia præcox submitted a series of disease pictures in group form, all of which had in common a termination in a special kind of mental weakness. The classification was a radical step in advance of anything hitherto accomplished. In the fourth edition of Kraepelin's work the degenerative psychoses were arranged in three groups: (a) dementia præcox (Hecker's hebephrenia), (b) katatonia, (c) dementia paranoides, while in the seventh and last no mention is made of degenerative psychoses; the general designation of the chapter is dementia præcox, and the three groups are (a) hebephrenia; (b) katatonia; (c) dementia paranoides.

The author then briefly considers Kraepelin's definition and general symptomatology and emphasises some of the important phenomena by case references.

The three groups fashioned by Kraepelin are afterwards separately discussed, with attached short case reports and photographs.

Hecht considers that the pathological research done by Alzheimer, Nisol, Voisin, Ballet, Kiernan, Hoch, and Meyer has given little more than an insight into the structural changes that underlie the diseases,

but the changes noted are, he thinks, sufficiently suggestive to stimulate to still keener investigation.

Referring to prognosis, he says that optimism concerning curability should in all instances be held in check, but that most authors are agreed that the prognosis is better in the katatonic form than in the hebephrenic and most unpromising in the paranoid.

He then discusses the differential diagnosis of dementia præcox from circular insanity, paranoia, and general paresis. Diem's dementia simplex he deems worthy of note.

In conclusion, he deals with the essentially controversial character of the discussion on dementia præcox entered into by contemporary alienists in France, England, and America. He is very scathing in his remarks on English thought on the subject as exemplified by a paper read by Conolly Norman before the British Medical Association in October, 1904, and discussed by Dawson, White, Bower, and Shuttleworth, who, he says, were in thorough accord with Norman in his exposure of the fallacies of Kraepelin's work, and he afterwards refers to what he terms "this English arrangement."

A. W. WILCOX.

Auditory Hallucinations induced by a Foreign Body in Ear [*Ein Fall von peripheres Entstandener Sinnestauschung*]. (*Centralblatt für Nervenheilk.*, April, 1906.) Hudovernig, C.

Auditory hallucinations of peripheral origin are commonly regarded as rare. In recent times they have, however, been more and more frequently recognised. They fall into two groups, one in which the origin is a pathological process in the peripheral sensory organ, and another in which the stimulus is mechanical, electric, acoustic, or other. Hudovernig has lately met with a case of the latter kind at Budapest. The patient was a youth æt. 18, sane, but with highly neuropathic heredity on both sides. For some time he had heard a murmuring sound in his ears, and to this was sometimes superadded a human voice which repeated aloud his own thoughts as they arose. This very much worried the patient, prevented him from applying himself to reading though he is studiously inclined, and sometimes kept him awake at night. Patient had never had any ear troubles, was robust and well-developed, though there were numerous stigmata of degeneration, also tremors of the smaller muscles and increased patellar reflex. A minute psychic exploration revealed nothing abnormal except the hallucinations. For a week past these had increased in intensity and become more pronounced on the left side. Examination of the ears by a specialist revealed a large amount of wax in the left auditory meatus, and a hard plug of cotton-wool pressed against the tympanum. The patient was able to account for the presence of the plug. When removed the hallucinations at once notably decreased in intensity and soon ceased; a faint murmur continued for a time but that also disappeared before long. Hudovering concludes that the hallucinations could only have been produced by the plug acting as a constant irritant and setting up activity in a neurasthenic and abnormally sensitive cortex.

HAVELOCK ELLIS.

Classification of the Disturbances of Expression in the Insane. [*Essai de classification des troubles de la mimique chez les aliénés*]. (*Journ. de Psychol. Norm. et Pathol.*, Fév., 1906.) Dromard, G.

The disturbances of gesture and expression in the insane have hitherto been treated almost invariably in a descriptive manner—the present paper is an attempt to classify them on a scientific basis. As a preliminary measure the author seeks to establish the existence of a veritable “function of expression”—with anatomically differentiated centres and paths of conduction. In this connection, however, a distinction must be made between voluntary movements of expression and those which are involuntary or automatic. The first, *e. g.*, the gestures which an orator uses to lend additional force to his words—result from imitation and practice, and to explain them we need not postulate any other centres than those which preside over all voluntary movements. As regards the second, however, *e. g.*, laughter, the facial expressions of fear, grief, disgust, and other emotions—the case is altogether different. This second group consists of instinctive movements—almost invariably the same for a given emotion—movements which the will cannot even prevent—and which are accompanied by vasomotor and other purely reflex phenomena. This function of emotional expression is of primitive origin—it precedes language both ontogenetically and philogenetically—and long before the speech centres are in action it has established an independent existence. Many of its manifestations exist at birth, and some even are found in anencephalic monsters. There is no question here of education—an innate organisation is implied. We are thus led to the conception of a nervous apparatus of expression having no direct relation to the cerebral centres for voluntary movement. This conception is confirmed by various anatomical and clinical facts. Bell, Romberg, and others have described cases of voluntary paralysis unaccompanied by paralysis of expression; *e. g.*, a patient is incapable of voluntarily contracting the muscles of the face, while emotional expression is perfectly preserved. Pick and Rosenbach describe cases of the converse type—absence of emotional expression, with preservation of voluntary movement. Nothnagel, on the basis of several *post-mortem* examinations, stated that if the optic thalamus and the thalamic radiation were intact, emotional expression would be preserved, whatever might be the case as regards volitional movement. This proposition was confirmed by Bechterew's experiments on animals. We may conclude, therefore, (1) that distinct nervous mechanisms exist for voluntary movement and the movements of emotional expression, (2) that the optic thalami and their connections are the co-ordinating centres for the various muscle groups concerned in the expression of affective states. The fundamental difference existing between voluntary and involuntary expression is well seen if the one is substituted for the other. The man who laughs with his psychical centres differs absolutely from the man who laughs with his thalamus. The first strives consciously for the result, the second simply submits to the automatism of his lower centres. To be able to practically distinguish these two modes is the whole art of detecting the simulator.

Now, the function of expression may be said to be diseased when

the expression does not correspond to the idea, whether it be excessive, insufficient, or discordant. Or, again, the function is diseased if the expression considered in itself lacks homogeneity. In the former case there is failure of adaptation, in the latter failure of intrinsic mechanism. It will be seen from this definition that it would be erroneous to consider the wild gestures of the maniac, or the depressed aspect of the melancholic as necessarily due to a disturbance of the function of expression, for in these cases the gestures may be perfectly adequate to the nature of the prevailing ideas. On the basis of the foregoing considerations the following classification may be adopted:

(1) *Disturbances of voluntary expression.*—These are to be attributed to lesions of the associative paths which connect the ideational centres with those of muscular movement.

(A) The adaptation of the expression to the idea is clearly vicious (*a*) *paramimic asemia*. The patient is, so to speak, expressionally aphasic—he is incapable of expressing an idea by the appropriate symbol. This condition occurs in certain dement (*b*) *mannerism*. The patient uses a movement of expression deformed in a definite direction—there may be pretentious affectation or puerilism. Examples frequently occur in hebephrenia and hysteria.

(B) *Neologisms of expression.*—The adaptation of the gesture to the idea is conventional; *i.e.*, the relation is apparent to the patient himself, but incomprehensible to the uninitiated observer. Such are the cabalistic gestures of exorcism or defence used by certain paranoiacs.

(C) The path of association between the ideational centre and the centre for the muscular movement may be entirely impervious—the movement is uncontrolled by the higher centres (*a*) *stereomimia*. Certain gestures are repeated incessantly, without reason or end (*b*) *echomimia*, an impulsive imitation of the gestures of other people, the movement occurring with the promptitude of a reflex action. Examples are found in dement and idiots.

(2) *Disturbances of involuntary expression.*

(A) *Failure of adaptation (paramimia).*—There is incongruance between the expression and the idea. Sometimes the expression is absolutely contradictory, sometimes simply discordant. Paramimia is of frequent occurrence in dementia præcox.

(B) *Failure of intrinsic mechanism (a) spasmodic expression.*—Here inhibition is lacking—the thalamic centres are directly excited by some irritative lesion, or their relations with the cortical centres have been destroyed. In this group must be placed the uncontrollable fits of crying and laughing which occur in patients with localised softenings, and in certain hemiplegics (*b*) *dissociation of the expression*. Here the thalamus has lost its power of co-ordination over the lower muscular centres. The expression may be asymmetrical, or it may lack homogeneity.

B. HART.

Clinical Study of Brain Tumours. (*Monatss. f. Psychiat. u. Neurol.*, May, 1906.) Mingazzini.

The first case described by Mingazzini, a countryman, æt. 52, had during eighteen months suffered from headaches, with attacks of giddi-

ness and slow loss of power, especially in the arms, which was more noticeable on the left side. On admission muscular motions were found to be weakened. There was choked optic papillæ, soreness in the tri-facial region, and percussion of the skull was painful. There was a slowness in the man's ideas and a difficulty in getting answers; the memory was defective. These mental deficiencies only appeared a few days before the end. On lumbar puncture being tried, there was found a great pressure of the cerebro-spinal fluid. Trepanning of the skull was tried, without any improvement in the symptoms. The patient died two days after.

On section, a gliomatous tumour was found occupying the anterior half of the corpus callosum and extending to the gyrus fornicatus and to the roof of the third ventricles. The tumour had also invaded the upper part of the nucleus caudatus of the inner capsule and the nucleus lenticularis. The tumour had spread more to the right than to the left. In the middle it had undergone fatty degeneration.

Mingazzini takes this occasion to inquire whether a lesion affecting the corpus callosum can be diagnosed during life. He reviews the contributions of Bristowe and Ransom. The former assigns as symptoms of disease of the trabs, headache, congestion of the retina, epileptic attacks, hemiplegia slowly progressing, with loss of power on the other side, somnolence, passing into stupor, difficulty in taking food, and loss of speech. To these symptoms, Ransom adds irritability, occasional convulsions with paresis, hallucinations, and spasms on both sides, generally stronger on one. Mingazzini observes that these are rather symptoms frequently observed in cerebral tumours than peculiar to the trabs. In the case he observes, instead of the headache, giddiness, and papillitis being slight, as in Bristowe's cases, they were all most intense. There was neither irritability nor hallucinations, but a slowly progressing loss of mental power. In similar fashion, Mingazzini rejects the claims of Schupfer and of Schuster to be able to distinguish whether a tumour occupies the genu, middle, or splenium of the corpus callosum.

It appears from a comparison of the observations that have been collected that the symptoms assigned by various physicians as showing a tumour of the corpus callosum are the results of invasions of the surrounding parts. If we assume that direct fibres pass through the trabs from one hemisphere to the other, it is unaccountable, when the fibres of the trabs degenerate, why the degeneration does not pass into the hemispheres. Macchiafava and Bignami examined three brains of alcoholics, in which there was found degeneration of the corpus callosum, which degeneration was confined to two thirds of the organ, so that only the dorsal and ventral stratum were spared. The degenerated fibres extended only a few millimetres into the centrum ovale.

It has been ascertained by experiments on animals that section of the trabs causes neither psychical loss nor motor disturbance, nor impairment of sensibility, nor of the muscular sense. In most of the cases in which the corpus callosum was found to be absent, there were other deficiencies in the brain which served to explain any mental incapacity that was noticed during life. There are, however, several cases on record of agenesis of the trabs in which no mental faculty was found wanting. To these Mingazzini adds a new one, a woman who died

in the asylum of general paralysis, æt. 50. She was known before this illness to have discharged all the duties of housekeeping with great activity and intelligence.

Commenting on these facts, Mingazzini remarks that the absence of a pyramid or of the cerebellum can be compensated by the hypertrophy of another pyramid or other paths of nervous conduction, and constant relations are known to exist between the right and left strands; but how can compensation be made for the loss of the corpus callosum? There is only the anterior commissure to keep up the connection between the hemispheres, and Banchi has shown that in agenesis of the trabs there is no increased development of the commissure.

Mingazzini thus concludes: We need farther researches in clinical medicine, physiology, anatomy, and pathology to afford us more information about the function of this large organ, which we must still regard as a secret.

WILLIAM W. IRELAND.

Considerations on a Case of Tumour Compressing the Right Half of the Pons Varolii. Diagnosis During Life. [*Considerazioni sopra un caso di tumore comprimente la metà destra del ponte de Varolio. Diagnosticato in vita*]. (*Riv. speriment. di freniatria*, vol. xxxii, Fasc. 1-11.) G. Volpi Gherardini.

This paper is an interesting contribution to the study of the so-called Millard-Gubler syndrome.

The case was that of a peasant woman, æt. 50, sent into the asylum suffering from confusional insanity, with occasional impulses towards self-destruction and violence. For over twelve months she had been affected with facial paralysis and neuroparalytic keratitis on the right side, and for the last few months prior to admission she had had attacks of cephalalgia, vertigo, and vomiting, with unsteadiness in gait.

Clinical examination revealed complete paralysis of the right facial nerve, with reaction of degeneration to both currents. The right cornea was totally opaque. There was no strabismus or other sign of impairment of the external ocular muscles. The points of exit of the fifth nerve were painful to pressure, especially those of the supra- and infra-orbital nerves. There was complete loss of hearing on the right side. The lower limbs were paretic, but much more the left than the right. The gait was spastic in character. Knee-jerks and Achilles tendon reflexes were brisk. Babinski's sign was slightly present on the left side. However, the so-called "Unterschenkel phenomen of Oppenheim" was well marked. This "sign," which consists in contraction of the tibialis anticus and extensor hallucis on stroking the inner margin of the former muscle, was markedly present on the left and to a much less extent on the right side. The author considers this sign of great value as indicative of pathological alterations in the pyramidal paths. For obvious reasons no retinal examination of right eye could be made, and the restless state of the patient prevented any accurate view of the left fundus oculi.

There was considerable dysphagia, but only a slight amount of vomiting.

The patient grew rapidly worse, and died fourteen days after admission.

She suffered from profuse sweating and increase of temperature, probably the result of a secondary infection from a large extending bed-sore on the right gluteal region.

The symptoms clearly pointed to a lesion situated in the right half of the pons varolii. The slow onset and absence of any seizures precluded the theory of a hæmorrhage with subsequent softening. The presence of deafness with facial paralysis on the right side suggested the presence of a neoplasm. The question then arose as to its actual seat. The absence of alterations in cutaneous sensation on the left side of the body, the non-implication of the fourth and sixth pair of nerves, and the unimpaired maintenance of the functions of the posterior longitudinal bundle (no conjugate ocular paralysis or nystagmus) excluded the dorsum of the pons as its probable situation. The paresis of the lower limbs, much more marked on the left side, suggested rather the implication of the ventral aspect of the pons. The simultaneous involvement of the fifth, seventh, and eighth nerves pointed to an extra-pontine origin. It was to be regretted that an accurate examination of the retina for optic neuritis could not be made, as this is frequently met with in tumours of the posterior endocranial fossa, while it is very rare in intra-pontine growths.

The presence of some motor paresis in the right lower limb did not, in the author's opinion, invalidate the diagnosis of a lesion on the right side of the pons, as it is possible that, owing to the close approximation of the motor paths, there was an extension of the products of irritation across the middle line into the left pyramidal tract.

As regards the nature of the neoplasm, while at first a gumma suggested itself, this was subsequently set aside in favour of a growth of a fibromatous or fibro-sarcomatous nature.

On making the autopsy a well-defined tumour the size of a small hen's egg and easy of enucleation was found in the right pontine cerebellar angle, compressing the right half of the pons and involving the root of origin of the fifth, seventh, eighth, ninth, and tenth pairs of nerves on the right side.

Microscopical examination showed it to be of the nature of a fibro-sarcoma.

A. I. EADES.

4. Treatment of Insanity.

Operations for the Relief of Pelvic Diseases of Insane Women. (Amer. Journ. Med. Sci., February, 1906.) Brown, Le Roy.

The first part of this article consists of a discussion of considerable length on the literature of the subject of pelvic disease and insanity in women.

The author advocates that for the general welfare of the female patients in asylums each institution should have connected with it a gynæcologist, so that active assistance may be given to such patients as need his assistance.

In the Manhattan State Hospital each female patient on admission undergoes a thorough pelvic and abdominal examination, and such as it

is deemed may be physically benefited by some gynecological operation or treatment are referred to him. The written consent of the patient's guardian is, of course, obtained before any elective surgical procedure can be undertaken. His operations among the insane have been done with the object of improving the physical condition of the patient, and not one has been performed with a direct view of its possibly affecting favourably the mental disease for which the patient has been admitted to the hospital. As a consequence fully three fourths of the patients operated on were the unfortunate sufferers from forms of mental disease recognised by alienists as unfavourable and in whom little permanent progress can be made in ameliorating their mental state, but who, as he rightly observes, had as much claim for physical relief as those of more amenable forms of mental disease.

During two years and a quarter 242 patients have been given some form of gynecological operation—sixty-two abdominal sections, thirty-one operations for displaced uteri, and 129 minor plastic operations, resulting in 112 patients having been much improved physically, 107 to a less degree, while five died, two deaths being directly attributable to the operation. There are now remaining in the asylum 138 of these patients, 104 having been discharged. Of the latter forty-three are recorded as mentally recovered and twenty of these had their recovery materially hastened as a result of the physical improvement arising from the operations done upon them. He adduces statistics to show the advantage of early operation after the accession of the insanity. Of the twenty patients last mentioned five were cases of chronic and seven of acute melancholia, two of acute and two of depressive mania, while the remaining four were cases of primary dementia.

His experience coincides with that of Manton and Picqué, that in no instance has the mental state of any patient been injured by the operation performed.

A. W. WILCOX.

The Care of the Insane and the Study of Psychiatry in Germany
[*Journ. Ment. and Nerv. Dis.*, April, 1906]. Paton, Stewart.

The favourable conditions under which German alienists are working to-day stamps their written and verbal opinions by a spirit of optimism, and this feeling of hopefulness in the opinion of the writer of this interesting article is accentuated by their appreciation of the fact that in no other department of medicine is a more carefully planned and determined effort being made to solve important scientific problems than in the field of psychiatry. Abundant evidence in confirmation of this statement is afforded when attention is called to the large sums appropriated in Germany for the erection and equipment of clinics, hospitals, asylums, and laboratories, and the liberal provisions made for the prosecution of scientific investigation. He refers to the liberal, not to say lavish, expenditure of money for the construction of psychiatric clinics, and illustrates his article by photographs of the new psychiatric clinic at Munich.

Authorities in Germany are agreed that in order to save expense to the State clinics should be built before complete provision is made for the care of patients in asylums, as an experience of forty years has

shown that the presence of these clinics in a community changes the types of cases that apply for admission to an asylum.

In Germany, he says, there is a marked tendency to facilitate in every possible way the admission of patients to the clinics, and through them into asylums, and that cases of individuals wrongfully deprived of liberty do not occur in spite of occasional mis-statements in the press to the contrary. At the clinics patients may be held at the discretion of the medical director for a sufficient time in which to make a complete examination of their mental status, then should they still continue to object to being confined they can appeal to the court, which appoints an independent committee of investigation, whose decision is final.

With hardly an exception the psychopathic hospitals are all in university towns or cities, and are as closely affiliated with the university as are the medical or surgical clinics.

Another very important feature of the German system is, in the author's opinion, that the vacancies occurring on the staff are not necessarily filled by members of the same clinic, but often by the members of the staff of some other university.

This constant exchange of men and resultant exchange of ideas that is going on all over Germany is, he thinks, of the greatest importance to the maintenance of the high standard of productive work done in German clinics.

A. W. WILCOX.

Special Asylums for Criminal Lunatics and Dangerous Psychopaths [*Les asiles spéciaux pour les condamnés aliénés et les psychopathes dangereux*]. (*Rev. de Psychiat.*, July, 1905.) *Sérieux*.

After a brief review of the existing arrangements for dealing with this question in the chief European countries, and a short discussion of the various tendencies in current opinion as to the best method to be followed, the author sketches his own ideal, addressing himself more particularly, of course, to the needs of France. He would propose the creation of two sorts of institution :

(1) A central State asylum, or preferably four smaller asylums in connection with large prisons near university towns. These establishments would receive criminals becoming insane in prison, and in the future they would be made useful as centres for the clinical teaching of criminology.

(2) Three large asylums specially adapted to secure safe custody. In these would be placed lunatics who showed criminal tendencies (whether before or after certification), lunatic criminals transferred from the prison asylums on completion of their sentences, incurable drunkards, instinctive criminals, and generally lunatics found too dangerous for the ordinary asylums.

In addition to the relief that this would give to the asylums, where patients of this class at present are a pest, and to the greater security which it would insure for society, the author foresees that the recognition of a class of abnormal malefactors, unfit alike for prison and asylum, would have a good educational effect and would get rid of superannuated ideas about responsibility and about the psychology of the criminal.

W. C. SULLIVAN.

5. Pathology of Insanity.

New Researches on the Histo-morphological Alterations of the Cerebral Cortex. [*Nuove ricerche sulle alterazioni isto-morfologiche della corteccia cerebrale.*] (*Arch. di Psichiat.*, vol. xxvi, fasc. vi, 1905.) Roncoroni.

In the *Archivio di Psichiatria*, vol. xvii, fasc. i, ii, 1896, Roncoroni published an account of researches on the minute morphology of the cortex in the epileptic and the criminal. The present paper contains another instalment of work on the same lines.

Introducing a slight modification of Meynert's classification, the author distinguishes six layers in the cortex, viz. (a) the molecular layer; (b) the superficial layer of small nerve cells, or external granular layer; (c) the layer of small pyramidal cells; (d) the layer of large pyramidal cells; (e) the deep layer of small nervous cells, or deep granular layer; and (f) the layer of polymorphic cells. Sections were taken from the second frontal convolution in each case. The material examined comprised eight brains of epileptics and five brains of criminals. In the earlier research twenty-five cases of epilepsy were examined, and nineteen criminals, eleven of them being accounted "rei nati."

Summing up the results of the two series of investigations, Roncoroni says: "In thirty-three epileptics the deep granular layer was absent nine times, and notably reduced fifteen times; in ten cases there were anomalies in the disposition of the pyramidal cells; frequently the principal protoplasmic process, instead of being directed to the molecular layer, was directed obliquely or transversely. The number of the pyramidal cells was frequently diminished; scattered amongst them were atrophied cellular elements, and others, on the contrary, of unusually large size. In nine cases none of these anomalies were found. In the sixteen congenital criminals the absence of the deep granular layer was observed four times, and its imperfect development six times; seven cases showed the anomalous disposition of the pyramidal cells and the deficiency of the cellular elements." These different characteristics were not found in any of the brains of normal persons examined by the author, nor were they met with in cases of insanity of non-degenerate type.

Roncoroni points out that these anomalies of structure are not, of course, in any direct causal relation to epilepsy or crime, but that they are (when not dependent on some secondary morbid process, as, for instance, gliosis in many cases of epilepsy) merely stigmata of degeneration. This view, he holds, is borne out by the fact that they are met with only in the congenital forms of these disorders, and are not found in the brain of the occasional criminal or of the sufferer from acquired epilepsy.

W. C. SULLIVAN.

The Development of the Molecular Layers of the Brain and Cerebellum in Animals and in Man [*Lo sviluppo degli strati molecolari del cervello e del cervelletto negli animali e nell'uomo.*] (*Arch. di Psichiat.*, vol. xxvi, fasc. iv, v, 1905.) Roncoroni.

The author has investigated the relative development of the super-

ficial or molecular layer of the cortex of the cerebrum and of the cerebellum in a number of animals and in normal and abnormal human beings. For comparative purposes he takes what he terms the "index of the molecular layer," meaning thereby the ratio of that layer to the whole thickness of the cortex taken as 100. The central sections examined were from the middle part of the second frontal convolution in the human subjects, from the convolutions bordering the cruciform sulcus in the dogs, and in the other animals from the anterior part of the cerebrum. About twenty indices were taken in each case, and the mean of these indices was then calculated. The subjects included represented a very varied choice, including two frogs, a snake, nine fowls, two pigeons, a mole, numerous dogs, some of them epileptic, a monkey, etc. The human subjects comprised a number of normal individuals of either sex and of different ages, as well as groups of epileptics, criminals, and patients suffering from various forms of insanity. The results are given in a summarised form for each case.

The author finds that the index of the molecular layer tends to decrease in the more highly evolved species, being lower, for instance, in man than in the dog; and further, that it is lower in those parts of the nervous system which have higher psychic functions, as is seen on comparing the cortex of the cerebrum with that of the cerebellum or of the cornu ammonis or of the olfactory bulb. These results, taken in connection with anatomical considerations based on the relationship of the molecular layer to the pyramidal cells and cells analogous to these latter, lead the author to suggest that this layer is not concerned with the highest psychic functions but probably with the automatic functions. On this theory a high index in man would have something of the significance of a stigma of degeneracy; and this view is supported by the fact that in epilepsy and in moral idiocy high indices are often met with.

W. C. SULLIVAN.

On the Anatomical Differential Diagnosis of General Paralysis.
(*Centralblatt. f. Nervenheilkunde, June 1st, 1906.*) Spielmeyer.

Dr. W. Spielmeyer reports the following case from the Psychiatric Clinique of Freiburg in Baden. The patient, a married woman \ae . 41 years, had two children living, one of them scrofulous, and five others who died in infancy. For a year before admission to the hospital she had been negligent, untidy, and callous. This was followed by paralysis of the left side, the speech being also affected. The paralysis was fugitive, but it was renewed three or four times. Admitted into the hospital, the diagnosis of general paralysis was made from the apathetic look of the patient, the loss of attention and slowness of apprehension, combined with the usual bodily symptoms of general paralysis. The character of the disease underwent a change. She was by turns somnolent, restless, and delirious, and made twitching and plucking movements. She passed into a state of stupor with high temperature. There were spasms in the right facial region which occasionally extended to the right arm. These spasms lasted till the end. There were also starting movements of the left side and rigid tension in the muscles of the legs. Nothing abnormal was noticed in the pupils or in the fundus oculi. Sensibility and consciousness were

much diminished. This condition was regarded as one of general paralysis. The rise of temperature (38.5° to 39° C.) was put down to some pneumonic symptoms.

The diagnosis was supported by a lumbar puncture, when the fluid withdrawn was found to contain albumen, lymph-cells, and some large round cells. After being a fortnight in the hospital the patient died in a comatose state with spasms which had lasted for eight days.

The *sectio* revealed a tuberculous meningitis of the base of the brain extending backwards from the optic commissure over the pons to the cerebellum. The yellowish exudation passed along the left Sylvian fissure; it was most abundant over the operculum. Near this, imbedded in the sulcus Rolandi, there was found a cheesy tuberculous lump of the size of a hazel-nut. No atrophy of the brain was noted, and the spinal cord did not seem to be altered.

The dissection explained some of the symptoms, especially the Jacksonian spasms of the right facial, and the rapid downward course of the case.

In view of the other symptoms, it appeared to be a combination of general paralysis and meningitis.

Dr. Spielmeyer proceeds to inquire how such a complication could be distinguished by histological examination.

Characteristic of the brain of the general paralytic are the exudations about the vessels and the pia mater. Lymph- and plasma-cells with solitary fatty cells here and there pervade the adventitial lymph-spaces and the mesh of the pia. There is also swelling and increase of the endothelium and perithelium, new formation of vessels, often along with Nissl's bodies. The functional nerve-substance undergoes the regressive changes known to pathologists. All forms of nerve degeneration may be seen, especially in the later stages, and there is degeneration of the neuroglia.

The formation of knots of tubercular matter is characteristic of that form of meningo-encephalitis. We have also alterations in the brain-tissue of a regressive and progressive character, and indications of inflammatory action similar to those observed in dementia paralytica. The changes in the brain in tubercular meningitis seem to be connected with local inflammations, while in paralysis they are of a more diffused character. Spielmeyer admits that the tubercular inflammation may so cover the lesions of general paralysis that it is not always possible to distinguish the two processes; but if there be found in those parts of the brain which are still free from traces of meningitis, plasma-cells around these vessels and proliferation of the nuclei of their walls, with progressive degeneration of the nerve-cells, the diagnosis of general paralysis in combination with meningitis may be worked out.

WILLIAM W. IRELAND.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

ANNUAL MEETING.

THE sixty-fifth annual meeting of the Association began at 11 a.m. on Thursday, July 26th, 1906, at 11, Chandos Street, Cavendish Square, London, W. Dr. T. Outterson Wood, the retiring President, occupied the chair.

Present: T. Stewart Adair, Mervyn T. Archdall, Henry T. S. Aveline, J. Loughheed Baskin, Fletcher Beach, George F. Blandford, Joseph S. Bolton, C. Hubert Bond, Arthur N. Boycott, David Bower, John F. Briscoe, Lewis C. Bruce, Patrick E. Campbell, John Carswell, James Chambers, Maurice Craig, Francis G. Crookshank, Thomas O'C. Donelan, Charles C. Easterbrook, James H. Earls, T. Duncan Greenlees, Horace E. Haynes, John W. Higginson, Gerald H. Johnston, Thomas L. Johnston, Robert Jones, Arthur B. Kingsford, Stephen G. Longworth, William H. C. Macartney, Henry C. MacBryan, Owen F. M'Carthy, John G. McDowall, Peter W. MacDonald, Alan McDougall, William F. Menzies, Charles A. Mercier, John Merson, John Mills, Cuthbert S. Morrison, Alfred Miller, H. Hayes Newington, Conolly Norman, Landel R. Oswald, Maurice E. Paul, Bedford Pierce, James F. G. Pietersen, Evan Powell, John P. Race, Henry Rayner, George H. Savage, George E. Shuttleworth, R. Percy Smith, Robert H. Steen, James Stewart, Rothsay O. Stewart, Reginald J. Stilwell, Frederic R. P. Taylor, David G. Thomson, Adam R. Turnbull, John Turner, Alex R. Urquhart, Frederick Watson, J. Kennedy Will, Albert Wilson, Edmund B. Whitcombe, T. Outterson Wood, David Yellowlees.

The following sent apologies for non-attendance: Thomas A. Clouston, William J. König, Dr. Mannheimer-Gommès.

The minutes of the preceding annual meeting were taken as read, confirmed and signed.

ELECTION OF OFFICERS AND COUNCIL.

The President nominated Dr. Bond, Dr. Evan Powell, Dr. Bower, and Dr. Thomson as scrutineers.

The following were declared to be unanimously elected:

<i>President</i>	ROBERT JONES.
<i>President-elect</i>	P. W. MACDONALD.
<i>Ex-President</i>	T. OUTTERSON WOOD.
<i>Treasurer</i>	H. HAYES NEWINGTON.
<i>Editors of Journal</i>	HENRY RAYNER.
	ALEX. R. URQUHART.
	CONOLLY NORMAN.
	JAMES CHAMBERS.
<i>General Secretary</i>	C. HUBERT BOND.
<i>Registrar</i>	ALFRED MILLER.
<i>Examiners for Nursing Certificate</i>	CONOLLY NORMAN.
	A. R. TURNBULL.
	E. B. WHITCOMBE.
<i>Auditors</i>	FRANCIS H. EDWARDS.
	THRO. B. HYSLOP.

Members of Council.

FLETCHER BEACH, THOS. S. CLOUSTON, WILLIAM GRAHAM, GEORGE H. SAVAGE, R. PERCY SMITH, JOSEPH S. BOLTON.

Officers and Council Elected by the Divisions.

South-Eastern Division.—DAVID BOWER, DAVID G. THOMSON, JOHN TURNER, ERNEST W. WHITE, ROBERT H. STIEN (*Secretary*).

South-Western Division.—PETER W. MACDONALD, EDWIN GOODALL, HENRY J. S. AVELINE (*Secretary*).

Northern and Midland Division.—SAMUEL EDGERLEY, JOHN ALFRED EWAN, THOMAS W. MCDOWALL, BEDFORD PIERCE (*Secretary*).

Scottish Division.—A. R. TURNBULL, DAVID YELLOWLEES, LEWIS C. BRUCE (*Secretary*).

Irish Division.—MICHAEL J. NOLAN, THOMAS DRAPES, WILLIAM R. DAWSON (*Secretary*).

Examiners for England.—ROBERT JONES, MAURICE CRAIG.

Examiners for Scotland.—W. A. PARKER, LANDEL R. OSWALD.

Examiners for Ireland.—THOMAS DRAPES, WM. R. DAWSON.

ELECTION OF MEMBERS OF STANDING COMMITTEES.

Dr. FLETCHER BEACH suggested the addition of the name of Dr. W. Douglas to the Parliamentary Committee, and it was agreed to.

Several members referred to the size of the Standing Committees, and it was suggested that the Nominations Committee should consider the matter.

The Committees as recommended were adopted.

LIBRARY COMMITTEE.

The members of this Committee as recommended were elected.

TREASURER'S REPORT.

Dr. HAYES NEWINGTON submitted the annual balance sheet, of which copies had been circulated. He expressed his readiness to answer any questions upon it, and stated that the Association was in a very satisfactory financial condition. He concluded by moving its adoption.

Dr. E. B. WHITCOMBE seconded, and it was carried.

THE AUDITOR'S REPORT.

Dr. MAURICE CRAIG presented the auditor's report as follows: "The auditors beg to report that they have examined the financial accounts of the Association for 1905, and have scrutinised the vouchers and receipts and subscriptions, and certify them to be correct and accurate in every particular. (*Signed*) FRANCIS H. EDWARDS, THEO. B. HYSLOP." Dr. Craig concluded by moving the adoption of the report.

Dr. TAYLOR seconded, and it was carried.

REPORT OF THE COUNCIL.

Dr. ROBERT JONES presented the Report of the Council, as follows:

The number of members on the register on December 31st, 1905, was 688, showing a very satisfactory increase, notwithstanding the loss of members by resignation, and through removal.

The following table shows the growth of membership for the last nine years:

Members.	1897	1898	1899	1900	1901	1902	1903	1904	1905
Ordinary	524	540	550	568	580	586	597	620	641
Honorary	38	38	36	38	37	37	36	35	32
Corresponding	12	12	12	10	11	12	12	15	15
Total	574	590	598	616	628	635	645	670	688

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.—For the Year 1905.

REVENUE ACCOUNT—January 1st to December 31st, 1905.

1904. £ s. d.	Dr.	Expenditure.	£ s. d.	£ s. d.	Income.	Cr.	1904. £ s. d.
524 16 7	To Journal—Printing, etc.	561 5 1	...	188 17 6	...	20 0 3	29 0 11
102 10 9	Examinations, Association Prizes	214 1 2	...	26 10 4	...	...	168 9 3
106 5 3	Petty Disbursements, Postages, etc.	148 13 1	...	...	...	...	20 6 4
126 16 11	Annual, General, and Divisional Meetings	131 2 6	...	...	...	...	43 8 0
52 5 0	Rent of Premises and care of Office	56 0 0	...	...	...	...	...
6 6 0	Library	6 6 0	...	...	...	...	...
6 6 0	Audit and Clerical Assistance	6 6 0	...	...	...	...	...
92 19 0	Miscellaneous	78 3 8	...	1087 11 6	...	264 14 1	9 9 0
152 9 2	Balance	...	...	173 16 9	...	275 6 0	214 16 6
£1187 19 0			£1261 8 3			701 8 0	681 9 0
							£1261 8 3 £1187 19 0

BALANCE-SHEET—31st December, 1905.

1904. £ s. d.	Liabilities.	£ s. d.	£ s. d.	Assets.	£ s. d.	1904. £ s. d.
8 15 4	Journal Account	18 13 11	...	Lloyd's Bank:—Bankers	494 3 10	460 19 6
0 0 0	Examinations	39 17 8	...	New Zealand Stock, 3½ per cent.	306 6 0	304 14 10
22 13 11	Petty Disbursements Account	20 11 5	...	Do.	315 18 5	314 6 5
15 19 0	Meetings Account	9 5 10	...	Victoria Stock, 3 per cent. (Dr. Paul's Bequest)	89 18 5	87 17 1
9 19 7	Rent of Premises Account	14 0 0	...	Do.	194 10 3	189 11 6
127 1 6	Miscellaneous Account	7 3 6	...	Sales Account	48 17 3	38 1 2
0 7 0	Gaskell Fund Account	51 17 11	...	Fees Account	54 5 0	0 0 0
198 8 1	Library Account	9 12 0	...	Subscriptions Account...	do.	160 13 0
			171 2 3	Examination Account ...	do.	10 0 0
1267 16 11	Balance:—Balance (at January 1st)	1367 15 5	...			
152 9 2	Add: Balance of Revenue Account	173 16 9	...			
1420 6 1	Increase in value of:	1 11 2	...			
	New Zealand Stock, 3½ per cent.	1 12 0	...			
	Do.	2 1 4	...			
	Victoria Stock, 3 per cent.	4 18 9	...			
	Do.	1551 15 5	...			
52 10 8	Deduct Subscriptions written off	65 2 0	...			
£1367 15 5		1486 13 5	£1657 15 8			£1657 15 8 £1506 3 6

E. WOODINGTON, C.A.

H. HAYES NEWINGTON, TREASURER.

The Hon. Secretary regrets to announce that during 1905 the deaths of ten members have been reported to the Association, the list including the President-Elect, the late Sir John Sibbald, and Drs. Samuel Hollingsworth Agar, Henry Putnam Stearne, William Clement Daniel, Charles Frederick Laing, James Wallace, William Alfred Skinner, Donald Mackintosh, and Bernard Heinrich Laehr.

In addition to the usual Quarterly Meetings held in 1905 there have been eleven meetings of the Divisions, most of them being well attended. The first meeting of the year was held on Thursday, February 23rd, at the North Riding Asylum Clifton, Yorkshire, by the invitation of Dr. Tregelles Hingston, who has since retired from active duties, and our Association cordially wishes him a long, re-
 poseful, and happy leisure.

Dr. Percy Smith attended as delegate to the Conference upon the proposed union of medical societies, and reported to the Council Meeting of May 18th, 1905. The Council agreed that Dr. Percy Smith should continue to represent the Association upon this question at any future proceedings. An explanatory circular was issued during the year to the various Divisions, and they have had the matter under consideration. On the whole the feeling of the Divisions is against amalgamation.

At the November meeting in London the Council appointed a committee of our Association to confer with the Executive Committee of the proposed Union. The Committee of our Association met on December 8th, 1905, and it was agreed that Dr. Percy Smith should place before a general committee of representatives of the various societies on December 19th the difficulties our Association had in regard to various points—(1) trust funds, (2) the Journal, and (3) the training and registration of nurses. The Committee of our Council met again on January 9th, 1906, when Dr. Percy Smith reported what had taken place on December 19th, on which date an Organising Committee of the Union was appointed, and it was then agreed that Dr. Percy Smith should lay before the Organising Committee the various difficulties. In answer to this the Organising Committee appointed two of its members—Sir William Church and Dr. H. Head—to confer, on February 16th, with Dr. Percy Smith and our Chairman, the President, Dr. Outterson Wood, and the result of their deliberations was laid before our Council at the February Meeting, which recommended that the Divisions be consulted. At the Council Meeting in May, 1906, the opinion of the Divisions was considered. The matter was then referred to the Annual Meeting.

A special meeting—adjourned from the previous Annual Meeting—was held in London, on July 19th, 1905, at which the final Report of the Statistics Committee was received and adopted. The committee was reappointed for one year, to facilitate the introduction of the scheme of Tables.

The classification of the insanities was referred to a special committee, nominated by the President, to bring up a report at the present Annual Meeting.

The Educational Committee, under the chairmanship of Dr. Charles Mercier, who has devoted so many years to the affairs of the Association, present their report. The Statistics Committee also present their report.

The Journal continues to be greatly appreciated under the same editorship as heretofore, and the finances of our Association, thanks to the skill and care of our able Treasurer, are in a flourishing condition. The work of the Registrar has increased owing to the large number of candidates for the various examinations, and to him and also to the various Secretaries the very cordial thanks of our Association are due.

The PRESIDENT proposed the adoption of the report. He said it showed a very satisfactory condition of the Association's affairs. The number of members was steadily going up, and he hoped the Society was increasing in influence and usefulness.

Dr. PERCY SMITH seconded the proposition, and it was carried.

REPORT OF THE EDITORS OF THE JOURNAL.

Dr. RAYNER read the report of the Editors of the Journal, and moved its adoption.

Dr. RAYNER: The Editors beg to report that there has been no material change in the production of the Journal during the year 1905.

The number of copies printed remains 1075, although from the steadily increasing membership the number will probably require to be increased at the end of the present year, as well as from a slight increase in the sale of the Journal of the Association.

The cost of the production of the Journal remains practically the same as during the past ten years, although the numbers printed have increased so considerably. In the present year, on the advice of the publishers, the net sale price has been increased slightly, and this on the present sale of the Journal will increase the receipts from this source by some £25.

The advertisements also show a tendency to increase, although still very much below the amount that might be reasonably expected when the importance of the opportunity of advertising is considered. The fact that the Journal is regularly in the hands of the medical officers of hospitals containing more than 100,000 beds should attract the attention of all concerned in the supply of hospital requisites. The members of the Association individually might greatly aid in making the value of the Journal, from an advertisement point of view, better known to possible advertisers.

The Editors wish again to express their thanks to their sub-editor, Dr. Lord, for the very valuable and important assistance that he has given during the past year

HENRY RAYNER.
A. R. URQUHART.
CONOLLY NORMAN.
JAMES CHAMBERS.

Dr. CONOLLY NORMAN seconded the report, and it was carried.

STANDING COMMITTEES.

EDUCATION COMMITTEE.

REPORT OF THE PRINCIPAL WORK OF THE EDUCATIONAL COMMITTEE SINCE THE ANNUAL MEETING, 1905.

A resolution was passed at the last annual meeting to the effect that a preliminary report of the year's work done by the Educational Committee be issued some time prior to the reading of the full report, as is customary at the annual meeting.

The following is a brief account of the work done by this committee up to, and including, the last May meeting.

The Educational Committee have held many meetings during the year, and have had several important subjects before them for consideration. Amongst other matters the following have been dealt with:

A sub-committee was appointed last November "to consider whether it was possible to improve the scope of the oral and written portion of the nursing examination." The sub-committee have issued their report, which is still under consideration by the Educational Committee. The most important recommendation contained in the report is a suggestion to divide the nursing examination into two parts; for example, anatomy, physiology, and first aid—in the first examination, and the more advanced subjects later.

This suggestion will be proposed for consideration at the annual meeting.

A sub-committee was appointed in November last "to consider what the future policy of the Educational Committee should be in relation to disciplinary cases coming before it."

The sub-committee have issued their report, which is still under consideration by the Educational Committee.

A sub-committee has been appointed to consider the whole question of the Gaskell prize. No report has yet been issued, and, as there are many legal points involved with regard to the Gaskell deed, some time will still be required for careful consideration of this matter.

The Registrar reported that 281 candidates entered, and 202 passed, the nursing examination held in November, 1905.

On Dr. Ernest White's motion, the Educational Committee recommended to the Council that, in future editions of the handbook, and in all documents of the Association, wherever the term "attendant" is used the term "male nurse" be substituted.

(Signed) CHARLES MERCIER, *Chairman.*
MAURICE CRAIG, *Hon. Secretary.*

Supplemental Report of Work of Educational Committee to that already Printed and Issued.

The Registrar reports that 704 candidates entered for the recent nursing examination, and that 58.9 per cent. passed.

Six candidates entered for the medico-psychological certificate.

That the Gaskell prize has been awarded to Dr. Rutherford, Craig House, and the bronze medal has been awarded to Dr. Shaw, late of Murthly, and now at Montrose.

As it is considered that the time has now come when the revision of the *Nursing Handbook* should be taken in hand, it is recommended to the annual meeting to direct the Educational Committee to revise the *Nursing Handbook*.

Several letters expressing dissatisfaction with the result of the recent nursing examination have been received by the Registrar, including letters from three medical superintendents. These have been carefully considered, but the Educational Committee are of opinion that the decision of the examiners must be final. Nevertheless, in order to see whether everything is being done to make the marking of the various examiners as even as possible, the Educational Committee have requested the three examiners to confer together and make a report to them on this matter.

Dr. MAURICE CRAIG, in submitting the report of the Education Committee, said a preliminary report had already been issued. This, on the suggestion of the President, it was agreed to take as read. He then read the more recent report, and directed special attention to the suggestion to divide the examination for the nursing certificate into two portions. He concluded by moving the adoption of the report.

Dr. MERCIER seconded the adoption of the report.

Dr. URQUHART said he thought it very gratifying that there were six candidates for the medico-psychological certificate in medicine, and especially that the Gaskell prize had been awarded this year, after being for a considerable interval without a possessor. It had been rather disheartening that the Gaskell should have remained in abeyance so long, and that the bronze medal had also gone unclaimed for some years. The Association would congratulate the winners of those prizes.

Dr. MERCIER said he did not know whether members fully appreciated the significance of the report of the Educational Committee. If it were passed it would be an instruction to the examiners in future to divide the nursing examination into two parts, so that every candidate for the nursing examination would in future have to pass two examinations. It was felt that the time had now arrived when the examination could well be of a more searching character, and when the training also could certainly be fuller and more complete than at present. The committee had received complaints, not only from unsuccessful candidates—which must be expected—but also from medical superintendents, that the examination was, in some respects, unsatisfactory. Those complaints had existed ever since the examination itself had existed. Of course, the examination was capable of improvement, but he did not think the complaints to which he alluded pointed so much to any vital difficulty in the method of examination as to the fact that the system of examination was not sufficiently searching. That would be amended if the proposal of the committee were adopted, namely, to hold two examinations—one on the more elementary subjects, and the other on the more advanced, the two examinations to be separated by a considerable interval of time. As already stated, complaints had been repeatedly made about the examinations, and suggestions offered frequently. The impression which his experience made upon him was not

that the examinations left much to be desired, but that the system of training left a great deal to be desired. (Hear, hear.) The answers given to the questions clearly indicated that candidates learned their handbook off practically by heart. If a question put could be answered in the words of the handbook, it very frequently was so answered—in the *ipsissima verba* of the book itself; and it was answered in such a manner, very frequently, as to show that the candidate did not in the least understand the words used in answering the question. The repeated complaints which had been made about the conduct of the examinations should, it seemed to him, recoil upon those who made them. The examination itself was about as free from personal bias as it was possible for examinations to be made. It was not that the examination was faulty: what was wrong was the system of training. Many complaints had been made that questions had been put which could not be answered out of the handbook. His own practice had been always to put certain questions which could not be answered out of the handbook. It was in the hope that the training of nurses might be made more thorough and less mechanical, as well as less a matter of mere verbal memory, that the alteration now under discussion was urged upon the Association, namely, the division of the examination into two parts, the more elementary subjects being taken in the earlier part, and the less elementary being reserved for the later test.

Dr. F. R. P. TAYLOR asked whether it would be left to the Education Committee to fix the interval of time which must elapse between the two portions of the examination, or whether it would be fixed by the annual meeting of the Association, or would no set time be put down?

Dr. CRAIG said the intention of the committee was nothing more than to obtain the views of the annual meeting on the principle of the division of the examination. Nothing would be arranged without the annual meeting having an opportunity of expressing its opinion on the scheme.

Dr. MERCIER said that if the present proposition were sanctioned by the general meeting of the Association a report would be submitted to a future meeting; and if any interval which was suggested did not commend itself to the meeting an opportunity would be given to amend that report by substituting another interval. What was being asked for at present was a confirmation of the principle.

The PRESIDENT said the business of the meeting at that moment was to either confirm or reject the principle laid down in the Educational Committee's report, which had been duly read.

Dr. POWELL said that one feature of the examination, as at present conducted, was, in his opinion, weak; he had found it so himself. He referred to the entire separation of the written examination from the oral. He had had more than one case in which he was certain the attendant was well up, judging by the oral examination, but, perhaps on account of being somewhat deficient in literary capacity and not writing a good hand, he was unable to express his thoughts well, and had failed. He had more than once felt grieved by the "plucking" of a most excellent candidate for that reason. He thought it would be well if some system could be adopted by which the earning of marks by the written examination should not be kept quite separate from those granted for the oral, but that the general merit at both should be reckoned.

Dr. THOMSON desired to support the remarks of Dr. Powell. When Dr. Mercier stated a short time ago that, so far as he could see, the present examination was as free from obvious defect as any human institution could be, he presumed Dr. Mercier was speaking entirely from the point of view of the written examination. (Dr. MERCIER: Hear, hear.) Probably it was difficult of attainment, but he thought there was not sufficient ruling or direction given to local examiners in respect to the oral examination of candidates. He had been to several places as assessor, and had examined, with other assessors, his own candidates. The subject was one upon which he had bestowed a good deal of attention, and he had read papers at divisional meetings upon it. He found that the practice in oral examinations varied very much in stringency and thoroughness, and thought it ought to be an instruction to the Educational Committee to consider if it would be possible to have some give-and-take in the written as compared with the oral marks, in deciding the position of the candidate.

Dr. CRAIG said he desired to interpose again as he believed he could thus save the time of the meeting. The question under discussion had been properly placed

before the sub-committee appointed by the Educational Committee, and a large number of letters had been received from various superintendents, and he thought he would be committing no breach of confidence if he read an extract from the sub-committee's report, which was printed.

The PRESIDENT said it was quite in order to read it, as it was right the meeting should know it.

Dr. CRAIG read extracts from the sub-committee's report, which he did in order to show that the bearings of the question were being duly taken note of.

Dr. TAYLOR said he was very glad the time of the Association had been saved, and that the Educational Committee, of whose doings the general body of members had no knowledge except through its report, was considering the matters, which made it unnecessary to say any more at the present time.

Dr. OSWALD said members were in possession of the percentage of those who had respectively failed and passed at the recent examination, and suggested that, in addition, the Secretary should state the percentage of those who failed at the practical examination and at the written examination respectively. He believed it would be a source of satisfaction to the assessors, and to the superintendents of the various asylums, to know in what special point the candidates signed up for examination had failed. To give that information would not entail a great amount of extra work, and it would be very useful.

The PRESIDENT said the General Secretary would perhaps make a note of the request.

Dr. MENZIES said that no one was more anxious than he to see reform in the examinations, but he suggested that it was somewhat premature to speak of dividing the official examination into two parts, while the syllabus prescribed only about six months in a year for teaching. That amount of teaching was absolutely inadequate; and it seemed to him that until the Association prescribed a better course of teaching, with more internal preliminary examinations conducted by the teachers themselves, it would be of little use to divide the official examination into two parts, because many of the candidates were ploughed, not from want of knowledge, but from lack of the power of diction. A lot of examining was necessary to be able to answer an examination paper in writing. If there were two, or three, or four examinations every year prescribed by the Association in each of the three years, and that at the end of the third year the candidates should come up for their examination, then they would be able to answer questions in writing, and it would then be time to talk of dividing the official examination into two parts.

Dr. CRAIG pointed out that the discussion now going forward was on questions of details, which were before the Educational Committee. He thought it would be better to leave those matters until the Educational Committee was able to come to a decision. They would probably alter everything in regard to the lectures.

The PRESIDENT said it was most valuable to hear the different expressions of opinion from members of the Association who had taken the trouble to attend the meeting and state their views on the examinations, because by so doing they would be giving a guiding hand to the Educational Committee, and there could be no harm in affording opportunities for such expressions.

After a prolonged discussion the President put the adoption of the report to the meeting, with the additional words "the committee recommends that the nursing examination should be divided." Sixteen voted in favour of this and eleven against.

An amendment to the effect that the proposal to divide the examination into two parts should be referred back to the Educational Committee for elaboration of detail was moved by Dr. Bedford Pierce, seconded by Dr. Mercier, and agreed to.

PARLIAMENTARY COMMITTEE.

Dr. FLETCHER BEACH submitted the report of the Parliamentary Committee as follows:

The Parliamentary Committee beg to report that during the past year the Chairman of the committee (Dr. Ernest White) had attended the Select Committee on State Registration of Nurses, and had given evidence, and as a result

of such evidence and the action of the President a clause had been inserted in the report of the Select Committee to the effect that "they are of opinion that a separate register of registered asylum nurses should be kept by the Central Body, to which should be admitted the names of nurses who have served for not less than three years (in not more than two asylums) and have received the certificate of the Medico-Psychological Association, and can produce satisfactory certificates of good character."

The Chairman of the committee, Dr. Mercier, and the Honorary Secretary of the Parliamentary Committee have interviewed the Commissioners in Lunacy on the disabilities question, and also the Lord Chancellor. On both occasions they were courteously received. The Chairman of the Parliamentary Committee introduced the deputation on both occasions, and Dr. Mercier adduced arguments against the retention of these restrictive clauses in the Lunacy Bill. The Lord Chancellor was much impressed with the arguments made to him by Dr. Mercier, and promised, if he saw his way clearly, that he would do his best to have these clauses removed when a new Lunacy Bill was introduced.

With regard to the Royal British Nurses' Registration Bill, provision for a representative of this Association on the Central Board had been inserted at the instance of the President of the Association and Dr. White.

Ten members of the Parliamentary Committee had been appointed to watch lunacy matters in Parliament and to act with the British Medical Association Sub-Committee, the Chairman of the committee being convener, with power to appoint deputations, etc. The names of the ten members are Drs. Ernest White, Percy Smith, Urquhart, Hayes Newington, Robert Jones, Outterson Wood, Savage, Mercier, Dawson, and Fletcher Beach.

A meeting of this sub-committee had been held, and several matters were discussed. A letter was read from Dr. Smith Whitaker, Medical Secretary of the British Medical Association, in which he said that a sub-committee of the British Medical Association had been appointed to consider amendments in the Lunacy Acts. This sub-committee had presented a report, which had been approved by the Central Council of the British Medical Association. He forwarded a copy of the report and invited the co-operation of the Association in approaching the Lord Chancellor. The matters dealt with in this report referred to (1) provision for the treatment of cases of insanity outside of institutions for lunatics; (2) an increase in the number of the commissioners in lunacy; (3) applying the principles of the Superannuation Act and the Workmen's Compensation Act as regards injuries received in performance of duties to members of the staffs of asylums supported out of the public funds; (4) provision for the reception of voluntary boarders in public asylums; (5) abolition of the separate examination by medical practitioners *re* certification; (6) removal of disabilities; (7) transfer of the license from one jurisdiction to another. These matters were considered by the sub-committee and afterwards by the Parliamentary Committee, which agreed with all the proposals of the sub-committee of the British Medical Association except Nos. 1 and 3. The Parliamentary Committee limited the period of treatment to six months in cases of incipient insanity, whereas the sub-committee of the British Medical Association recommended a period of nine months. The Hon. Secretary was requested to communicate this difference of opinion to Dr. Smith Whitaker, and he had done so. With regard to (3), Dr. Newington was requested to communicate with Dr. Smith Whitaker and draw his attention to the scheme of assured pensions already adopted by the Medico-Psychological Association and to the compensation for injury clauses in a former Bill. This Dr. Newington had also done.

The Hon. Secretary had informed Dr. Smith Whitaker that the sub-committee of the Parliamentary Committee of the Medico-Psychological Association would co-operate with the sub-committee of the British Medical Association on the different points mentioned above, but he had received no answer to his letter and no conference had been called.

The Parliamentary Committee had agreed to co-operate with the Asylum Workers' Association in endeavouring to gain adequate representation on the Board which the State Registration of Nurses Bill recommended should be formed for the registration of nurses.

Dr. Dawson has been added to the Parliamentary Committee.

He proposed its adoption.

Dr. MACDONALD seconded, and expressed the wish that such a report might be printed beforehand, and circulated to members. It was important to know the contents of such a report before the meeting.

Agreed.

Dr. URQUHART asked whether the Parliamentary Committee would consider Dr. Macdonald's proposal.

Dr. HAYES NEWINGTON reminded the meeting that last year a resolution was passed to the same effect, and probably to some extent the Parliamentary Committee had overlooked that. Still, much of that which had just been read by Dr. Fletcher Beach referred to what was done only the previous day, and, therefore, could not have been printed in time.

Dr. MACDONALD said the most recent portion of the report could have been brought up separately; the main part of it might have been printed.

LIBRARY COMMITTEE.

Dr. FLETCHER BEACH read the report of the Library Committee, and proposed its adoption :

The library has been maintained in good order during the past year.

The additional books purchased and presented have been duly recorded in the *Journal of Mental Science*.

Members have the opportunity of using the library for reference, and of obtaining by post books on loan by writing to the resident librarian.

H. RAYNER.

T. OUTTERSON WOOD.

FLETCHER BEACH.

R. H. COLE.

He said some might ask how the Association obtained the books. It might be in the recollection of members that some years ago a fund of £300 was raised towards the Hack Tuke Library Fund; the Association received interest on that money, and it was spent on securing additional books for the library.

Dr. MAURICE CRAIG seconded, and it was carried.

REPORT OF STATISTICS COMMITTEE.

Dr. YELLOWLEES presented the report of the Statistics Committee :

FURTHER REPORT OF THE STATISTICAL COMMITTEE

(APPOINTED AT THE ANNUAL MEETING HELD AT LIVERPOOL IN 1902).

To be presented to the annual meeting of the Association July 26th, 1906.

The Statistical Committee begs to report that, in pursuance of the objects for which it was re-appointed at the last annual meeting, it has done its best to make the initiation of the new scheme of statistical tables convenient and easy. It has been in frequent communication with the Commissioners in Lunacy for England, and it has the satisfaction of being able to report that, after careful revision on all sides, the commissioners have finally approved a complete set of registers that will, in the confident opinion of the committee, serve the purposes of the Association and of all who desire to investigate the leading facts connected with mental disorder. The committee have reason to believe that action is likely to be taken before long on the agreement thus arrived at.

As will be seen by a concurrent report of the Classification Committee, that body is submitting the results of its labours. Any change of nomenclature suggested by it will cause no disturbance in either registers or tables. Forms for facilitating the preparation of the tables have been devised where necessary or possible, and the committee hopes to inform the annual meeting of the exact cost

of supplying these to asylums in the methods proposed and approved last year. These forms have been practically tested by two gentlemen, Drs. Bedford Pierce and Aveline, who constructed registers on the lines of those approved at the last annual meeting, and both report most favourably of the facility in compilation procured by the combination of the registers and forms. The committee desires to thank these gentlemen for the very practical assistance thus rendered.

It remains to be said that progress still has to be made in relation to Scotland and Ireland, but the committee ventures to hope that the registers for these kingdoms will be brought more or less into line with those of England before long. In the meantime, as the preparation of the tables without statutory registers may present some difficulties, the committee has ascertained from the Association's printers that they are prepared to supply these in sheets at a very reasonable rate if ordered in a sufficient quantity. They will take the place of the private registers which are, as the committee is informed, already kept at many asylums for the preparation of the present tables. The committee will report further on this at the July meeting.

(Signed) DAVID YELLOWLEES, *Chairman*.
C. HUBERT BOND, *Secretary*.

He said it was already in the hands of members, therefore it was unnecessary for him to go into it. The only matters which were in the least worth noting were, that the committee were given to understand by the commissioners for England that they accepted the Association's registers, and it was hoped by the committee that they would ere long be put into force. A satisfactory incident, also, was that two of the members had tried the new tables, and had found them much easier than the old ones. The Treasurer was able to tell the members, after communicating with the printers, where blank forms of the registers and forms for compilation purposes could be obtained, and at what cost. He moved the adoption of the report.

Dr. HAYES NEWINGTON said the information referred to there was in two parts. One was in connection with the Register. It was clear that in England, if the commissioners were successful in their endeavours, the registers would be statutory, and there would not be so much necessity to get copies for the use of those who were employing the Association's tables. But in Ireland and Scotland, where, obviously, there would be no alteration in the registers for some time, it had occurred to the committee that it would be useful, for entering up the new tables, to have blank forms of register. The committee were informed that in several of the larger asylums, and probably in the smaller ones also, for the purpose of producing the present registers certain forms had been used. Many superintendents kept a private register of their own, containing much the same facts as were now proposed to be put in the statutory register. The Committee, having that in mind, approached the printers, and the following information was obtained: "We find that if we were to print 500 copies each of the three registers—medical, discharge, and blank—ready for facts being entered, the price per sheet would work out at about 1*d.* apiece." There were twenty-five entries in each page of the medical registers, and, of course, the civil registers would not be wanted. So that a large asylum, admitting a couple of hundred patients per year, would spend 8*d.* in getting registers of admission, and from that one could deduct the amount which would be required in getting a relative amount of discharge and death registration. Probably a couple of shillings would cover the cost for the largest asylums. With regard to compilation forms, the committee understood that several asylums already used some sort of form to assist them in compiling the present tables; in fact, the present tables, for a large asylum, could not be dealt with except by some form which was got out by the medical superintendent or the clerk beforehand for the purpose. Those submitted to the Committee had been designed with the view to fitting the present tables under the new system. There were fifteen of the tables which required compilation forms to complete them. The summation tables did not want them. The estimate of the printers was in two forms—one on plain paper and the other on squared paper, such as was exhibited at the last annual meeting. "We estimate for sets of the nine sheets, consisting of fifteen tables"—some of the tables were so small that they were put on to one big sheet—printed at one time, for sets printed on plain paper, 500 sets, £30; 1000 sets, £42 10*s.* If they

were printed on separate pieces of paper, or not printed at one time, the cost would be considerably higher. Under some circumstances the tables were printed on squared paper, and then the 500 sets would cost £39 and 1000 sets £55, which was practically about 30 *per cent.* extra for squared paper. One thousand sets would last 200 asylums five years. He could not say what number of asylums would require tables, but he thought it was important to have the printers' estimate.

Dr. HUBERT BOND seconded the adoption of the Report.

Dr. URQUHART said he understood that the work of the Statistics Committee was now at an end.

The PRESIDENT said it would be when the report had been voted on and adopted.

Dr. URQUHART said there was no further proposal relating to it, and nothing on the agenda-paper pointing to a continuance of the work of the Statistical Committee, therefore that committee might be considered dead.

Dr. MERCIER asked whether the committee was not re-appointed at the last annual meeting to facilitate the production of those tables; if so, would it not continue to exist for that purpose?

The PRESIDENT replied that he could only deal with matters on the agenda-paper.

The report of the Statistics Committee was then put to the meeting, and adopted.

REPORT OF CLASSIFICATION COMMITTEE.

FORMS OF INSANITY,

As it appears at the time of record.

- | | |
|---|---|
| <p>I. Congenital or infantile mental deficiency (idiocy or imbecility), occurring as early in life as it can be observed—</p> <p>1. Intellectual—</p> <p style="margin-left: 2em;">a. With epilepsy.</p> <p style="margin-left: 2em;">b. Without epilepsy.</p> <p>2. Moral.</p> | <p>9. Melancholia—</p> <p style="margin-left: 2em;">a. Recent.</p> <p style="margin-left: 2em;">b. Chronic.</p> <p style="margin-left: 2em;">c. Recurrent.</p> <p>10. Alternating insanity.</p> |
| <p>II. Insanity occurring later in life.</p> <p>1. Insanity with epilepsy.</p> <p>2. General paralysis of the insane.</p> <p>3. Insanity with the grosser brain lesions.</p> <p>4. Acute delirium (acute delirious mania).</p> <p>5. Confusional insanity.</p> <p>6. Stupor.</p> <p>7. Primary dementia.</p> <p>8. Mania—</p> <p style="margin-left: 2em;">a. Recent.</p> <p style="margin-left: 2em;">b. Chronic.</p> <p style="margin-left: 2em;">c. Recurrent.</p> | <p>11. Delusional insanity.</p> <p style="margin-left: 2em;">a. Systematised.</p> <p style="margin-left: 2em;">b. Non-systematised.</p> <p>12. Volitional insanity.</p> <p style="margin-left: 2em;">a. Impulse.</p> <p style="margin-left: 2em;">b. Obsession.</p> <p style="margin-left: 2em;">c. Doubt.</p> <p>13. Moral insanity.</p> <p>14. Dementia.</p> <p style="margin-left: 2em;">a. Senile.</p> <p style="margin-left: 2em;">b. Secondary or terminal.</p> |

The Classification above recorded is submitted to the Association by the Committee appointed for the purpose at the Annual Meeting on July 20th, 1905.

<p>(Signed) EDWIN GOODALL. ROBERT JONES. JOHN MACPHERSON. CHAS. MERCIER (Secretary).</p>	<p>CONOLLY NORMAN. GEO. H. SAVAGE. R. PERCY SMITH (Chairman). T. OUTTERSON WOOD.</p>
--	--

Dr. Percy Smith in submitting this Report said :

Mr. President and Gentlemen,—It will be within your recollection that at the Annual Meeting held in London on July 20th, 1905, a resolution was passed on the motion of Dr. Mercier that a committee should be appointed to draw up a Table of Disease and to report again to the Association, and it was left to me as the then President to nominate the members of the committee.

In accordance with this resolution I nominated the following: Dr. Edwin Goodall, Dr. Robert Jones, Dr. John Macpherson, Dr. Charles Mercier, Dr. Conolly Norman, Dr. G. H. Savage, Dr. Outterson Wood, and myself. With regard to the personality of the committee I don't think I need say much. I tried without exceeding what seemed to be a workable number to secure representatives of England, Scotland, Ireland and Wales, of writers of text-books, of pathology, of clinical teaching, of county asylums, registered hospitals and private asylums, of the officers of the Association, and last but not least a representative of official lunacy administration, who, however, agreed to act in a private and scientific capacity only.

The committee has held meetings in London on October 10th, November 16th, 1905, and on January 20th, 1906, in Leeds on February 24th, 1906, and lastly, in London on May 30th.

At the meeting on January 20th in London all the members were present, and the meeting lasted six hours. All the meetings were long, and in addition there has been much correspondence. The committee began by eliciting the opinions of its members as to the basis of classification, and in addition to making the broad divisions I, Congenital or infantile mental deficiency, and II, Insanity occurring later in life, it decided that the chief basis of classification in the present state of knowledge must still be clinical pictures of disease, and that as far as possible the groups should be mutually exclusive. There were, of course, as must always be the case in any discussion on the classification of forms of insanity, many different views put forward; but it was recognised by every one that the only possible solution was a judicious compromise between conflicting views, that the existing table held the field, and that the Association had only recently modified and amended the table put forward by the Statistics Committee, and that the table to be framed must be one likely to be acceptable to the majority of members of the Association.

In the end it was unanimously agreed to submit the table now put before the Association.

With regard to the main divisions, under I, Congenital or infantile deficiency, it was thought right to distinguish (1) intellectual from (2) moral defect, and under "intellectual" to retain the existing subdivisions with and without epilepsy.

The major portion of the committee's deliberations, however, concerned the second division, namely, II, Insanity occurring later in life.

The committee have considered it advisable that although there should be no definite headings to various groups, yet that as there seems to be a clinical affinity between certain forms of insanity this should be indicated in the table by spaces being left at certain places. This is already found in a tentative form in the table put forward by the Statistics Committee at the adjourned annual meeting held on July 19th, 1905, and adopted *pro tem.* by the Association, in the fact that a space is left between "Dementia from tumours, etc.," and "Mania."

The committee found no difficulty in thus placing, (1) Insanity with epilepsy, (2) General paralysis of the insane, and (3) Insanity with the grosser brain lesions, in a group together, corresponding very closely with similar headings in the existing table. It was thought to be more true clinically to speak of "insanity with epilepsy" than "epileptic insanity," and "insanity with the grosser brain lesions," rather than "dementia from tumours, coarse brain lesions, etc.," and it will be within the recollection of members that only recently the Association declined to adopt the terms "progressive general paralysis" and "dementia paralytica" and preferred the term "general paralysis of the insane."

I regret that in spite of several corrections of proofs no space has been shown in the report presented to you to-day between Nos. 7 and 8. There should be a space there showing that we group Nos. 4, Acute delirium; 5, Confusional insanity; 6, Stupor; and 7, Primary dementia, together. It was felt by the committee that these form a somewhat natural group. Acute delirium (Acute delirious mania)

is not found in the existing table, but such cases do occur as clinical pictures, and cannot always be properly classed as "mania."

In the existing table "Stupor and states of confusion" and "Primary dementia" are found, and the committee considers that they are of sufficient clinical importance to justify separate headings as is recommended.

The question of "dementia præcox" was, of course, carefully considered, and the committee did not desire to reinsert this term.

The next group, (8) Mania, (9) Melancholia, and (10) Alternating insanity will be found in the existing table, and we have amplified it by adding "recurrent" to "mania" and "melancholia." Much discussion took place as to whether the committee should recommend the adoption of such terms as "manic-depressive insanity" or "mania-melancholia," but in the end the committee decided against it, believing it would not be acceptable to the Association. It seemed to the committee best to show the group by the spacing and not to alter existing nomenclature in a direction not generally approved in this country. No. 11, Delusional insanity, stands by itself, the committee recommending that it should be subdivided as shown. It will be remembered that the Association recently refused to adopt the term "paranoia" in this relationship, and the committee avoided using foreign terms. Volitional insanity is shown in the existing table grouped with moral insanity. The committee considered that these should be separated, and that volitional insanity should be subdivided according as it is of the impulsive, obsessive, or doubting type.

That leaves only the group of cases of dementia which have been subdivided into senile and secondary, as in the existing table.

It is believed by the committee that the rearrangement of the forms of insanity shown in the table now presented will be acceptable to the Association.

I therefore beg to move that the table now presented by the committee be received and adopted and substituted where necessary for the existing tables of the Association.

Dr. MERCIER seconded it.

Dr. BRUCE asked whether the committee would define some of the terms, because if one had a terminology which could not be defined it was of no use. For instance, he would like to hear what "confusional insanity" was. Also, what were stupor and primary dementia? If one began to discuss that matter the six hours which Dr. Percy Smith mentioned as having been occupied in committee might be exceeded at the present meeting. He thought that all medical terminology ought to be definable; that was the principle upon which all branches of medicine were based. If terminology could not be defined, then that terminology was unscientific.

Dr. CRAIG said he agreed with Dr. Bruce about some of the tables. He did not know what primary dementia meant. In Tuke's *Dictionary* one found under that term the words "*Vide* stupor," but that was included already. He would like to know what it definitely meant. It was not dementia præcox. Neither did he know what was meant by "non-systematised delusional insanity." Another obscure point had reference to moral insanity. Was there a moral insanity apart from that which occurred in a weak-minded person, because moral imbecility and moral insanity were placed under two heads? Further, he greatly regretted that there had been no attempt to put in intoxication, exhaustion, traumatic, or myxœdematous insanities. In fact, the classification remained very much as it used to be; they still kept the symptomatic classification. It was the same as if, in physical disease, wherever there was diarrhœa and fever, the states were classed as diarrhœa and fever. A similar criticism applied to general paralysis of the insane,—the mental side of it was already classified elsewhere. In the present scheme the committee simply adhered to the old division on a symptomatic basis, and if that was all that could be done, he thought it would be better to do nothing, otherwise the Association would stultify itself with continental and other authorities. He thought the speciality had advanced a good deal farther than the proposed classification indicated. The committee was a very strong one, and if they considered that no further progress had been made, it would, he thought, be better to leave it entirely, than to print and publish to the world that the present effort was all that the British Medico-Psychological Association could do.

Dr. ROBERT JONES said that all those points had been discussed in committee, and they had felt the great difficulty there was in introducing confusional insanity,

stupor, and so on, as Dr. Bruce had already stated. The committee wanted, if possible, to get a classification into which any particular case which might arise could be placed, and to avoid one thing, namely, the facts of causation, which would introduce a cross-classification. One knew that confusional insanity could result from puerperal toxæmia, from alcohol, from fevers, and so on. Thus the committee had a great deal of trouble with the classification. The essence of a proper classification was to understand the pathology, and, as Dr. Craig had said they had advanced very much in this direction, but he ventured to think we could not classify insanity upon our present pathological knowledge, and he did not think enough progress had been made to enable a complete and proper classification to be made upon a pathological basis. He sympathised with Dr. Craig's feeling, and it was one which had been repeatedly discussed in committee. He was sorry they had not done better, but they had endeavoured, in the light of psychology and symptomatology and pathology, as was known in these directions at present, to bring forward a classification which might be acceptable.

Dr. URQUHART said that he would very much like to know why the etiological factors had been omitted. He hoped the meeting would forgive a countryman of Skae for referring to the matter. If they were to give up talking of adolescent mania they felt satisfied that they could write something about senile dementia; and if nothing was to be said about puerperal cases there was at least the blessed G. P., the one ewe lamb of their pathology. And although one might not talk about alcoholic amnesia or dementia, it was permissible still to speak of epileptic insanity, or insanity with epilepsy. What surprised him in the matter was that Dr. Mercier was on the committee. Here was a classification of forms of insanity, which he supposed meant forms of mental disorder, which in the good old way classified horses, mountains, rivers, whirlwinds, blacksmiths, clouds, and anything else; and it was done unblushingly. That passed his expectations. The only class which had been omitted to suit men like him, who were always criticising the productions of committees, were the *querulants*. He thought it a very good thing that imbecility had definitely had "moral" added to it, or "unmoral." Why "with or without epilepsy" had not been put in after "moral" passed his comprehension. In passing to acquired insanities, those acquired in later life, most alienists believed that the first item should be melancholia, having always been taught that melancholia was the smallest departure from sanity, and that it was often to be recognised in all forms of mental disorder. Dr. Crookshank's remarks the other day were most valuable, but he (Dr. Urquhart) wished to still continue those names, as keeping something definite; cases could be classified on that basis so far, and at any rate according to symptoms and in terms of time. Last year he proposed that the term "recurrent insanity" should be included, but it was promptly knocked out, although he went so far as to define what might be regarded as recurrent insanity. But there again, if the same committee were to bring forward another classification next year they would probably upset all the findings of to-day with the greatest equanimity. That was continually being done. He (Dr. Urquhart) did not know why acute delirium or acute delirious mania was separated from mania. He did not understand why their classification had been turned upside down, inside out, and round about. He was very glad the English name "delusional insanity" had been adhered to. He had already asked Dr. Percy Smith who killed paranoia? There let it lay. Were members to give up classifying their cases as adolescent and myxœdematous cases, and so on? Was it the intention of the committee that there should be no classification by etiology? The committee had apparently come to the conclusion that an etiological classification should not be attempted; but members would probably continue it in practice whether the committee liked it or not. He felt sure that the men who objected to those terms would use them before the day was out; but if they did it unauthorised he (Dr. Urquhart) would offer no objection.

Dr. MERCIER said he would endeavour to answer some of the criticisms which had been made. The committee was asked to define the terms they had used. The committee was appointed for the purpose of drawing up a classification. It was not a defining committee. If the committee had been appointed to define, it would have done its best to bring forward definitions. As it was, the committee thought members who required definitions should refer to their text-books, and

there they would find them. It had been said that moral imbecility was the same thing as moral insanity. He, however, thought they were as different as any two things could possibly be. It only showed that if everyone's opinion was to be taken into consideration in drawing up a table, nothing would be arrived at at all. With regard to the etiological question, in the first place, it appeared that members who had offered that criticism—Dr. Urquhart in particular—had overlooked the words with which the classification was prefaced. The classification purported to be the classification of forms of insanity as it appeared at the time of record. In classifying the disease no consideration was paid to the antecedents of the case at all.

Dr. CRAIG said if he were included in those remarks, they did not apply.

Dr. MERCIER submitted that he was in possession of the meeting. Insanity was classified by the committee as it appeared at the time of record, and they desired to put forward such a classification that a person who found an insane man in the street, or who had an insane person produced to him without any history at all, and without any antecedent knowledge of the case being forthcoming, could find a place in that suggested classification in which to put it.

Dr. THOMSON pointed out that "alternating insanity" was the term used.

Dr. MERCIER admitted it; *exceptio probat regulum*. He would not reveal the secrets of the committee further than to say that he opposed that as hard as he could. In the second place, another reason, and to his mind, with what he had already said, an amply sufficient reason to exclude every reference to etiology was, that one could not introduce etiology into a table or classification without introducing a cross-classification; it was impossible. In that case one could classify every case under two or three headings; but in the present classification he maintained that could not be done, unless a mistaken observation were made. There was only one place for each case in the table. If once the principle of etiology were introduced, one brought in all kinds of cross-classification, and the classification became, for practical purposes, worthless. Moreover, the etiological factor was to be found in the table of causation; that was the proper place for it; it was where one would naturally look for it. But it was impossible to combine an etiological and a symptomatological classification, and for that reason the committee deliberately left out with the utmost care every reference to etiology in that classification. It had been said that the Association should have some regard to continental authorities. He did not know why. It seemed to him that if those in that room were not capable of forming a classification without regard to continental authorities, the Association had better be dissolved. So far as he knew continental classifications, he would be very sorry indeed to adopt them. And so far as he knew continental terminology, he would be still more sorry to adopt it. The British Medical Association, in its psychological section, deliberately declined to admit that such a thing existed as dementia præcox, and he felt sure that if the matter were discussed before this Association, it also would decline to admit that there was any such thing apart from insanity generally. And the very thing which the committee deliberately and rigorously excluded from the classification was any name drawn from a foreign language. He thought the resources of the English language were sufficient to carry their own ideas, and there was no need to be borrowers from any other nation. Lastly, Dr. Urquhart had told the meeting, much to his (Dr. Mercier's) sorrow and astonishment, that there were a great many things which Dr. Urquhart did not understand. Upon that he had no comment to make.

Dr. CRAIG said he desired one word of explanation. He had been accused of wanting an etiological classification, but he wanted nothing of the kind. All he wished was that where diseases were known they should, with all due respect to Dr. Mercier, be stated. He held that the exhaustion psychoses were clear and definite enough for the man in the street to diagnose them; and why should there be cases which one day were classed as mania and two days afterwards required to be put down as stupor.

A MEMBER: We have not yet heard what is primary dementia.

The PRESIDENT reminded the meeting that it was not a table of definitions.

Dr. PERCY SMITH said the purpose was to draw up a table of disease.

Dr. BEDFORD PIERCE thought Dr. Mercier led the meeting astray by saying that any person with average intelligence could put two into one group. He (Dr. Pierce)

had a patient whose condition he could put into five groups. She could be considered a case of chronic mania, chronic melancholia, non-systematised delusional insanity, she certainly had volitional insanity with impulse, and she was demented. He thought Dr. Mercier had said more than was necessary. It was impossible to produce any classification at present which would stand such a severe test as Dr. Mercier mentioned. On the whole, he thought the table was as good as any upon which members were likely to agree, and he would be glad to support it.

Dr. YELLOWLEES desired to support the table. Firstly, it had the great merit of being very like the last one. He had ventured the statement that it would be very brave and possibly rash in that Association to attempt a new classification. He felt that knowledge had not sufficiently advanced to give a new and perfect classification, and he thought the committee had done most wisely in accepting that position and doing the best they could. The table was very like the old one, but improved and considerably lengthened. There were one or two things in it which he personally took exception to, but, on the whole, it was a very wise production. He had dreaded to hear something very logical and very impracticable brought forward: but when he saw the names of the committee he concluded it would not be an empty flight ending in nothing. He thought with Dr. Mercier that an etiological factor of classification was impossible, just as it was impossible to make any classification about which there might not be doubt or error. What Dr. Bedford Pierce had said was true; one might put a case into one, two, or three classifications, according to the condition in which the patient was seen. The proper course was to put the case into the category to which it belonged at the moment. That could not be altered. To make it etiological would lay one open to another mistake. It was known that one cause might produce two or three different forms of insanity. How could that be made intelligible in any table? It was impossible, and he thought the committee had done very wisely, and the Association was much obliged to them. He did not know why they had put in the very curious note: "Congenital and infantile mental deficiency occurring as early in life as it can be observed." It occurred long before observation was possible, and he hoped that was not to be a permanent addition to the table, because he regarded it as meaningless. He also confessed to some hesitation about confusional insanity, and he accepted it only because the opinions of others were so strong. He believed confusional insanity to be a phase of stupor, or of dementia, or the beginning of recovery from an acute attack. He did not like the term "confusional insanity," and did not believe in it as a separate entity as comparable, *e.g.*, to delusional insanity. He thought the committee had arranged the table properly; where they knew the pathological changes they founded on them, and where it was necessary to fall back on the clinical symptoms they had done so. The committee had made a most practical and useful classification. Their explanation of volitional insanity was excellent. Altogether the committee had done exceedingly well, and he gladly supported the adoption of the report.

Dr. POWELL said he would very much miss the exclusion of one very old term from the present classification, and perhaps two—namely, acute mania, and acute melancholia. Acute mania conveyed to him an idea of a disease which the word "recent" did not; and the same applied to melancholia. He would like to know whether it would not be possible to retain the word "acute" by saying "acute and recent," or "acute or recent."

Dr. MERSON said that some members did not understand the difference between stupor and primary dementia; to his mind, primary dementia was a form of stupor. It was impossible to classify without defining in one's mind before classifying. There must be some meaning attaching to this and to other terms. He confessed he would like to have some clearer definition of what was meant by delusional insanity and systematised and non-systematised insanity.

Dr. RAYNER said that while he generally approved of the classification, a work which had been wonderfully well done and seemed marvellously clear on many points, he thought there might well be some reconsideration about primary dementia. That term was used for so long as synonymous with stupor that there was a possibility of definite confusion. Of course it was known that dementia did occur primarily, but what used to be termed primary dementia was a form of stupor.

Dr. CONOLLY NORMAN hoped that as one of the signatories of the scheme he

might be permitted to waste the time of the Association a few moments. Dr. Yellowlees had made a number of minor objections, although the committee were indebted to him for general support. Dr. Yellowlees had spoken of the very first phrase which occurred in the classification, and he confessed he scarcely followed that gentleman's objection to it. It was the sentence "congenital infantile mental deficiency as early in life as it can be observed." He believed the rest of his colleagues, and certainly he himself, had in mind that to describe congenital mental deficiency when the mind itself was hardly a congenital characteristic of the human animal might be open to misconstruction. Therefore the committee pointed out that they spoke of mental deficiency which occurred as early as mental symptoms could be noticed. That seemed clear, and he could not see any objection to it. The meeting had heard with absolute astonishment that moral imbecility and moral insanity were the same. It was not necessary for him to say more about that, as Dr. Mercier had already truly said they were as different as things could be, at least in their typical forms. The next group which caused comment was that from 4 to 7. "Confusional insanity," No. 5, was a term in very frequent use; it was to be found in almost every modern text-book. Someone had practically said that members had not studied enough German, but there had been no disease of the mind which had been more frequently studied and described in Germany during the last few years than that condition of affairs which was called *Verwirrtheit*, which was commonly translated "confusional insanity." Members could not have their bread buttered on both sides, any more than could others, and no one could blame the committee for having been Germanic and non-Germanic at the same time. With regard to No. 7 (primary dementia) Dr. Rayner, who was criticising the term, had, as would be expected from his great clinical experience, recognised the entity. Dr. Rayner said that at one time it was usual to call stupor "primary dementia." He submitted to that gentleman's greater experience and wider reading, but his recollection was that in times when such a phrase was used, that phrase was "acute dementia."

Dr. RAYNER said he stood corrected.

Dr. CONOLLY NORMAN, continuing, said he was perhaps being betrayed into definitions, though Heaven forbid! Stupor was not meant, but primary dementia, and the committee spoke of that disease which Dr. Rayner stated to exist, which was well known to exist, and must be in the experience of all whose acquaintance with mental disease was considerable. It was a dementia quite primary, as far as could be seen, usually progressive, and appearing mostly at the adolescent period. It might be said in reply, if further comments were made, that it was dementia præcox. That he denied most absolutely. Dementia præcox had been avoided, because that term, to any dull, ordinary British intelligence, meant every form of mental disease which could be raked together. It had also been objected that the Committee used the word "recent" for mania and melancholia instead of "acute." But acute was not the exact antithesis of chronic; a chronic case might be very acute in symptoms, and the committee thought it better and more consistent with the end in view to divide the cases according to time, because the tables proceeded to the enumeration of forms of insanity as appearing at the time of record. Therefore, obviously, it was better to antithesize "recent" and "chronic" than "acute" and "chronic." He was glad there had not been up to the present, except in a remote and inferential way, any criticism of Form 12—volitional insanity. A few years ago it was considered extremely wise and insular to deny the existence of obsessions and impulses, and to cast doubts even upon doubt. But he perceived that the Association had learned something from the late Dr. Hack Tuke, and even from those continental writers whom the committee were accused of knowing nothing at all about.

Dr. URQUHART asked to be allowed to say one word in justice to the memory of one of the greatest men of the specialty who ever lived—Gresinger. He desired to say that in view of what Dr. Mercier said to the effect that there must be nothing Germanic about the scheme.

Dr. MERCIER: I never said so.

Dr. URQUHART, continuing, said it was based upon Gresinger, and it had not advanced one iota beyond his dictum, though it would only describe those diseases in point of symptoms and time. It was Gresinger's classification.

The PRESIDENT said a new term had been produced to the Association that day,

at all events one which he had never heard before. It seemed to be a very good one, namely "adolmentia."

Dr. PERCY SMITH said he did not think there was any need for him to add anything more, especially as it was getting towards the time for the President's address. He believed every one had been answered by speakers. Dr. Merson asked why systematised and non-systematised were mentioned. The Committee felt that there were cases in which the delusions had become organised and systematised, while there were other cases in which fixed delusions were present, very often the final result of what was called mania. Those cases were classed under non-systematised delusional insanity; it was delusional insanity in the sense that there was a fixed delusion; but it was not systematised and organised, as in cases which had been called paranoia. He thought Dr. Craig rather had in his mind that the committee excluded the possibility of anybody teaching about alcoholic or puerperal insanity. But it did not do anything of the kind. Whatever terms one chose could be used, or members could teach what they liked; but for the purpose of that table, which was to record the cases admitted into asylums, the committee thought that a symptomatological classification, and not an etiological one, was much more practicable. The etiological forms could be indefinitely added. He did not think the Association as a whole would be prepared to adopt any large amount of Skae's classification, and, as Dr. Mercier had said, it admitted overlapping to a tremendous extent. The Committee had done its best to obviate overlapping, but everyone would recognise that a certain amount of it must occur. He thought everybody else's remarks had been answered.

The report was then put to the meeting, and carried by a large majority.

REPORT OF COMMITTEE IN REGARD TO UNION OF MEDICAL SOCIETIES.

Dr. PERCY SMITH said there was no report from the committee, but there was a report from the representative who was appointed to represent the Association, and the present seemed the right time to bring it up.

Re UNION OF MEDICAL SOCIETIES.

It will be within the recollection of members that a committee of the Council was appointed on November 16th, 1905, "to confer with the Executive Committee of the proposed union in order to see if objections which at present seem to the Council to be fatal can in any way be met."

This committee consisted of the President (Dr. Outterson Wood), Dr. Hayes Newington, Dr. Rayner, Dr. Robert Jones, and Dr. Percy Smith, who had previously been appointed as delegate of the Association on the General Committee of Representatives of the Societies.

The committee made a report to the Council on February 23rd, 1906, and in accordance with its suggestion a resolution was passed submitting the question of union to the Divisions for consideration and comment, each member of the Association being provided with a copy of the report of the General Committee of Representatives and a copy of the report of the Committee of Council.

(1) The Scottish division at its meeting on March 23rd, 1906, expressed disapproval of the union, but would be prepared to reconsider the proposal upon hearing further details regarding the scheme.

(2) The Northern and Midland Division at its meeting on April 19th, 1906, passed the following resolution: "Seeing that the Medico-Psychological Association is a national organisation, with membership in England, Scotland, and Ireland, and that the proposed medical academy appears to be a purely London institution, the Northern and Midland Division does not see how any affiliation is possible."

(3) The Irish Division at its meeting on April 24th, 1906, passed the following resolution:

"That the Irish Division is of opinion that it is not desirable for the Association to join the union of London medical societies as at present proposed to be constituted."

(4) The South-Eastern Division of the Association considered the matter at its meeting on April 25th, 1906, and passed the following resolution :

"The South-Eastern Division is of opinion that it would be a mistake to give an unqualified refusal to join the proposed union until there has been time to see what final shape the scheme assumes, and whether some of the difficulties may not disappear."

(5) The South-Western Division at its meeting on April 27th, 1906, passed the following resolution :

"While this division disapproves of amalgamation, it hopes the Council of the Association will interest itself in the scheme and associate itself with the formation of the mental section."

No further meeting of the committee of Council has been held since its report was made to Council, but a meeting of the General Committee of Representatives of the various societies was held on July 17th, 1906 (at which your representative was present), to receive a report from the Organising Committee presenting a scheme of amalgamation for final adoption.

This report shows that eighteen societies have expressed willingness to join, and that it is proposed to form eighteen sections at first, the Medical Society of London not having, however, yet given a definite answer, and the Medico-Psychological Association and Medico-Legal Society not being able at present to form sections in the new society.

It is not proposed at present to form a separate mental medicine section.

The report was adopted by the Committee of Representatives with only slight verbal amendments, and it was resolved that "this report should be laid before the various societies, and those societies which approve it should each appoint, before December 7th next, a representative to form a committee to draw up rules, and to deal with the necessary formalities of amalgamation."

Only sufficient copies of this report have been supplied for the use of the Council, but the printers (Bale & Danielsson) have been instructed to keep the type set up so that any society can obtain as many copies as may be required direct from the printer by paying the cost of them.

This is the first occasion on which this question has come before the Association as a whole, but it has been considered by the separate divisions with comments as given above.

It may be said that the scheme now finally adopted by the Committee of Representatives, and only awaiting formal sanction by the various societies before December 7th next, does not satisfactorily meet the difficulties which seemed to the Council of the Association in the first instance to be fatal, *viz.* :

- (1) Our position with regard to the training and registration of mental nurses.
- (2) The objection to handing over and dropping the *Journal of Mental Science*.
- (3) The difficulties with regard to trust funds.

The Committee of Representatives now, of course, awaits a definite answer from this Association as to whether it does or does not *approve* of the committee's final report as adopted on July 17th, 1906, and its Secretaries have written formally to the General Secretary of the Association asking for this answer by December 1st.

If the Association approves, it then must appoint a representative on the General Committee, and

If it does not approve, the matter must be allowed to drop at least for the present.

If the Association desires to defer giving an answer till after its meeting in November next, in the meantime circulating the finally adopted scheme to all the members of the Association and referring the matter again to the divisions, it can, of course, do so; but it seems doubtful whether the scheme in its final form is likely to be more acceptable to the Association than that circulated in February.

R. PERCY SMITH,

Representative of the Medico-Psychological Association on the General Committee of Representatives of the various societies.

He added that it was for the Association to say whether it would or would not approve of the scheme.

Dr. URQUHART asked whether Dr. Percy Smith would not make a motion.

Dr. PERCY SMITH said he did not think it was his place to make a motion.

The PRESIDENT asked whether it was the idea that the Association should receive the Report.

Dr. PERCY SMITH said the Association could adopt the report and appoint a representative. If it did not approve the report it would do nothing. Or it could defer it until November, circulating it in the meantime to all the members. He did not think that would be of any use, because he did not think the scheme differed in any degree from the original one. If there was any proposal to be made, well and good, but he did not like to propose that the Association disapprove of the report, because he thought many things could be said in favour of joining.

Dr. URQUHART said that was the difficulty. Dr. Percy Smith had scarcely indicated in the short report he had just read what an immense amount of trouble he had taken over the scheme since the inception of it. (Hear, hear.) It was certainly the most tempting proposal which could be made to the medical profession in this country that there should be a great Academy of Medicine, and that every speciality should be represented upon it. It was an old idea. It was the proposal which, fifty years ago, was wrecked by the Obstetrical Society, and had been revived under circumstances which promised better success. But for that Association, however tempting it might be at first sight, he did not think they could join in the scheme, because it would mean that the Association would sink its individuality altogether, and it would be unable to promote the cause of those working in the asylums and amongst the insane of the country, before Parliament and otherwise, as was the case at the present time. It would also mean the sinking of the Journal, and possibly very difficult questions about finance and the trust funds held by the Association. However reluctantly, he thought the Association must give up the notion of entering upon such an undertaking. Then it must be remembered that they were the Medico-Psychological Society, not only of London, but of Great Britain and Ireland, and that the Colonies were claimed also. (Hear, hear.) Therefore their position was scarcely that of the Royal Medical and Chirurgical Society, or that of the Medical Society of London; it occupied a wider field than those. If it could be at all indicated to that Association that by some means they would be able to manage their own affairs and maintain the position which they had held for so many years, the matter might be reconsidered. But from the last report of the committee it seemed conclusive that there was no place for the Association in the suggested Royal Academy of Medicine except as separate and independent members. He moved that that be respectfully intimated to the committee.

Dr. PERCY SMITH thought it would be better to move that an answer be sent by the General Secretary to the Secretaries of the Committee of Representatives expressing regret that the Medico-Psychological Association did not see its way to join the proposed union at present.

Dr. YELLOWLEES seconded.

The PRESIDENT reminded the meeting that the proposition was, that the General Secretary should write and inform the Secretary of the Council of the amalgamation scheme that the Medico-Psychological Association regretted that circumstances did not permit of their joining under the proposed regulations at present.

Dr. HAYES NEWINGTON reminded the meeting that there was also a subsidiary part, namely, the question of the formation of a mental section of the Academy. One of the divisions of the Associations—he believed it was the North-Midland division—expressed the warm hope that something would be done to interest members in the formation of a mental section. It would not be unwise to ask the committee to continue its labours with that end, to see whether anything could be done, not necessarily to do anything, to form a mental section with the Association's help.

Dr. PERCY SMITH thought it would be rather dangerous to start a mental section at present, because it might split the present Association. (Hear, hear.) Members did not want to do that. It had been suggested informally to him that the Section of Neurology should be called the Section of Neurology and Psychiatry. There were many members of the branch in the Neurological Society, and that would seem a possible method, but it would be difficult.

The PRESIDENT suggested that perhaps members would like the Report put to the meeting and the committee continued.

Dr. BEDFORD PIERCE thought that course should be carried out. It would be very unfortunate to break off negotiations. The proposed Academy had not been formed yet, but the matter now seemed nearer solution than before. He was in favour of the committee on the subject being kept alive, with power to negotiate.

Agreed.

MOTIONS INVOLVING EXPENDITURE OF FUNDS.

Dr. HAYES NEWINGTON said it had been pointed out that there was an expenditure of funds involved in the Report of the Statistical Committee which had been passed a short time ago. It was assumed that the authority of the Association had been given to that, and it would be subject to the ruling of the President whether it should come up again.

The PRESIDENT ruled that there was no need for it to be brought up again at present.

DATES OF ANNUAL, QUARTERLY, AND DIVISIONAL MEETINGS.

The following dates of meetings were agreed to : Quarterly meetings, Thursday, November 15th, 1906 ; Friday, February, possibly 22nd, 1907 ; Wednesday, May 22nd, 1907.

Dr. CARSWELL asked whether it would be possible to leave the November meeting so that its date could be fixed by the Scottish members.

The PRESIDENT replied that the Scottish members could alter what they liked for their own meetings, but it must be done now and to-day. It must be fixed at the annual meeting, although with the consent of the President a date might afterwards, if necessary, be changed.

Dr. CARSWELL asked whether a special resolution could not now be passed specially permitting that.

Agreed.

The divisional meetings are fixed as follows :

South-Eastern Division.—October 17th, 1906, and April 17th, 1907.

South-Western Division.—October 26th, 1906, and April 18th, 1907.

Northern and Midland Division.—October 11th, 1906, and April 18th, 1907.

Scottish Division.—November 2nd, 1906, and March 22nd, 1907.

Irish Division.—November 5th, 1906, April 22nd, 1907, and July 4th, 1907.

The PRESIDENT, at this point, announced that the following candidates for membership had been unanimously elected :

GILMOUR, RICHARD WITHERS, M.B., B.S., Assistant Medical Officer, St. Luke's Hospital, London, E.C. Proposed by Wm. Rawes, H. Hayes Newington, and Robert Jones.

LONG, SYDNEY HERBERT, M.D.Cantab., Physician to the Norfolk and Norwich Hospital, and to the Jenny Lind Hospital for Children, 37, St. Giles's Street, Norwich. Proposed by D. G. Thomson, Arthur E. Patterson, and R. H. Steen.

SEPHTON, ROBERT POOLE, B.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, The Lawn, Lincoln. Proposed by Arthur P. Russell, G. Parsons Torney, and T. L. Johnston.

RESOLUTION FROM THE SOUTH-EASTERN DIVISION.

The PRESIDENT intimated that a resolution in the following terms had been received from the South-Eastern Division : " The South-Eastern Division of the Medico-Psychological Association deems it expedient that before the new statistical tables are brought into operation the opinion of each member of the Association be taken by post as to whether or not he or she is in favour of adopting the new tables in their present condition, and that the resolution be forwarded to the General Secretary of the Association with the demand that such resolution be discussed at the next annual meeting." That resolution, he said, had occasioned

him some very serious consideration, and, in his position as President, he had consulted the legal adviser of the Association in connection with it. He thought he could not do better than read that letter: "24th July. Dear Dr. Wood,—In reply to yours of this date, you will clearly be right in ruling the resolution of which the secretary of the South-Eastern Division of the Association has given notice, out of order. The statistical tables have been adopted. It is impossible, therefore, to allow discussion on whether the opinion of each member should be taken as to whether he or she is in favour of adopting them while the resolution on the minutes stands." Therefore he was compelled to rule that motion out of order (Hear, hear).

Dr. STEEN said he was very sorry to hear that that advice had been given to the President to rule the resolution out of order, but of course the meeting accepted the ruling. He was not proposing to re-open the matter, but to say that as a member of the South-Eastern Division he wished to congratulate the Statistical Committee on their registers being accepted by the Commissioners of Lunacy in England.

Dr. BOYCOTT said he wished the President had made that intimation earlier, as he (Dr. Boycott) had a most important engagement, which, however, he had put off so as to be present when that motion came forward.

The PRESIDENT said he could not take the items out of their turn, though he was sorry Dr. Boycott had been inconvenienced.

RESOLUTION FROM THE IRISH DIVISION.

It was announced that nothing had been received in regard to the opinion of the solicitor as to their resolution which proposed an alteration of the rules.

VOTE OF THANKS TO THE PRESIDENT AND OFFICERS OF THE ASSOCIATION.

Dr. G. SAVAGE said that the duty which had been entrusted to him was a very pleasant one. The President was now finishing his year's work, and he was sure that all the members felt that he had conducted the business in a most efficient way. It was, therefore, his pleasure to propose a vote of thanks to Dr. Outterson Wood and to the other officers who had worked so harmoniously with him. The record of the past year had not been very eventful, but the fact that there was no history was a very satisfactory one.

Dr. SHUTTLEWORTH said he had very great pleasure in seconding the resolution. If he did say a word in addition it was that the President had been extremely active in regard to questions affecting those who were responsible for the training of nurses. Dr. Wood had taken a great deal of interest in the subject, and his opinions were before all the members. As one who was more particularly associated with nurses and attendants in asylums he could assure the President that they were grateful for what he had done for them, and for Dr. Wood's occupancy of the chair.

The resolution was then put by Dr. Savage and carried by acclamation.

The PRESIDENT said, in reply, that he was extremely grateful to Dr. Savage for proposing, and to Dr. Shuttleworth for seconding, as well as to the gentlemen present for carrying, the vote of appreciation of his own services to the Association. He had served the members during the past year to the best of his ability, and he yielded to no one in his desire for the welfare of the Association, with which he had been connected for so very many years. If his conduct in the chair had met with their approval that was his great reward. (Applause.)

Dr. RAYNER, in acknowledging the vote on behalf of the officers, said he knew he spoke for his brother officers when he said it was both a great pleasure and an honour to serve the Association. He was sure that on the present occasion special thanks should be accorded to the retiring general secretary, for his work had been very heavy for many years, and he felt sure he could appropriate for Dr. Robert Jones the thanks which had been so kindly accorded.

The PRESIDENT said his next and last duty was to welcome the incoming President. Dr. Robert Jones had worked like a Trojan for the Association (applause), and he fully deserved the very high honour which had been conferred on him by

making him President. The work which he had done as secretary spoke for itself, and was an earnest of what a good President he would make. Dr. Woods then inducted Dr. Jones into the chair, and in doing so expressed the hope that his year of office would be as happy and pleasant a one as his own had been.

The PRESIDENT (Dr. Robert Jones), before delivering his address, announced that the Gaskell Prize had been awarded to the son of a very old member of the Association, that son being Dr. John Rutherford, of Morningside Asylum. The bronze medal was this year awarded to Dr. Shaw, at present assistant medical officer at Montrose; so that the honours of the Association had gone north of the Tweed. The President then delivered his address (see p. 629).

Dr. BLANDFORD said he was sure all present would agree with him that the President deserved the best thanks of the Association for his very excellent address, and it was his great pleasure to propose that such be accorded him. It was not the usual practice to discuss the address on such occasions, and he did not intend to do so, but he felt sure all would agree that it was one of immense interest, and that it would be read with pleasure and profit when it appeared in the JOURNAL, both by those who had heard it and those who were unable to be present.

Dr. PERCY SMITH said he had great pleasure in seconding the vote of thanks which had been moved by Dr. Blandford. When it was known that Dr. Jones was nominated for the Presidency of the Association all felt sure that he would exhibit in the Presidential chair that extreme laborious care which he had shown throughout the many years of secretaryship. All would agree that the discourse which he had just given was full of matters of the most extreme interest. As Dr. Blandford had said, the Presidential address was not discussed, but it might be permissible to refer to one or two things which occurred at the moment. Dr. Jones had referred to special institutions for the idle, the profligate, and the vagrant, and one really began to wonder how many would be left outside. He was very pleased to hear Dr. Jones express, what all the members feel, that the asylums are the most up-to-date nursing institutions. Dr. Jones also alluded to the out-patient departments for mental disease in connection with the general hospitals. He (Dr. Percy Smith) having succeeded Dr. Rayner in the care of an out-patient department at St. Thomas's Hospital, and having been for some years at Charing Cross Hospital seeing out-patients, could speak of the extreme value of such departments, and it was certain that many cases of earlier insanity had their impending attack cured by having advice at such an out-patient department. He heartily seconded the vote of thanks to Dr. Jones. Carried by acclamation.

The PRESIDENT thanked Dr. Blandford and Dr. Percy Smith for the vote of thanks which they had respectively proposed and seconded, and the members generally for acquiescing in it, and for the way in which they had listened to the address. He desired to call attention to a circular which had been received concerning the sixteenth Congress of Alienists and Neurologists at Lille, on August 1st to 7th. A very interesting programme has been arranged, including an excursion from Lille. Dr. Percy Smith also wished him to call attention to the Congress at Milan in September.

Dr. PERCY SMITH said a Congress on the Care of the Insane would be held in Milan on September 25th to 30th. He advised those who wished to learn particulars of it to write to Dr. Ferrari, of Bologna, who would send forms to be filled up.

Dr. OSCAR WOODS' ILLNESS.

The PRESIDENT reminded members of the vote of sympathy which was sent to Dr. Woods at the last meeting, and in reply to that Dr. Woods himself replied: "I have to thank you very much indeed for your kind letter conveying the very kind vote of sympathy passed by the Medico-Psychological Association with me in my recent deep affliction, also for your own expression of kindly feeling and affection towards me. I have been very ill; confined to bed for the last six weeks. I am a little better, and I trust eventually time and care will set me all right again."

The PRESIDENT announced that on Saturday, through the kindness of the London County Council, an excursion would be made to the electric generating station at Greenwich, starting from Westminster Pier, and returning by means of the Council's trams.

THE PREFRONTAL CORTEX CEREBRI.

Dr. JOSEPH S. BOLTON.—Mr. President and Gentlemen,—I have taken the liberty of replacing my paper by a lantern demonstration, as I thought that at this stage of the proceedings, and on such a warm afternoon, very few of you would care to listen to a lengthy description of histological appearances. Further, a paper of the kind would appear doubly tedious just now, in contrast with the interesting and instructive address of our President.

Among alienists it is hardly necessary to refer to the great wasting which exists in the prefrontal region of many cases of insanity, because that is an observation with which you are all quite familiar. Such wasting would, to most people, naturally suggest that the prefrontal cortex in the normal person possesses a complex structure, and is the seat of most important functions; and, quite apart from your experience, or that of others, you would probably be prepared to accept my statement that this is the case. As, however, a writer of experience has recently stated most definitely that the prefrontal cortex is of very low structure and of very poor development, in fact, that it contains practically no fibres at all, and these only of the very finest calibre, it seemed to me desirable, in the interests of my own work and that of others, to most definitely bring forward evidence that the prefrontal region is of extremely complex structure, and that its finer architecture is at least as complex as, if not more complex than, that of any other region of the cortex cerebri. As a preliminary to my demonstration I will rapidly show you a few hemispheres which exhibit degrees of undevelopment and wasting, to point out the exact region of the cortex which is called the "prefrontal," and also the portion of this cortex which I have made use of for the sections which I shall show you later.

Imbecility.—The first two hemispheres are from cases of imbecility. The first was a case of microcephaly, and the second a patient with a head of normal size.

Slide 1.—This hemisphere weighs 300 grammes. The patient was not exactly an idiot; she had a fair amount of intelligence, although the brain was so small, and on micrometric examination of the cortex it was found that this was of fairly considerable depth. This brain, although it appears to have a large prefrontal region, has really a relatively small one, because a large part of the apparent cortex is a "keel," which reminds one forcibly of that in the brain of an orang. The parietal region is also small, but the chief difference between this brain and an average normal one is in the degree of development of the prefrontal region.

Slide 2.—On the other hand, in the next case, which is also an imbecile, and of less intelligence than the preceding one, the brain would to the naked eye pass for normal. All the convolutions are very well formed; the sulci are not by any means evident, and the prefrontal region is well developed. On microscopical examination, however, the cortex was extremely deficient in depth.

I have shown you these hemispheres in order to illustrate that it is not easy by naked-eye examination of a cerebrum to determine the degree of actual development of the brain.

Recurrent insanity—Slide 3.—This is the hemisphere of a case of recurrent insanity without dementia. The patient died a week after her admission, and the cerebrum showed no morbid appearances whatever after death. The brain, as a whole, is simply convoluted. The prefrontal region is moderately well marked; in fact, it is developed in a more or less average manner; nothing particularly abnormal is visible. Microscopically, the prefrontal cortex was deficient in depth to the extent of about 10 per cent.

All the photographs, so far, are of cases without naked-eye morbid appearances.

Mild dementia—Slide 4.—This is the hemisphere of a case of chronic insanity who suffered from mild dementia. You will note a certain amount of infolding of the sulci; there is a more or less artistic appearance, compared with the posterior region of the brain, and compared with the previous cases. This is due to a certain amount of wasting of the convolutions, which causes a degree of widening of the sulci. There is wasting also of the upper part of the temporal region to a less degree.

Moderate dementia—Slide 5.—In this case, one of moderate dementia, there is more marked wasting over the whole prefrontal region, and also, but to a less

extent, over the fronto-parietal portion and the first temporal gyrus. The chief wasting is, however, in the prefrontal region.

Marked dementia—Slide 6.—This is the hemisphere of a case of fairly marked dementia. The patient was not wet and dirty in his habits, but required some attention. There was considerable loss of memory, and considerable, though not gross, dementia. You see that the prefrontal region is extremely wasted.

General paralysis—Slide 7.—This is the hemisphere of a case of fairly rapid general paralysis. The prefrontal region is extremely wasted, the fronto-parietal region less wasted, but still considerably wasted; and in the posterior portion of the parietal region, and also in the temporal region, there is considerable decortication. The latter is not due to post-mortem changes, because the post-mortem was done four and a half hours after death. In this region the morbid process is recent and active, whereas in the fronto-parietal region it is more chronic, and the pia arachnoid was separated from the cortex by a layer of fluid.

Slide 8.—This is a hemisphere from another case of general paralysis, and shows similar appearances. The wasting of the prefrontal region is extreme, as you will see.

Extreme senility with mild dementia—Slide 9.—This is a hemisphere which shows a very marked contrast to the preceding. The frontal lobe is immense. There is relatively little, though quite visible, wasting over the whole of this portion of the brain. There is a certain amount of decortication postero-inferiorly, in a similar region to where it existed in the previous two cases. This hemisphere was from a patient aged 91 years, who had relatively little dementia, in fact, no more dementia than would be expected in an ordinary man of advanced age and of deficient education; but there were the most extensive and marked morbid changes in the membranes and vessels that I have ever seen. Such morbid appearances may therefore be extremely marked in cases in which there is relatively little cerebral wasting and relatively little dementia.

I would like next to point out the region from which the sections which I now propose to exhibit were obtained. They were taken across a certain fissure, the transverse fissure of Wernicke. This fissure is constant, and therefore it is a more suitable place for a comparative examination of the lobe than any other.

Slide 10.—This is a micro-photograph of the cortex of a seventh-month fœtus, showing the different layers of the cortex in the prefrontal region. As I have shown in previous papers the cortex cerebri in a fœtus of four months consists merely of a clear superficial layer and a layer of undifferentiated neuroblasts. As development proceeds first the deepest layer of the cortex is differentiated and separated off from the remainder by a clear space. Later the granule layer develops higher up, and later still the pyramidal layer develops, that being the last layer to appear. The pyramidal layer eventually develops to such an extent that it is, in the adult, considerably more than the total depth of the other three layers. In the present photograph of a seventh-month fœtus considerable development has occurred. You will notice at the bottom the polymorphic layer, above it the granule layer, and in the space between the inner line of Baillarger. The last contains a large number of cells, which later become cells of Betz and their homologues. Higher still is the pyramidal layer of nerve-cells. This layer is, in this photograph, much less than the depth of the conjoined three layers below. The lower three layers which you see here in the seventh-month fœtus attain to very little more depth in the adult, whereas the pyramidal becomes much deeper. This pyramidal layer of nerve-cells is thus the last layer to be developed, and it varies in depth according to the degree of mental capacity in all cases, from the idiot to the chronic lunatic without dementia. It varies in depth in normal individuals, and it is decreased in depth in cases suffering from dementia according to the degree of the dementia. Therefore, in the human being the pyramidal layer is the part of the cortex which is concerned with the associational functions of the cerebrum. As Watson has shown recently, the pyramidal layer is almost absent from the brains of the lower mammalia. In the human being this layer is associated with the higher functions of the mind; in the lower animals it subserves those which are educative, in contradistinction to instinctive.

Slide 11.—This is a section of the cortex of a markedly dolichocephalic imbecile. The patient possessed a moderate degree of intelligence, but the head looked as if a cart wheel had gone over it. I never saw a narrower head. You

will note the various layers of the cortex quite readily. The inner line of Baillarger contains a considerable number of cells. The pyramidal layer shows a decrease of 10 per cent. compared with that of the normal adult. The cells are of moderate size.

Slide 12.—This is a section of the prefrontal cortex of the ordinary normal man. You see the pyramidal layer of nerve-cells, the granule layer, and below it the inner line of Baillarger, and still lower the V or polymorphic layer. I wish you to notice that the cells of the pyramidal layer are large in the lower part of the layer, and smaller in the upper, as occurs in other regions of the cerebrum. They are extremely well developed, even as high as the upper part of the layer.

Slide 13.—Here is a higher power photograph of the same specimen from the lower part of the pyramidal layer. I should like you to notice the extremely well-developed character of the nerve-cells and the multitude of their processes.

Slide 14.—Here is a still higher magnification of the same specimen. This photograph is not intended to exhibit the internal features of the cells, but is simply a photograph of the cells stained to show cells, and not of cells stained to show internal structure. You will see how well developed these cells are.

I now come to the fibre architecture of the cortex, that is, to the question of the number and structure of the fibres, which is the most important part of this demonstration.

Slide 15.—This is a section of normal prefrontal cortex extending from the surface and throughout the upper two thirds of the whole depth. You see the layer of granule cells, and below that the clear space. I cannot show you nerve-fibres in a specimen of such low magnification as this, but the sections I shall show you now are taken from the upper portion, from a little lower down, from still lower down, from lower still, and at the bottom of all. In other words, I shall successively shew you a stretch of cortex from top to bottom, in five separate sections.

Slide 16.—Here is a photograph of the fibres of the surface of the prefrontal cortex. You can see an immense number of fibres interlacing in every direction; an enormous number near the surface, almost too many to differentiate in the photograph. They interlace in every direction until we come to the upper part of the pyramidal layer, and then they interlace in a curly manner amongst the cells. It would be difficult to find a section from any other part of the cortex which would show more fibres than are here visible.

Slide 17.—The next slide is from a little lower down in the cortex, and here you see an immense number of fibres, which lie about throughout the pyramidal layer in its upper part.

Slide 18.—The next photograph is taken from about the middle of the pyramidal layer of nerve-cells. Some of the fibres are beginning to collect themselves into longitudinal strands or columns of Meynert. Instead of the fibres interlacing amongst the cells, as they do at the top of the pyramidal layer, they lie more or less at right angles to one another, but the number of them is as great as before, but here and there some of the fibres are becoming coarser.

Slide 19.—Here is the portion of the cortex still lower down. It shows the blood-vessel which was visible in the lower part of the first photograph of fibres. You see one enormous fibre, and there are a number of other extremely large fibres running down the columns of Meynert. There is an immense wealth of cross-fibres in every direction, in addition to the long coarse ones, and the lower you get down the cortex the more coarse they become.

Slide 20.—These are the columns of Meynert still lower down, and you will notice not only extremely coarse fibres in parts, but coarse oblique fibres running down as well as a great general wealth of fine fibres. The existence of all these fibres has been denied. In each of these bundles four or five coarse fibres are represented, showing that in the specimens of the particular worker who said that such fibres were non-existent these fibres were not stained. Lower down still in the cortex (I have not brought a specimen) you would find still more fibres.

I think I have shown you enough to demonstrate that the wealth of fibres in the prefrontal cortex is extremely great. I should hardly have thought it necessary to give this demonstration but for the violent manner in which some of my statements have been attacked, but, under the circumstances, I thought it necessary to give an actual demonstration, because "seeing is believing."

The PRESIDENT said members were well aware that Dr. Bolton's work was extremely conscientious, painstaking, and correct. He, Dr. Jones, knew how many thousand measurements he had made in various parts of the convolutions of the brain, and the question uppermost in the mind seemed to be whether or not the prefrontal cortex was highly intellectual—whether it was the physical basis of the moral and intellectual attainments or whether we were to seek for that in the greater complexity of the various associational areas, *i. e.* in the various associational areas described by Flechsig and others. It seemed to him that Dr. Bolton's description carried considerable weight, for the wealth of fibre plexus as shown in his sections and slides was amazing in this prefrontal area. Dr. Bolton had that day gone through the three aspects of positive proof in regard to the functions of this part of the brain. He had dealt with the comparative aspect, and shown in the lower vertebrata practically little fibre wealth and practically little cell area, and he had also put forward the pathological side, showing that the wasting of the cerebral cortex so characteristic of extreme dementia and more especially that accompanying general paralysis, takes place in the anterior part of the brain, *viz.*, in the frontal area, and not in the parietal, post-parietal, or occipital areas, atrophy of the convolutions being almost entirely located in the frontal and prefrontal. Dr. Bolton had given attention, thirdly, to the developmental aspect, which the pictures also demonstrated. It was interesting to find that by studying this aspect Dr. Bolton had been able to divide the cortex cerebri into areas characterised by definite physiological functions, the first developed layer and the lowest from the surface being connected with instinctive life, which, as the author had pointed out elsewhere, was the last to disappear or to become affected in extreme dementia, *i. e.*, when the patient became helpless and of defective habits. The only remaining part of the cortex in these advanced cases was the lowest or the polymorphic layer. The difference between the cortex of man and that of the lower animals was in the pyramidal area, the part above the granules, which latter both Dr. Bolton and Dr. Campbell had agreed was the "arrival platform" of incoming or sensory impressions. He was sure there were others who would like to say something about that aspect of the matter considering the great interest shown in the histology by the different conclusions of two such careful and able observers as Dr. Bolton and Dr. Campbell, but he would like to refer to one case which had a bearing upon the question from a clinical standpoint. He had a young man as a patient who was formerly employed at the Woolwich Arsenal, and was forging his way ahead in his craft. But he met with an accident and fell down a lift about forty feet and smashed the whole of his frontal bone, and damaged a considerable part of the right frontal lobe, which appeared to have escaped, in some degree, through the wound. He was under treatment for a year or two, but after the wound healed he began to show signs of mental deterioration, and was recently—two years after the accident—taken up before the local authorities because of indecent exposure and other irrational and improper behaviour, the irregularity or the enormity of which did not appear to have struck him. He was sentenced to imprisonment, and then was eventually brought into the asylum. He, Dr. Jones, had written an account of the case for the forthcoming number of the *Archives of Neurology*, and it supported what Dr. Bolton put forward, that the highest moral and intellectual attainments were apparently connected with the frontal lobe, which, as Dr. Bolton showed was an area of some considerable complexity both as regards the fibres and the nerve-cells. If one took the brain of some of the lower mammalia one would find, and more especially is this the case in the lowest vertebrates—fishes—that there was nothing but basal ganglia. Gradually structures were superimposed upon that, and mind came to be represented and consolidated, so to speak, from numerous reflex acts, in the cerebral cortex. It was interesting to find that the last to develop was the prefrontal area, as Dr. Bolton had already shown. He would be glad to hear the views of other speakers on the matter.

Dr. EASTERBROOK said he had much pleasure in seconding the vote of thanks to Dr. Bolton for the interesting demonstration which he had given. Anybody who had read that gentleman's recent work could not help admiring his industry, and noting the difficulty of the research in which he was engaged. The members of the Association were indebted to Dr. Bolton and the other pathologists who were working at the pathology of insanity, and endeavouring to place it upon a sound

basis. All who were keeping in touch with psychiatry, and the recent literature on the subject must be acquainted with the controversy between Dr. Campbell and Dr. Bolton, the former of whom had recently brought out his book on *Cerebral Localisation*. He could not help thinking that there must be some explanation of the difference of opinion existing between such good observers. Could it be that their respective descriptions did not correspond to identical parts of the frontal lobe? There was a good deal of discrepancy of opinion and of nomenclature concerning the fissures and convolutions in the frontal lobe and other parts of the brain. As far as one could tell from reading the work of these two gentlemen, Dr. Bolton divided the frontal lobe into two portions, the part in front which he called the prefrontal cortex, and the part behind that, which corresponded to the psychomotor cortex. And Dr. Campbell, in his studies on frontal localisation, differentiated the frontal lobe into four parts, namely, from behind forwards, the ascending frontal, intermediate precentral, frontal, and at the anterior tip the prefrontal, which Dr. Campbell said was poor in fibres and was that part of the frontal lobe which provided for future mental development. Dr. Campbell's "prefrontal" thus corresponded only to the anterior part of Dr. Bolton's "prefrontal." An important point was the exact position of the transverse fissure of Wernicke, the site of Dr. Bolton's observations. A study of Dr. Campbell's drawings seemed to indicate that his observations on the prefrontal cortex were made in front of this fissure. This was the only explanation of the difference in the results which he (Dr. Easterbrook) could suggest. It was impossible to imagine that a competent observer should have examined the same part of the cortex as had been demonstrated that afternoon, and yet made the statement that it was weak in fibre structure and in cell structure. There was much difference of opinion as to the nomenclature of the sulci and convolutions of the frontal lobe, and it would be interesting to learn whether both observers had examined the same spots. If they had, he thought the opinion held would be that Dr. Bolton's description was the correct one.

Dr. MACDONALD said he had listened with very great pleasure to Dr. Bolton's contribution, and observed his demonstration. He was sure that all hoped Dr. Easterbrook's idea was correct, that those two able workers would be found to have worked at different spots. He did not think it was possible for two such able men to arrive at results so diametrically opposed. He had been most interested in the demonstration as proving the value of the prefrontal region. A few years ago he came across a most interesting specimen of the brain of an idiot, which specimen was a treasured article in the museum of Aberdeen University. The opinion expressed was that that specimen was as good a one as could be found to support the idea that the prefrontal region was of the very greatest importance from an intellectual point of view. He, Dr. Macdonald, thought Dr. Bolton's demonstration that day fully confirmed the opinion to which he had referred.

Dr. WILSON said he could only add his admiration of the very excellent work which had been done by Dr. Bolton, because the constituents of the area concerned were so very difficult to demonstrate. He, Dr. Wilson, had had the privilege of doing some work in Dr. Mott's laboratory, assisted by Dr. Bolton, and when one came to attempt that kind of work one could realise its extreme difficulty, especially in the matter of staining. For those fibres it required very much more than the average or normal scale to obtain really accurate results. His own strong opinion was that Dr. Campbell had failed in his methods of demonstration. He could not see how, over the fissure of Wernicke, there should be such a richness of fibres, while a quarter of an inch further on there should be none. That would be contrary to all one's idea of structure. He thought the difference must be really one of technique, and, without intending any flattery, all knew that Dr. Bolton had spent many years at the work, and that he was a master of technique.

Dr. BOLTON, in reply, said that Dr. Wilson had, to all intents and purposes, answered Dr. Easterbrook. He had himself very little to say, because, as Dr. Wilson had remarked, undoubtedly the question was one of difference of technique. The proper staining of the fibres of the prefrontal region was one of the most difficult matters which he had ever had to do in his life, and he had only been able to do it successfully by methods which he originated some years ago, and which Dr. Campbell had not made use of. Dr. Campbell had gone over the whole

cerebrum, and had done an extremely able piece of work, but it had necessarily been done in the rough; and he (Dr. Bolton) had spent twice as many years over local portions of the brain as Dr. Campbell had devoted to the whole of the brain. Dr. Campbell's sections were bigger, his methods were less delicate, and one could only assume that he therefore obtained approximately coarse results. But he had, in spite of this, made those extremely bold statements with regard to local fibre architecture. Dr. Campbell not only said there were practically no fibres in the prefrontal region of the cortex, but that there were also very few in the frontal. He stated that there were most fibres in the motor, fewer in front, fewer still in front, and fewer still at the anterior pole. As a matter of fact, the difference was not one of decrease in number, but of increase in minuteness, and he (Dr. Bolton) believed that there might even be an actual increase in the number of fibres. He (Dr. Bolton) had not found, in any portion of the prefrontal cortex, any difference, from an examination of the fibres, between the transverse fissure of Wernicke and the others. He did not find any difference whatever in the fibre wealth, but there was a considerable difference in the fibre thickness. That agreed with Flechsig's description. He merely employed this region as it enabled him to obtain exact comparative results. In reply to the President, he said he considered the transverse fissure of Wernicke to be one of the most constant prefrontal fissures, as indicating an exact place in the prefrontal lobe in all brains. The identical region could not be found in every brain, because there were considerable variations in the direction of the fissure of Wernicke; but if one came across a brain showing a good transverse fissure of Wernicke (and those were the cases to employ), one then knew where one was. It was a very constant point from which to work for comparative histological purposes.

SECOND DAY.

Dr. MOTT read a paper entitled "Alcohol and Insanity; the Effects of Alcohol on the Body and Mind, as shown by Asylum and Hospital Experience in the Wards and *Post-mortem* Room" (see page 673).

Dr. A. HELEN A. BOYLE read a paper entitled "The History of an Unusual Case of Murder."

Dr. W. F. MENZIES read a paper entitled "Tuberculin Diagnoses."

Dr. EDWIN S. PASMORE described a method of taking "Family Histories."

Dr. ROBERT PUGH's paper entitled "The Relation of Goltre to Insanity" was read by Dr. Wilson.

NOTICE OF MOTION REGARDING QUACK MEDICINES.

Dr. JAMES STEWART said he wished, on behalf of several members, to give notice that at the meeting of the Association in November next a resolution would be brought forward condemning the publication of announcements in the various papers regarding quack medicines.

Dr. M. J. Nolan's paper entitled "On the Possibility of the Limitation of Lunacy by Legislation" was, owing to the lateness of the hour, taken as read (see page 756.)

The meeting terminated by an expression of congratulation to the President for the manner in which the duties of the chair had been fulfilled.

COUNCIL AND COMMITTEES.

In connection with the Annual Meeting there were meetings of the Parliamentary and Educational Committees. The Council met on July 26th; the following members were present:

Drs. Fletcher Beach, David Bower, Lewis C. Bruce, James Chambers, Maurice Craig, Robert Jones, Henry C. MacBryan, Peter W. MacDonald, Alfred Miller, H. Hayes Newington, Conolly Norman, Bedford Pierce, Henry Rayner, R. Percy Smith, Robert H. Steen, Frederick R. P. Taylor, David G. Thomson, Adam R. Turnbull, Alex. R. Urquhart, T. Outterson Wood, and David Yellowlees.

Apologies were received from Drs. Aveline and Clouston.

IRISH DIVISION.

THE SUMMER MEETING of the Division was held at the District Asylum, Kilkenny, by the kindness of Dr. West, on Thursday, July 5th, 1906.

The members were first driven through the town of Kilkenny, and visited the castle and the cathedral, with their many points of interest; after which they were entertained at luncheon by Dr. West.

At the meeting subsequently Dr. West occupied the chair, and there were also present Drs. C. Norman, A. Fitzgerald, T. Drapes, and W. R. Dawson (Hon. Sec.), as well as Dr. L. Buggy, who was present as a visitor.

The minutes of the previous meeting having been read, confirmed, and signed, the Hon. Secretary reported with reference to various matters therein contained, and a short informal discussion took place.

Letters from Mrs. Molony and Dr. Oscar Woods relative to resolutions of condolence passed at the last meeting of the Division were read.

It was decided to hold the next meeting of the Division at the Royal College of Physicians, Dublin.

Dr. G. F. WEST contributed a "Note on Kilkenny Asylum."

KILKENNY DISTRICT LUNATIC ASYLUM.

The Kilkenny Asylum, which was opened in the year 1852, is on almost the same plan as the Mullingar and Omagh Asylums. The original buildings consisted of a central block containing the offices and officers' quarters, and two wings, one for the male and one for the female patients; the kitchen, laundry, and airing yards being in the rear.

The only difference in the design of the asylums was, that in Mullingar and Kilkenny the corridors faced the front of the building and the sleeping apartments looked to the rear, while in Omagh Asylum the reverse was the case, the sleeping apartments looking to the front and the corridors towards the rear.

There have been two additions built to this asylum; in the first addition the two wings were prolonged backwards. A portion of each addition was three-storied, like the original building, and the rest was only two-storied. This, I think, was a mistake.

About ten years ago a second addition was built to the asylum. This consisted in prolonging the wings which were two-storied, and at the extremities of these prolongations two high water towers were erected.

The water is pumped into the tank in the water tower on the female side, and a pipe from this tank descends to the ground, and running under the surface till it reaches the water tower on the male side, ascends to the second tank and empties into it.

If the main building had been all three-storied the pipe connecting the two tanks could have been run in the roof, and, in addition to this, it would have been easy, by means of T-pieces, to have had several hydrants with hoses attached running from the garret down through the three floors, with fire hoses attached.

I hope shortly that the members of the Committee of Management will see their way to putting up stand-pipes through the interior of the whole building.

I think it would have done just as well to have built one water tower, with a tank equal in capacity to the two existing tanks, and thus have saved the expense of the second water tower.

There were several improvements made when the last addition was built. An entirely new laundry was erected and fitted up by Messrs. Bradford. The machinery is worked by a steam engine.

The kitchen was enlarged, and a new cooking apparatus put up by Messrs. Ashwell and Nesbett, and also a vegetable kitchen with potato steamers.

There was a new boiler-house built, containing two boilers 6 ft. 6 in. diameter and 24 ft. long. It would have been better if a third boiler had been put in. It takes one boiler to do the ordinary work of the house, viz. driving the laundry machinery, cooking, and heating the water; this boiler burns about 1½ tons per day. There is a system of heating the house with steam pipes in the winter time, which is certainly very effective; but it requires the second boiler to do this, and

it is unable to do any more. The result is that during the four winter months of the year the two boilers have to be kept constantly going; this would not be of so much consequence if the water supplied to this asylum were not so hard.

It takes 2 tons of coal to heat the house with steam. A couple of years ago the boilers were fitted with Meldrum furnaces, by means of which slack can be burned instead of coal, and thus a great saving in cost is effected.

There were also two general bath-rooms built, in which there are baths lined with glass which give great satisfaction, and the whole sanitary system of the house was renewed, new lavatories and wash-hand basins were put up, and a new system of sewers put down.

The water supply of the asylum is taken from a well, about 400 yards distant, and close to the river. The supply is practically inexhaustible. Last year, viz. 1905, was very dry and hot, but the well did not show any signs of becoming dry.

Within the last two years the city of Kilkenny has got a new water supply, and I am in great hopes that the members of the Committee of Management will see their way to take this water into the asylum. At present the steam pump is only just able to pump up the day's supply, and the tanks are nearly empty in the evening. In case of fire this would be a very serious matter.

There were new workshops built, and also a Roman Catholic and a Protestant Church. They were designed by Sir Thomas Drew, and the Roman Catholic Church is a very handsome building.

A new farmyard was built, which is a great improvement. I am of opinion it would have been better if it had been made larger, and with more shed accommodation, it is also rather far from the house, and it would have been better to have placed it in the rear of the building and near the kitchen.

The airing yards have been done away with, and the patients occupy two fields behind the asylum.

It would be a great improvement to instal electric light in the asylum. Although the gas made from Castleconur coal is unfit for illuminating purposes, it does very well for driving gas engines, and by using this form of motor power I believe electricity could be generated very cheaply.

Originally there were about twenty-five acres of land attached to this asylum, which is still surrounded by the old boundary wall. About fifteen years ago the Board of Control purchased twenty-five acres of adjoining land. This was a great advantage to the asylum, although the farm was still small. I am glad to say the Committee of Management has taken steps to purchase the house and grounds of a place close to the asylum. This will add about nineteen acres of land to the asylum, and the house when some internal alterations are made will accommodate about eighty patients.

I may remark that the asylum farm is to a large extent a vegetable garden. All the vegetables used in the asylum are grown on it, and potatoes sufficient for three months' supply, leaving very little land for corn and hay.

Before concluding I would like to bring some figures concerning the asylum population before you.

On the 31st December, 1852, the number of patients resident was 126.

On the 31st December, 1870, that is to say, eighteen years after, the number resident was 226, thus giving an increase of 100 patients in eighteen years.

On the 31st December, 1880, the number resident was 243, giving an increase of 17 patients in ten years.

On the 31st December, 1890, the number resident was 320, giving an increase of 77 patient in ten years.

On the 31st December, 1900, the number of patients resident was 441, giving an increase of 121 patients in ten years.

On the 31st December, 1905, the number of patients resident was 465, giving an increase of 24 patients during the last five years.

From these figures it will be seen that the principal increase in the asylum population occurred in the twenty years between 1880 and 1900. Since then the increase has not been so rapid, and I am in great hopes that we have nearly reached the high water-mark. A good deal of the increase in late years has been due to the fact that several chronic cases were sent here from the county work-houses. If this continues to be done it will help to keep up the numbers, but

when this generation of paupers dies out I think it probable that the number of patients will decrease, or at least remain stationary.

Dr. CONOLLY NORMAN made a communication on "An Ancient Form of Physicians' Register," which he exhibited.

A short discussion followed, in which most of those present joined, and the meeting terminated.

OBITUARY.

OSCAR THOMAS WOODS, M.D., PAST PRESIDENT M.P.A.

We have to chronicle with much sorrow the death, at a comparatively early age, of our genial colleague, our President of 1901-2, Oscar Woods of Cork.

Dr. Woods was a native of Parsonstown in the King's Co., where his family have long been settled and have been held in much esteem. It has been observed that Parsonstown, which is a military dépôt, has rarely been without a member of the family in command. Dr. Oscar Woods' uncle, Dr. Thomas Woods, practised in the town for more than fifty years, and being possessed of a keen scientific mind and a very capable pair of hands, was of much service to the late Lord Rosse in constructing his great telescope. He was also a pioneer in photography, and it is interesting to note that he gave their first lessons in this art to a couple of his young fellow townsmen who took it up as a trade, one of whom became afterwards one of the best known photographers in the world.

Oscar Woods was a graduate of the University of Dublin. He began his studies in insanity, like so many men of his time, at the West Riding Asylum, Wakefield. He then went to the Warwick Asylum, where he soon rose to be senior assistant medical officer. We have heard—and it speaks well for the kindness of his heart—that there are still surviving patients and members of the staff who, after the passage of more than thirty years, remember him and speak of him with affection.

The Lord Lieutenant of Ireland appointed Dr. Woods superintendent of the asylum at Killarney in 1875, and fifteen years later, in 1890, he was appointed superintendent at Cork, where he died on August 2nd, 1906, æt. 58.

Dr. Woods in his earlier years was a frequent attendant at quarterly and annual general meetings, and to the end was an industrious attendant at the Irish divisional meetings of our Association. His contributions to the *Journal* were thoughtful and well expressed, though less numerous than they would have been could he have commanded more leisure and more detachment of mind. As a superintendent he was a very hard-working and devoted man, thoroughly absorbed in his work, most kind to his patients, and always thinking first of their interests. In everything he was an upright gentleman.

His life was probably shortened and his later days were certainly clouded by many troubles. His eminent services to the insane did not save him from calumny and inconceivable annoyances. Readers of this *Journal* do not need to be reminded of some of these, but only the students of the local newspapers could credit the perpetual vexations in which he lived. This sort of thing told upon him very severely, for he was a sensitive man, and being conscious of none but the highest motives felt intensely the treatment he received. Recently he suffered under domestic troubles of a severe nature—the death in quick succession of a bright and hopeful son and of his eldest daughter—which he felt acutely, for he was of a most affectionate nature.

Those who were present at the Cork meeting in 1901 will recall how successful and pleasant it was and how well organised, how genial and agreeable our President, who did not allow his own worries to interfere with his duties either at the meeting or in the delightful excursion which followed it. In the words of the Irish poet—"He forgot his own grieves to be happy with you." His kindly nature gladdened when he saw enjoyment in those around him. No one could then have supposed that his subsequent life would have been so short.

Dr. Woods was interred in his family burial place at Parsonstown among the friends and neighbours of his youth. His sons, brothers, cousins, and many other friends followed him to the grave, including one or two old chums of college days.
Vale, longum vale.

NOTICES BY THE REGISTRAR.

The following gentlemen were successful at the examination for the Certificate in Psychological Medicine held on July 12th, 1906.

W. F. MacDonald, T. D. Murison, Corbet W. Owen, H. G. Seivwright, A. D. Thompson, John A. L. Wallace.

The following is a list of the questions which appeared on the paper :

1. Discuss briefly your reasons for considering Dementia Præcox as entitled to a place in the classification of the Insanities.

2. What are the relationships of syphilis to insanity ?

3. Give a short summary of the physical and mental symptoms manifested by the patients you have seen suffering from insanity at the Puerperal period ; and indicate the clinical groups into which such cases may be divided.

4. What do you understand by the term paranoia ? Outline such a case indicating the prognosis and probable lines of treatment.

5. Enumerate the leading theories regarding Subdural False Membranes, and discuss any one of them.

6. Alterations in blood pressure occur in certain forms of insanity ; mention what these are, and what remedies you would employ to meet the varied condition.

THE GASKELL PRIZE

has been awarded to James M. Rutherford, Senior Assistant Physician, Royal Asylum, Morningside, Edinburgh.

BRONZE MEDAL.

The Bronze Medal for the Prize Essay on " Tubercular Infection " was awarded to C. J. Shaw, M.B., Assistant Medical Officer, District Asylum, Murthly, Perth.

EXAMINATION FOR THE NURSING CERTIFICATE.

The following candidates were successful at the examination held in May, 1906 :
Bucks County.—Males : Frank William White, Harry Watson. Female : Ellen Edith Bryan.

Cheshire, Parkside.—Males : William Joseph Bancroft, John William Johnson, Luke Thomas Hitchen, Thomas Smith, John Paul, William Naden, James Houghton. Female : Mary Chew.

Cheshire, Chester.—Males : Frederick Adams, Herbert Thomas Benson.

Cumberland and Westmoreland.—Males : Thomas Kearton, David Lloyd, Joseph Brady. Females : Annie S. Armour, Catherine Lee.

Kent County, Chartham.—Male : Joe Fozard. Female : Ethel Sar Garwood.

Derby County.—Males : Walter Fisher, Thomas Hyland, Thomas Kelly. Females : Annie E. Billyard, Sarah E. Truman, Edith M. Vernon, Jessie Green, Mary H. Percival.

Devon County.—Males : Thomas Henry Bond, Eric John Salter, Arthur Ernest Bryant. Female : Beatrice Adams.

Kent County, Barming Heath.—Male : William C. Maynard, Percy C. Adsley, Oscar F. S. Ward, Frank Mosses. Females : Alice E. Gladwin, Lydia Galyer, Johanna J. Nolan, Annie L. Sutcliffe, Elizabeth Hackett, Annie B. Cooke.

Lancaster.—Males : John Sutcliffe, Edmund Edmondson, John R. Johnson, William Henry L. Tiplady, Jesse Turner. Females : Anastasia Thompson, Fidelio Tyldesley, Lillias A. Maitland, Florence Johnson, Elizabeth A. Thompson, Maggie Bailey, Emma Atkinson, Eliza Brown.

Middlesex, Tooting.—Females : Annie Mitchell, Maud Norris, Florence Palastanga, Nellie Forder, Mary Marahan.

Salop County.—Males : Charles W. Casely, Henry R. Francis, James Stone, John Tudor, Tom Veysey, Bertie Wilton. Females : Eva Hitt, Hilda MacCoye, Catherine May, Sarah K. Stubbs, Elizabeth Tyler, Margaret Worthing.

Somerset and Bath.—Males : Samuel Bingham, Henry Webb. Female : Frances E. Matthews.

Cheddleton.—Females: Alex. Margaret Greene, Grace M. Whitaker, Millicent Townend, Ellen A. M. Tippett.

Suffolk (Melton).—Males: Arthur Haynes, Robert William Borrett, William James Block, Charles Buxton, William Cliff, Joseph C. Budinger, John William Hugman, Lawrence Twomey, Alfred Hobbs. Females: Johanna Hegarty, Lilian Coupland, Sarah Machin, Anne E. Lyman.

Surrey County, Brookwood.—Males: William Ernest Tugwell, William John Gibson. Females: L. Ethel Hosegood, Fanny Sarson, May Horney.

Sussex, West Chichester.—Males: George Fletcher, Parrick Lavelle, Arthur Murgatroyd. Female: Elizabeth J. Spiller.

Three Counties, Hitchin.—Males: Claude K. Keenan, Herbert H. Noble, Robert G. Livock, Henry C. Brooks. Females: Alice M. Johnson, Frances I. Channell.

Warwick County.—Females: Isabella Robbins, Agnes Keen, Annie Smith, Louisa Watkins, Nellie Price, Ada Hollinshead.

Yorks, South (Wadsley).—Males: Arthur Drury, Daniel Minogue, Robert Fox. Females: Mildred Borebank, Beatrice A. Storr, Mary E. C. Jackson.

Yorks (West Riding), Wakefield.—Males: Arthur E. Mitchell, Thomas R. O'Connell. Females: Edith Shipston, Emily J. Hennessey.

Isle of Wight.—Males: John Thomas Samuel, Edward C. Shaw.

London County (Bexley).—Males: William Marlow Heath, Harry Cobb, George Lawford, Alfred John James. Females: Alice Gray, Le François Restall, Queenie E. Marshall, Rosabelle Martinalli.

London County (Claybury).—Males: James Charlton, Alfred Patten, James Soutar, Frank Greenway, Albert Walter Bush. Females: Catharine Tuite, Kate Humphreys, Edith L. Costar, Sarah Ellen Coxon, Ada Wiseman, Sarah E. Sandever.

London County (Cane Hill).—Male: John Walsh. Females: Anna E. Jones, Georgina F. H. Lochhead, Dora L. Whitaker, Maggie Rice.

London County (Manor, Epsom).—Females: Lydia E. Watkins, Florence E. Rodgers, Alison Buncle.

Birmingham City (Rubery).—Males: Benjamin Broomfield, Leonard G. W. Greig, Walter James Simmonds, Robert Stains. Female: Elsie Maud Barnes.

Birmingham City (Winson Green).—Males: Charles Ernest Hammond, Frederick Charles Griffiths.

Bristol City.—Males: John Lewis, Jeremiah Buckley, William Howell. Females: Mary Watkins, Annie Cowmeadow.

Canterbury Borough.—Males: Frank H. Tucker, Sherriff John Maycock. Females: Maude Wilks, Edith Chapman, Lilian M. Gratton, Annie Eliza Leman.

Hull City.—Males: Christopher Johnson, John Walter Duffield, George Harold Greenwood. Females: Mary Lilian Radford, Maggie Grainger, Clara Castle.

London City (Dartford).—Female: Harriett W. Oswell.

Leavesden.—Males: Frederick Holmes, Joseph Dell, Frederick B. Arnold, Francis Lythaby, William Needs. Females: Lucy C. Cooper, Ellen O'Callaghan, Ada B. Willia.

Newcastle City.—Males: Martin John Dunn, Andrew Davidson.

Notts City.—Male: Richard Hallam. Females: Lizzie Scrimshaw, Charlotte Skinner, Alice Jackson, Mary Keyworth.

Plymouth Borough.—Male: Reginald Court. Female: Vivia Luna Daymond.

Sunderland Borough.—Males: George Forster, John James Huscroft, William Frank Shaw, Bartholomew Sullivan. Female: Amy Thomson.

Bethlem Hospital.—Males: Alexander K. P. Cantle, John Henry Carl Bishop, Albert Edward Petrie, Alfred George Cook. Females: Alice Maud Neave, Kate A. Sawkins, Mary Turner, Clara L. Clark, Maud M. Chinnery, Edith A. Packe, Clara Hailey, Hannah Tarr, Mary Stewart, Rosina Pople.

Holloway Sanatorium.—Males: Thomas Lucas, George Herbert A. Grover, Charles Lodge, Arthur Benn. Females: Kate A. Fairhall, Nora B. Ryan, Edith Gray-Williams, Clara L. G. Palmer, Mary Butt.

Retreat, York.—Females: Hilaria L. A. Abbott, E. F. Westworth, Mary E. Black, Gladys Jones, Margaret B. Ness, Harriet McCormac.

Scalebor Park.—Male: Theodore Yeadon. Females: Margaret Reid, Barbara Smith Young, Ethel Leadbeater, Wilhelmina Ross, Elizabeth Aitken, Pollie Clayton.

- Moorcroft House*.—Male : James George Deacon.
Redland, Tonbridge.—Female : Henrietta E. Harbord.
St. Luke's Hospital.—Male : Herbert Joyce.
Private Nurse.—Male : Michael Dwane.
Warneford, Oxford.—Females : Eva Organ, Catherine A. Cox, Alice Boyles, Amy Bird.
Wood End House.—Females : Gwendoline Hanson, Olive Louisa Reed.
Glamorgan County.—Males : Avery Gosling, William Gribble, Farnham Moss, Bernard Hansen, Robert Charles Towell, James Byrne, William Henry Charles, Frank Albert Chatfield, Richard Hogg, William Jones. Females : Britannia Jones, Naomi B. A. Jones, Jennet Rees, Gertrude Smith, Kathleen Williams, Taliesin Richards, Elizabeth Bowen, Gladys Anne David, Catherine Griffiths, Gertrude L. Hamens, Sophia Thomas, Ethel C. Walters, Eveline A. Williams, Annie Lewis.
Abergavenny.—Females : Mary Millard, Annie Bethell, Laura Jones.
Armagh District.—Males : John Carroll, James Slevin.
Belfast District.—Male : Henry Finnigan, Harland Gibson, Harry Arthur Day, William Chesney, Samuel Erskins. Females : Susan McBirney, Margaret Kemmitt, Ellen McGurk, Julia E. Daly, Susan Armstrong, Mary Reid.
Ballinasloe District.—Males : Lawrence Croffy, Patrick Croffy, Lawrence Mannion, Daniel Murray, John Deely. Females : Annie Fitzpatrick, Bridget Flynn, Annie Whelan.
Cork District.—Males : Michael Pomphrett, Michael Donovan, John Coleman, Michael E. Devlin, Charles McCarthy. Females : Mary Murphy, Ellena Barry, Angela Crowley, Julia Barry, Cordelia Creadon.
Down District.—Males : Patrick Linchey, Charles Savage, Charles Linchey. Females : Josephine McGrath, Margaret Gillespie, Nellie Clingan.
Enniscorthy.—Males : George Davis, Myles Jones, James Newsom. Females : Bridget Murphy, Lizzie Doyle.
Londonderry.—Male : James McGready. Female : Mary Gallagher.
Monaghan.—Females : Mary Ellen Graham, Mary Ellen McMahon, Lizzie Porter, Rose Duffy, Mary Callaghan, Maggie E. McKenna.
Portrane.—Males : William Sweeney, Thomas Kavanagh, Patrick Greany. Females : Agnes Conroy, Mary A. Pender.
Richmond District.—Male : Bernard Matthews. Female : Kate Flanagan.
Waterford District.—Male : Edward McNamara.
Farnham House.—Female : Maria Lafferty.
Aberdeen Royal.—Males : William Tait, John Anderson. Females : Katharine Gordon, Agnes Davie, Jane Cowie, Margaret C. Fraser, Mary Slessor, Julia S. Scott, Catherine M. Robb.
Aberdeen City (Kingseat).—Males : John Kellas, William Henderson. Females : Jane Minty, Elizabeth Drummond, Lizzie M. Wyness, Jeannie Johnston.
Ayr District.—Males : Hugh Macdonald, Alexander McKinnon. Females : Bella Elson, Mary McDowall, Elizabeth Adamson.
Bangour Village.—Females : Anna Curran, Mary Blacklock, Minnie Johnston.
Crichton Royal.—Male : Donald Munro. Females : Catherine Macintyre, Jessie McDairmid, Agnes Thirde, Alice Mc. McInnes, Mary Nicolson.
Craig House, Morningside.—Males : Alexander Munro Bruce, Andrew Macdonald. Females : Alice A. Brown, Grace G. Nurie, Lucy Smith.
Edinburgh Royal, Morningside.—Males : Gordon Stewart, John McLennan. Females : Helena Prior, Margaret Mason, Lillian A. Laidlaw, Georgina Kidd.
Fife and Kinross.—Male : James Paul. Females : Bella Beadie, Barbara Colville, Jessie R. Edwards, Maggie Christie, Nettie Ritchie, Marion E. Futter.
Glasgow District.—Females : Catherine Wilson, Georgina H. Lewis, Jessie Clark, Annie R. Isdale.
Gartloch District.—Males : John Patrick Hayes, John Muir. Females : Esther C. Masterton, Jane McPhillips, Flora MacDairmid.
Inverness District.—Females : Harriet C. Manners, Mary S. Dingwall.
Lanark District.—Females : Sarah Macintyre, Catherine Macdonald, Annie Fraser, Jemima C. Spence.
Midlothian and Peebles.—Male : John Cessford. Females : Janet E. Thyne, Elizabeth Black, Annie Gordon.

Montrose Royal.—Males: Duncan Grant, James Addison.
Murray House, Perth.—Male: James Short. Female: Madge McDonald.
Roxburgh District.—Male: Alexander S. Grant. Female: Catherine Macvicar.
Stirling District.—Males: Peter Hardie, James Douglas. Females: Jean D. S. McGregor, Agnes G. P. Duncan, Sousan M. Cook.
Winwick, Lancashire.—Males: John T. Crabtree, Charles F. Nicol.
Private Nurse.—Female: F. E. L'Amie.

The following is a list of the questions which appeared on the paper :

1. State the functions of the skin, and mention the chief disorders of these functions that occur in insanity.
2. What signs of disorder of the respiratory system would you consider of sufficient importance to mention to the doctor at his visit ?
3. What is meant by delusion ? What is a fixed delusion, and how does it differ from other delusions ?
4. Describe minutely how you would search a patient.
5. How would you promote and maintain the bodily health of a patient unable to take care of himself ?
6. What means would you adopt to keep a restless, excitable patient in bed ?
7. How should you act in regard to the delusions expressed by patients ?
8. Describe shortly the composition of the blood, and the uses of its different constituents.
9. In what conditions among the insane are homicidal acts most frequently shown ?
10. What rules should you follow in administering medicines to patients ?

EXAMINATION FOR NURSING CERTIFICATE.

The next examination will be held on Monday, November 5th, 1906, and candidates are requested to send in their applications, duly filled in, to the Registrar of the Association, not later than Monday, October 8th, 1906, as this will be the last day upon which, under the rules, applications for examination can be received.

NOTICES OF MEETINGS.

Quarterly Meeting.—The next meeting will be held in London on Thursday, November 15th, 1906.

South-Eastern Division.—The Autumn Meeting will be held, by the courtesy of the Governors, at Bethel Hospital, Norwich, on October 17th, 1906.

South-Western Division.—The next meeting will be held, by the courtesy of Dr. MacBryan, at Kingsdown House, Box, on October 26th, 1906.

Northern and Midland Division.—The next meeting will be held on October 11th, 1906.

Scottish Division.—The next meeting will be held on November 2nd, 1906.

Irish Division.—The next meeting will be held on November 5th, 1906.

APPOINTMENTS.

Alexander H. de Maine, M.D.Edin., Medical Superintendent, Kingseat Asylum, Aberdeen.

Archdale, Mervyn A., M.B.Durh., Medical Superintendent, East Riding Asylum, Beverley.

Goodall, Edwin, M.D.Lond., B.S., F.R.C.P.Lond., Medical Superintendent, Cardiff City Asylum.

Hughes, Percy T., M.B., C.M., D.P.H., Medical Superintendent, Worcester County Asylum, Barnsley Hall, Bromsgrove.

Jeffrey, S. Rutherford, M.B., Ch.B., Senior Assistant Physician, Crichton Royal Institution, Dumfries.

Johnston, T. L., L.R.C.P. and S.Edin., L.F.P.S.Glasg., Medical Superintendent of the Bracebridge Asylum, Lincoln.

Lykes, Arthur, L.R.C.P.Lond., M.R.C.S.Eng., Medical Superintendent, Norwich City Asylum.

INDEX TO VOL. LII.

PART I.—GENERAL INDEX.

- ADMINISTRATION of asylums in Ireland, 603
After-care association, 623
Alcohol and epilepsy, 697
 " and insanity, 673
 " influence on the nervous system, 683
Alcoholism and heredity, 212
 " and reaction time, 208
 " and thermogenesis, 203
 " crime, and insanity, 203
 " geographical incidence of, 209
Amentia and dementia, 1, 221
 " with epileptic mania, 8, 11
Anarchist, criminal, 783
Anthropology, 399, 790
Aphasia and mental disease, relation between, 28
 " in dementia præcox, 36
 " in epilepsy, 30
 " in general paralysis, 32
 " in intoxication, 30
 " in puerperal insanity, 37
 " in vascular lesion, 44
Appointments, 200, 426, 627, 845
Association centres, 226
 " higher, region of, 230
 " centres, lower, region of, 229
Asylum administration in Ireland, 603
 " dysentery, bacteriology of, 321
 " " etiology of, 317
 " " occurrence in staff, 343
 " reports, 177
 " trained nurses, 306
 " workers' association, 581
Asylums, cost of providing, 367
Autobiographic hallucinations, 131

Ballinsloe Asylum, 581
Bath tap, new safety, 198
Benedikt: aus meinem leben, 364
Bifidity of spinous processes, 198
British Medical Association, 191
Bromipin, 174
Brain fag, 671
Bolton, Dr., reply to Dr. Campbell's criticism, 272

Carlow Asylum, 418
Centres of association, 226

- Cerebrum, wasting of, 235
 Chapin, Dr. J. B., 425
 Chronic inebriate, means of dealing with, 699
 "Coefficient of fatigue," 551
 " " of practice," 551
 "Confabulation," 445
 Confusion, mental, 428, 434
 " " causes of, 429
 " " symptomatology of, 433
 Confusional insanity, 194
 Cortex, prefrontal, cellular elements of, 241
 " " development of cells and fibres in, 251
 " " in amentia, 253
 " " in dementia, 256
 " " micrometry of, 250
 " " functional significance of cell-layers of, 258
 " " structure of, 225
 Cost of providing asylums, 367
 "Cranks," 15
 Criminal anarchists, 783
 Crusades, psychology of, 745
- David Lewis Manchester epileptic colony, 84
 Dementia, 221
 " causes of, 222
 " definition of, 222
 " paralytica, prognosis in, 284
 " " " influence of age on, 285
 " " " alcohol on, 287
 " " " epileptiform convulsions on, 293
 " " " juvenile type on, 301
 " " " mental and bodily development on, 294
 " " " mental state on, 288
 " " " ocular changes on, 292
 " " " remissions on, 303
 " " " sex on, 287
 " " " tabes dorsalis on, 302
 " progressive, 488
 " stationary, 487
 " senile, 717
 " " chronic insanity with, 724, 738
 " " mania with, 730
 " " melancholia with, 727
 " " recurrent insanity with, 719, 734
 " varieties of, 712
 " " primarily neuronc, 716
 "Delusion," 456
 Dionin, 174
 Down District Asylum, 625
 Dysentery, asylum etiology of, 317
- Echolalia, 29
 " in general paralysis, 32
 " mode of production of, 44
 "Echolie in Frageform," 30
 Epilepsy and alcohol, 697
 Epileptic colony (David Lewis), 84
 " idiocy, pathology of, 571
 " insanity, 5, 7
 Etiology of insanity, 159, 409, 792
 Evolution of instinct, 493

- Fatigue, clinical measurement of, 517
 " co-efficient of, 551
 " influence of change of occupation on, 518, 665
 " mental, diagnostic value of, 521
 " " effect of rest on, 531
 " " " impulse on, 528
 " " method of measuring, 523
 Fatigue, rest and sleep, 661
 " " changes in the nerve-cells during, 667
 Female nursing of insane males, 116
 Females as auxiliary to male nurses, 121
- Genarii, line of, 227
 General paralysis, lipomata in, 62
 " " pathology of, 278
 " " prognosis in, 284
- " Hallucination," 465
 Hallucinations, autobiographic, 131
 Hanwell statistics, 700
 Histology, general, of mental disease, 240
 Hyoscine, 174
 Hysteria in asylum practice, 1
- Idiocy, epileptic, pathology of, 571
 " Illusion," 465
 Imbecile, inadequacy of institutions for, 109
 " occupation of, 110
 " scheme for care of, 112
 " state interference on behalf of, 108
- Indoxyl in the urine, 501
 " source of, 769
 " tests for, 502, 766, 767, 772
- Indoxyluria, 766
 Industrial drinking, 505
 Industry and alcoholism, 505
 Inebriate, chronic, means of dealing with, 699
 Inhalation of food during feeding, 197
 Insane, international congress on care of, 199
 Insanity and indicanuria, 766
 " causes of, 643
 " confusional, 194
 " epileptic, 5, 7
 " etiology of, 159, 409, 792
 " forms of, 820
 " increase of, 641
 " in early times, treatment of, 634
 " in the middle ages, 633
 " notes on study of, 49
 " pathology of, 169, 806
 " prophylaxis of, 762
 " recovery rate, 649
 " Sankey's generalisation of, 56
 " treatment of, 171, 803
- " Insangu" smoking, 129
- Instinct, 491
 " dissolution of, 497
 " evolution of, 493
- Journal of Abnormal Psychology*, 580
- Katatonic dementia, aphasia in, 37
 Kilkenny Asylum, 839

- Lunacy commission, increase of, 578
 " law amendment, 141
 " limitation of, by legislation, 756
 Lunatic, actual, 270
 " potential, 270
 Lipomata, multiple, in general paralysis, 62
 Local Government Board and Lunacy Commissioners, memorandum to, 421
 Medico-legal cases—*re* Thomas Gill, deceased, 345; Purves *v.* Carswell and Gilchrist, 355; Rex *v.* Devereux, 196; Rex *v.* Hother, 347; Rex *v.* Llywarch, 779; Rex *v.* Macgregor, 362; Rex *v.* Swan, 359; Rex *v.* Trollope, 356; Rex *v.* Watt, 349; the Townshend case, 776; Wehner *v.* The King, 195
 Medico-psychological Association, balance sheet, 811
 " " coming meeting of, 830
 " " reports of meetings of, 186, 416, 603, 809
 Mental " confusion, 428, 434
 " " causes of, 429
 " " sequelæ of, 486
 " " symptomatology of, 433
 Mental disease, general histology of, 240
 " " in relation to dysentery, 329
 Mental disorders of pregnancy, 611
 Mental nurses, registration of, 306
 Merck's annual report, 173
 Molony, Dr. John, 626
 Morison lectures (1906), 278
 Mothering instinct in women, 116
 Muscular sense, centres for, 207, 209
 " " impairment of, 206
 " " in somnambulism, 207
 Nareyl, 173
 Neopallium of mammalia, 258
 Nerve-fibres of prefrontal cortex, 243
 " staining of, 249
 Neurology, 162, 401, 593
 Neuronal, 174
 Neuron theory, 661
 Notice by librarian, 426
 Notices by the registrar, 201, 426, 842
 " of meetings, 200, 426, 627, 845
 Nurses' association, Royal British, 309
 Nurses, registration of, 582, 613
 " suggested scheme for registration of, 310
 " their status and registration, 306
 Nursing examinations, 583
 " staff at Leavesden asylum, 312
 Occupation and environment as causes of insanity, 193
 " of imbeciles, 110
 Occupations and pauperism, 210
 Overpressure in schools, 520
 Paranoia, 14
 " development of, 17
 Pauperism and occupation, 210
 Prefrontal cortex, 883
 " " cells of, 241
 " " development of cells and fibres in, 251
 " " fibres of, 243
 " " in amentia, 253
 " " in dementia, 256
 " " micrometry of, 250

- Prognosis in dementia paralytica, 284
 " in mental disorders, 193
 Progress of psychiatry, 381
 " " in America, 381
 " " in Denmark, 387
 " " in France, 388
 " " in Germany, 391
 " " in Holland, 392
 " " in Italy, 395
 " " in Spain, 398
 Projection spheres, 227
 Prosecution in lunacy, 368
 Prophylaxis of insanity, 762
 " Pseudo-reminiscence," 445
 Psychiatric terminology and classification, 75
 Psychiatry and neurology, clinical, 162, 793
 " clinical, 412, 595
 " Psychic resolution," 429
 Psychology in medicine, extension of, 193
 " of the crusades, 745
 " physiological, 154, 405

 Region of higher association, 230
 " lower association, 229
 " underdevelopment of cerebrum, 237
 " wasting of cerebrum, 235
 Registration of nurses, 582, 613
 Reply by Dr. Bolton to Dr. Campbell's criticism, 272
 Report, Merck's annual, 173
 Reports, asylum, 177
 " of Committees, 813
 " of Medico-Psychological Association, 186, 416, 603, 809

 " Sane paranoiacs," 15
 Sankey, Mr. R. H. H., 425
 Scopolamine, 174
 Sleep, histological theory of, 667
 Sterilisation of the unfit, 760, 761
 Staining of nerve-fibres, 249
 State interference on behalf of imbecile, 108
 Sociology, 175, 600

 Thermal crisis, 204
 Transcortical aphasia, 28
 Tuberculosis in asylums, 92

 Union of medical societies, 827
 Urine, indoxyl in, 766, 501
 Urine-testing and results, notes on, 69

 Veronal, 174
 Visuo-sensory area, 227
 " " " structure of, 228
 " -psycho area, 229
 " " " structure of, 229

 Wasting of cerebrum in mental disease, 235
 Work curves, 550
 Woods, Dr. O. T., 841

PART II.—ORIGINAL ARTICLES.

- Baird, Dr. H., the pathology of four cases of epileptic idiocy, 571
 Bolton, Dr. J. S., amentia and dementia, 1, 221, 427, 711
 Bruce, Dr. L. C., the clinical significance of indoxyl in the urine, 501
 " " a serum reaction occurring in persons suffering from infective conditions, 514
 Cole, Dr. S. J., on some relations between aphasia and mental disease, 28
 Crookshank, Dr. F. G., some notes on the study of insanity, 49
 Drapes, Dr. T., on psychiatric terminology and classification, 75
 Easterbrook, Dr. C. C., insanity and indicanuria, 766
 Elkins, Dr. F. A., the nursing staff at the Metropolitan Asylum, Leavesden, 312
 Greene, Dr. G., notes upon the incidence of tuberculosis in asylums, 92
 " " the prognosis in dementia paralytica, 284
 Ireland, Dr. W. W., on the psychology of the crusades, 745
 Jones, Dr. R., some clinical notes upon urine testing and results, 69
 " " presidential address, 629
 Knobel, Dr. W. B., on the etiology of asylum dysentery, 317
 Lewis, Dr. W. B., alcoholism, crime, and insanity, 203
 " " the neuron theory, 661
 McDougall, Dr. A., the David Lewis Manchester epileptic colony, 84
 Mott, Dr. F. W., alcohol and insanity, 673
 Nolan, Dr. M. J., the possibility of the limitation of lunacy by legislation, 756
 Norman, Dr. C., multiple lipomata in general paralysis, 62
 Pringle, Dr. A. D., " Insangu " smoking and tape-worm, 129
 Rainsford, Dr. F. E., the necessity for state interference on behalf of the imbecile, 108
 Robertson, Dr. G. M., employment of female nurses in the care of insane men in asylums, 116
 Robertson, Dr. W. F., the pathology of general paralysis of the insane, 278
 Specht, Dr. W., the clinical measurement of fatigue; translation revised by Dr. Thomas Johnstone, 517
 Stoddart, Dr. W. H. B., on instinct, 491
 Sullivan, Dr. W. C., industry and alcoholism, 505
 Wood, Dr. T. O., mental nurses; their status and registration, 306

PART III.—REVIEWS.

- Ascheffenburg on the changes of mood in epileptics, 789
 Bourneville, Dr., and others, *Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie et l'idiote*, 151, 152
 De Quiros, C.B., *Criminología de los delitos de Sangre en Espana*, 591
 Forel, Prof. A., *Die sexuelle Frage*, 375
 Ireland, Dr. W. W., *The life of Sir H. Vane, the younger*, 153

- Meige, Dr. H., Tics, 373
 Mercier, Dr. C., Criminal responsibility, 584
 Naegeli-Aekerblom, Dr., Quelques resultats de l'examen des preuves historiques employées par les auteurs traitant de l'hérédité, 379
 Northcote, H., Christianity and sex problems, 374
 Probst, Dr. F., Der Fall Otto Weininger, 592
 Reid, Dr. G. A., Principles of heredity, 377
 Report of English Commissioners in Lunacy, 142
 „ „ General Board of Commissioners (Scotland), 147
 „ „ Inspectors of Lunatics (Ireland), 369
 Sainsbury, Harrington, Principia therapeutica, 788
 Westermarck, Dr. E., The origin and development of the moral ideas, vol. i, 589

PART IV.—AUTHORS REFERRED TO IN EPITOME.

- | | | |
|--------------------------|----------------------------------|--------------------------|
| Angiolella, 601, 410 | Giachetti, C., 595 | Näcke, P., 405, 409, 792 |
| Anton, G., 593 | Guszman, 159 | Onuf, 795 |
| Audenino, 408 | Hecht, 797 | Pactet, 175 |
| Bayon, G. P., 162 | Heilbronner, K., 167 | Pariani, C., 402 |
| Bechterew, 599 | Henneberg, 597 | Parker, W. A., 175 |
| Boldt, 159 | Higier, H., 171 | Paton, Stewart, 804 |
| Brodmann, 594 | Holden, W. A., 168 | Perazzolo, S., 596 |
| Brown, Le Roy, 803 | Houzé, 165 | Pick, A., 157 |
| Burzio, 169 | Hudovernig, C., 798 | Porter, J., 157 |
| Ceni, Carlo, 172, 173 | Hudovernig und Gusz-
man, 159 | Rivers, W. H. R., 400 |
| Cerletti, 164 | Jewell, J. R., 154 | Rodenwaldt, 601 |
| Christian, 160 | Juliusberger, 166 | Roncoroni, 806 |
| Claparède, 155 | Kiernan, J. S., 414 | Sachs, B., 413 |
| Cowie and Inch, 796 | Kramer, 595 | Saltykow, S., 404 |
| Cullerre, 793 | Kuhlmann, 158 | Sanet, R., 154 |
| Deroubaix, A., 171 | Leroy, 168 | Sérieux, 805 |
| Donaggio, A., 404 | Lomer, G., 408 | Sims, F. R., 170 |
| Dromard, G., 799 | Lunberg, 161 | Stedman, 412 |
| Dumas, G., 155 | Maidu, M. S., 414 | Strohmayer, 794 |
| Edsall, D. L., 169 | Merck, 173 | Spielmeier, 807 |
| Féré, Ch., 407, 415, 793 | Miner, J. B., 156 | Tomasini, 600 |
| Fishberg, M., 399 | Mingazzini, 800 | Toulouse and Damaye, 411 |
| Freud, S., 406 | Moravesik, 598 | Vogt, H., 414 |
| Garbini, G., 401 | Morehen, 166 | Weygandt, 176 |
| Gharardini, G. V., 802 | Morselli, E., 790 | |

ILLUSTRATIONS.

- Chart illustrating Dr. Greene's paper on "The Prognosis of Dementia Paralytica," 286
- Chart illustrating Dr. Knobel's paper "On the Etiology of Asylum Dysentery," 336-9
- Charts illustrating Dr. Specht's paper on "The Clinical Measurement of Fatigue," 538, 553-9, 561-7
- Diagrams illustrating Dr. Bolton's paper on "Amentia and Dementia," 247, 261, 263
- Diagram illustrating Dr. Sullivan's paper on "Industry and Alcohol," 571
- Micro-photographs illustrating Dr. Baird's paper on "The Pathology of Epileptic Idiocy," 576
- Micro-photographs illustrating Dr. Bolton's paper on "Amentia and Dementia," 240, 242

24891

of Descent in
y. 1. 1. 1. 1. 1.
ment of the
entirely by
all the
of the
of Descent

Princeton University Library



32101 074924380

