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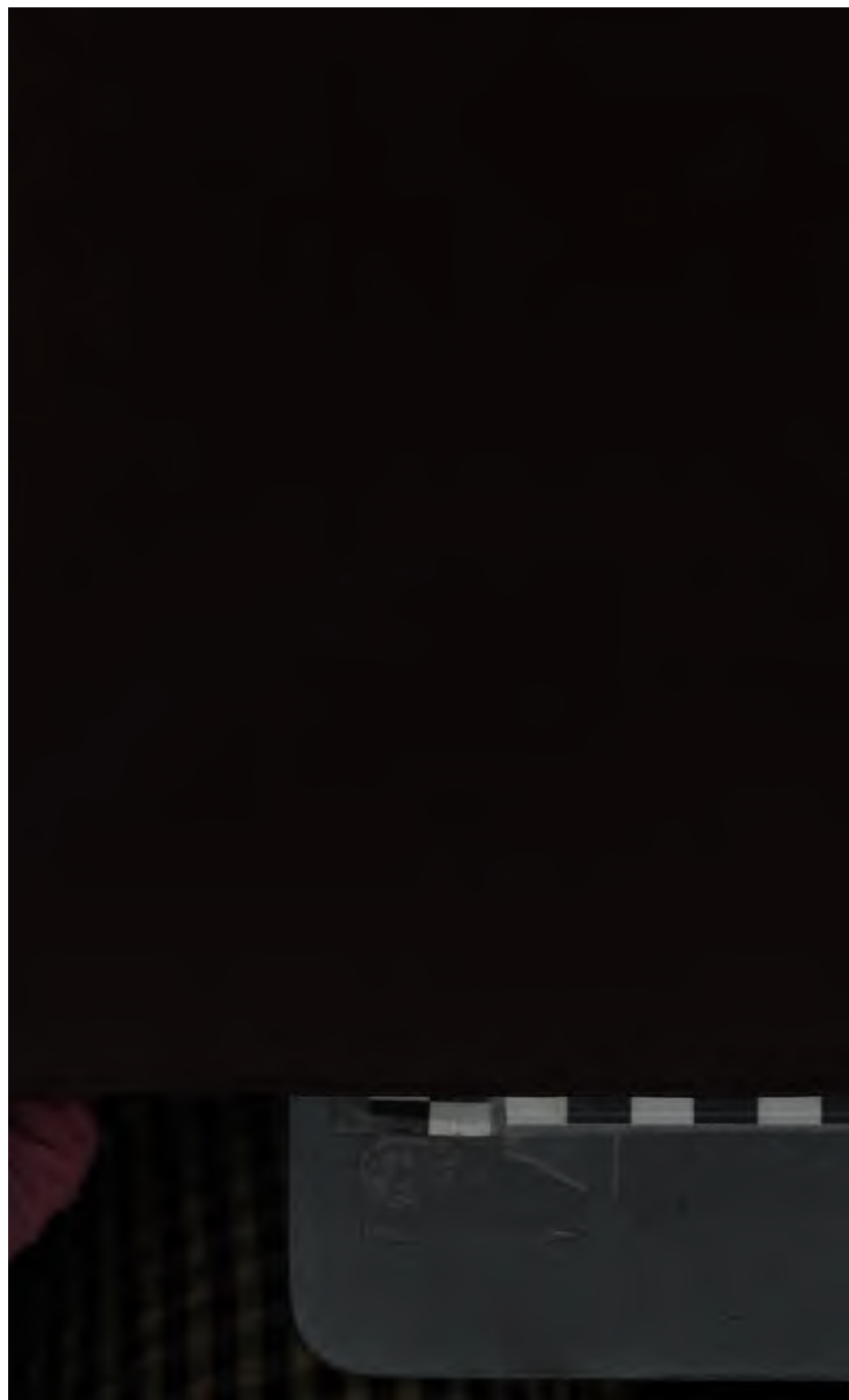
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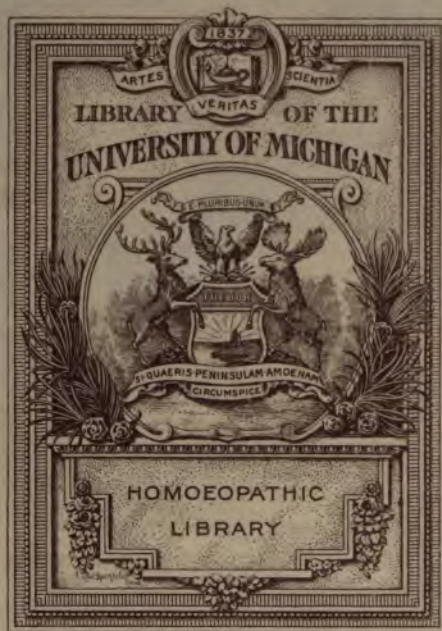
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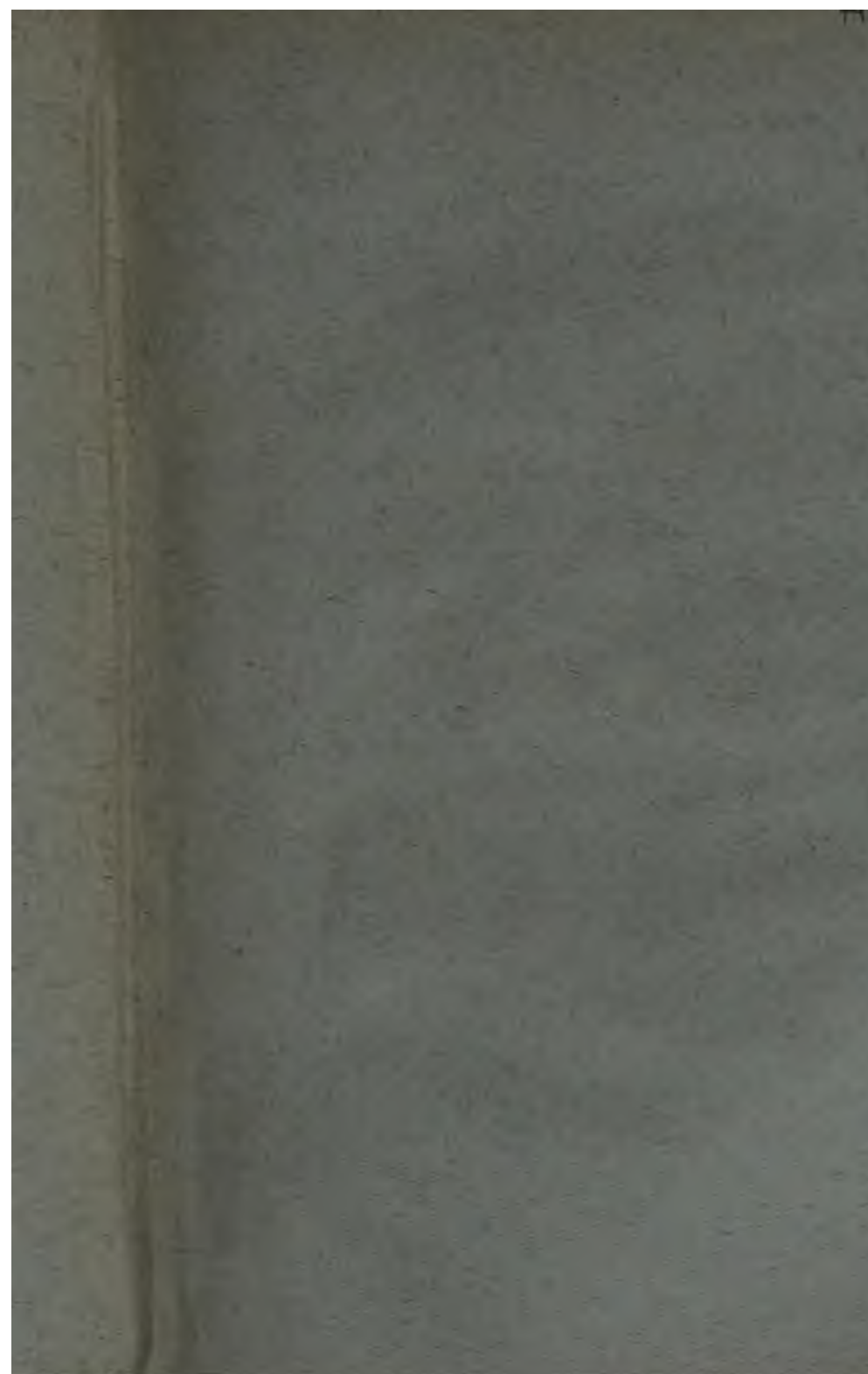
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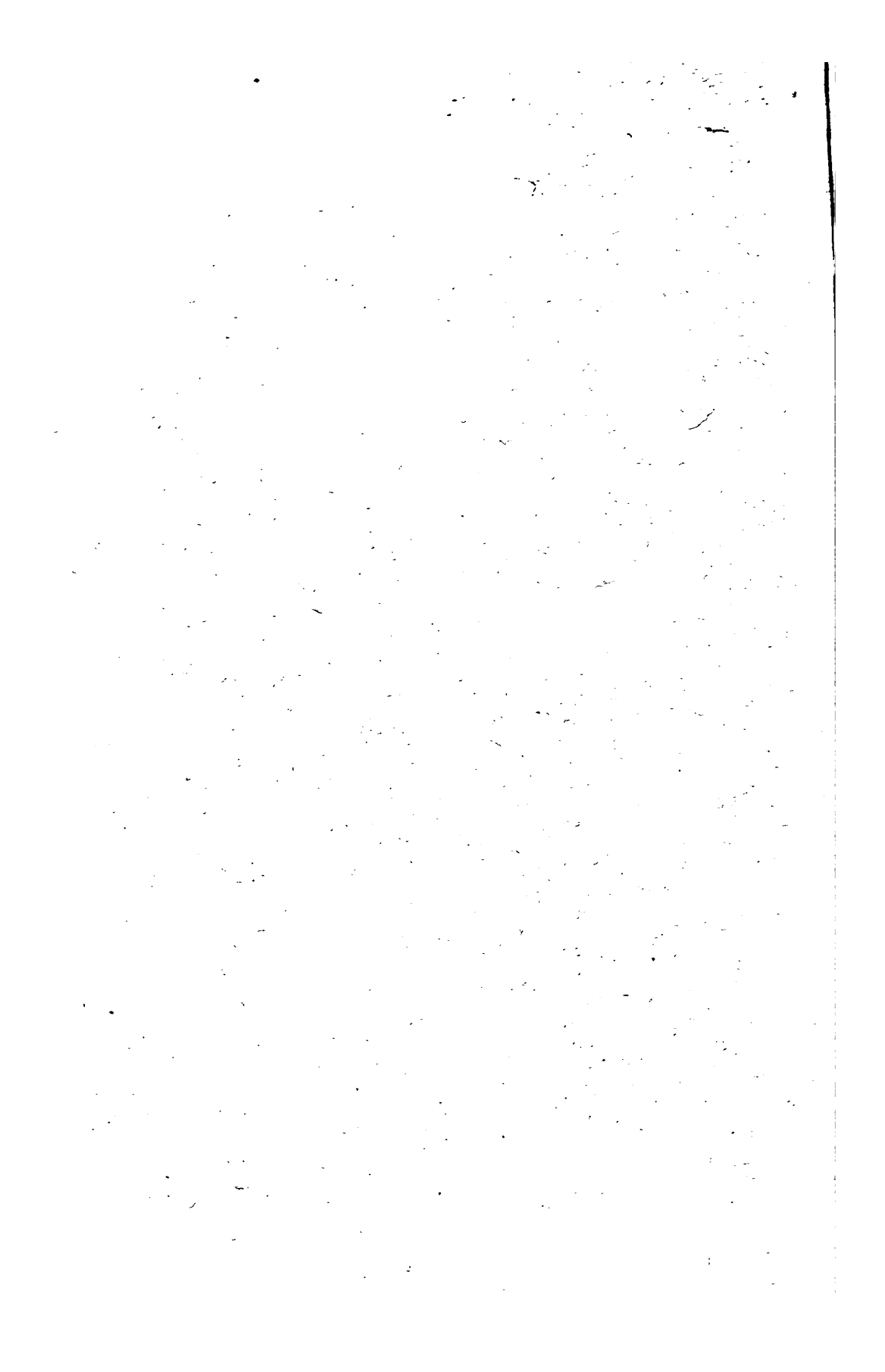
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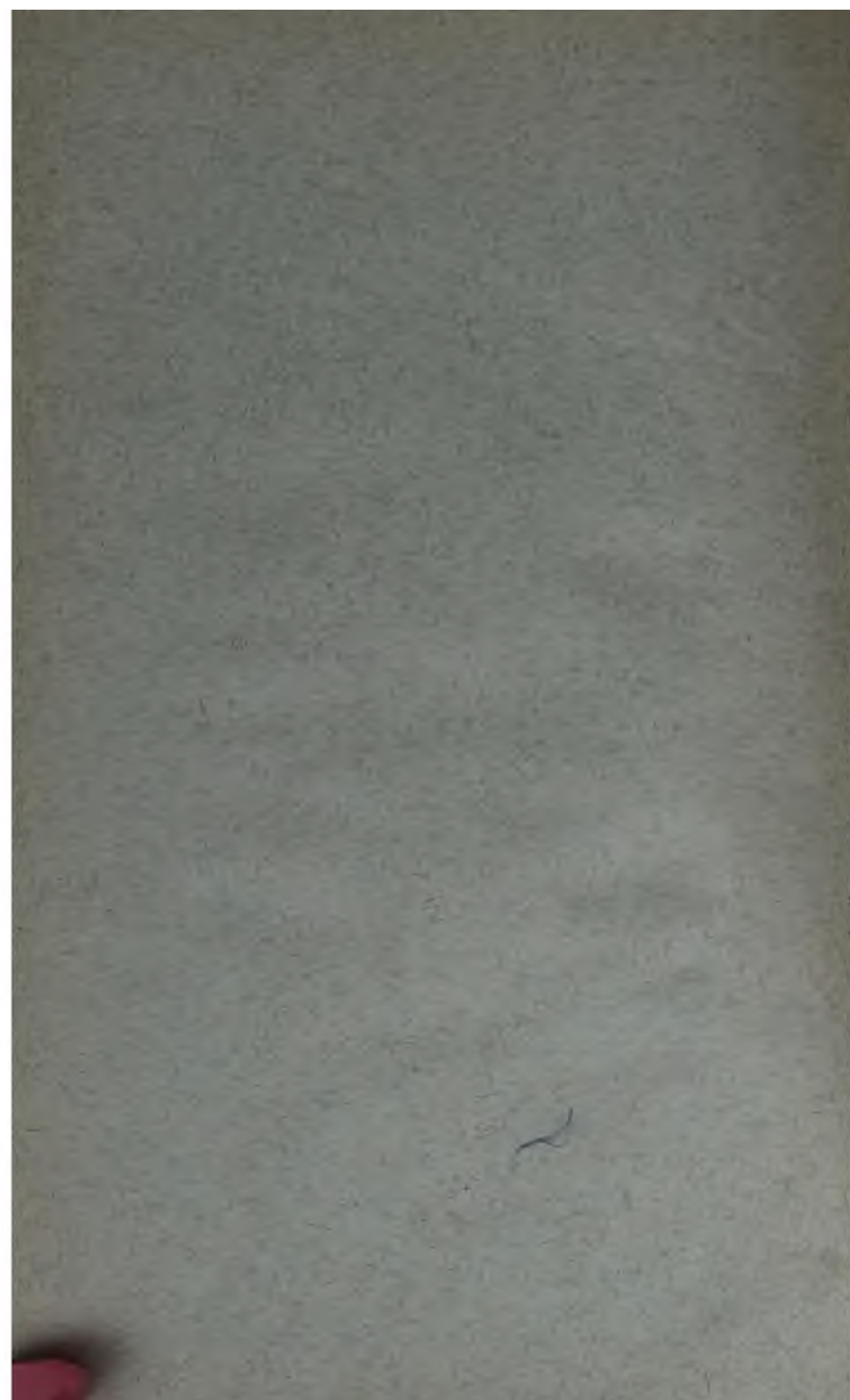












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- 1904 FALLON, ROBERT HUME, M.D., C.M.Aberd.; 1, Thistle Villa, Green Point, Cape Town.
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- 1881 *GOLDSBROUGH, GILES FORWARD (*Editor*), M.D., C.M.Aberd.; Assistant Physician and Physician for Diseases of the Nervous System to the London Homœopathic Hospital; 82, Wimpole Street, W., and Churchside, Herne Hill, S.E. (P. 1895. V.-P. 1893-94. C. 1897-98, 1901.)
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- 1894 HARDY, JAMES EBENEZER, M.B., C.M.Edin.; 183, Bath Street, Glasgow.
- 1859 HARPER, JAMES PEDDIE, M.D.Edin., L.R.C.S.Edin.; 43, Hertford Street, Mayfair, W.
- 1902 HARRIS, HENRY ARTHUR CLIFTON, M.R.C.S.Eng., L.R.C.P.Lond.; Medical Officer to the Sussex County Homœopathic Dispensary; 14, Norfolk Square, Brighton, and 29, Richmond Place, Brighton.
- 1900 HARRIS, LILLIAN MAUDE CUNARD, L.R.C.P.I., and L.R.C.S.I.; Medical and Surgical Registrar to the London Homœopathic Hospital; Clinical Assistant Diseases of Women, London Homœopathic Hospital; 89, Great Russell Street, W.C., and 14, Norfolk Square, Brighton.
- 1878 *HAWKES, ALFRED EDWARD (*Vice-President: Liverpool Branch Representative*), M.D.Bru.x., L.R.C.P., L.M., L.R.C.S.Edin.; Medical Officer to the Hahnemann Hospital, Liverpool; 22, Abercromby Square, Liverpool. (V.-P. 1903. P. *Liverpool Branch*, 1892, 1901. V.-P. 1893. C. 1898, 1900-02.)

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- 1888 HAWKES, EDWARD JOHN, L.R.C.P., L.R.C.S., L.M.Edin.;
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- 1886 HAYLE, THOMAS HAHNEMANN, M.B.Lond.; The Crescent,
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- 1892 HAYWARD, CHARLES WILLIAMS (*President: Liverpool Branch*)
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- 1892 HAYWARD, JOHN DAVEY, M.D.Lond., M.R.C.S.Eng., L.S.A.;
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- 1868 *HAYWARD, JOHN WILLIAMS, M.D.St. And., M.R.C.S.Eng.,
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- 1885 HILBERS, HERMANN GERHARD, B.A.Camb., L.R.C.P., L.R.C.S.
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- 1899 HUGHES, EDWARD LUCAS, M.R.C.S.Eng., L.R.C.P.Lond.;
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- 1882 *JAGIELSKI, VICTOR APOLLINARIS, M.D.Berlin, M.R.C.P. Lond.; 14, Dorset Square, N.W.
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- 1887 †JONES, DAVID OGDEN ROEBUCK, M.D.Trin.Coll., Toronto, L.R.C.P.Lond.; Physician to the Grace Hospital (Homœopathic); Surgeon for Diseases of the Eye, Ear, Nose and Throat, to the "Nursing at Home Mission" Dispensary; 126, Carleton Street, Toronto, Canada.
- 1893 JONES, GEORGE REGINALD, L.R.C.P.Lond., M.R.C.S.Eng., Medical Officer to the Homœopathic Institution, Manchester; 73, Withington Road, Whalley Range, Manchester;
- 1866 JONES, JAMES, M.D.Edin., M.R.C.S.Eng., L.R.C.P.Lond.; 157, Lewisham Road, S.E.
- 1881 JONES, THOMAS REGINALD, L.R.C.P.I., L.M., M.R.C.S.Eng.; Consulting Physician to the Wirral Homœopathic Dispensary; 15, Shrewsbury Road, Claughton, and 23, Hamilton Square, Birkenhead.
- 1893 LAMBERT, JAMES RUDOLF PAUL (*Librarian*), M.D., C.M. Edin.; Assistant Physician and Anæsthetist to the London Homœopathic Hospital; 5, Alfred Place West, Thurloe Square, South Kensington, S.W. (*Lib.* 1902-3.)
- 1901 LEWIN, OCTAVIA MARGARET SOPHIA, M.B., B.S.Lond., M.D.Chicago; 25, Wimpole Street, W. ■
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- 1902 **MACDONALD, DAVID**, M.D.Glas., M.B., C.M.Glas.; Rivington, Hoghton Street, Southport.
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- 1876 ***MADDEN, EDWARD MONSON**, M.B.Edin., M.R.C.S.Eng., Physician to the Phillips Memorial Hospital; Burlington House, Bromley, Kent. (P. 1896. V.-P. 1892-93. C. 1894, 1901-02.)
- 1895 **MARCH, EDWARD GERALD**, M.D.BruX., F.R.C.S.Edin., M.R.C.S.Eng., L.R.C.P.Lond.; Camden House, Castle Hill, Reading.
- 1885 **MASON, HENRY**, M.D., C.M.Glas., M.R.C.S.Eng.; Medical Officer to the Leicester Homœopathic Cottage Hospital and Dispensary; 66, London Road, Leicester.
- 1893 **MEEK, WILLIAM OMBLER**, M.B., C.M.Edin.; 240, Oxford Road, Manchester.
- 1893 **MILLER, ROBERT GIBSON**, M.B., C.M.Glas.; 10, Newton Place, Glasgow.
- 1902 **MINTER, LEONARD JNO.**, M.D.BruX., M.R.C.S., L.R.C.P., Lond., L.S.A.; 36, Sillwood Road, Brighton.
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- 1867 **MORGAN, SAMUEL**, M.D.St.And., M.R.C.S.Eng., L.S.A.; Consulting Physician to the Bath Homœopathic Hospital; Physician to the Bristol Homœopathic Dispensary; 15, Oakfield Road, Clifton, Bristol.
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- 1895 **NANKIVELL, BERTRAM WRIGHT**, M.R.C.S.Eng., L.R.C.P. Lond.; Surgeon, Registrar and Pathologist to the Hahnemann Convalescent Home; Physician to the Cottage Home, Cotlands Road; Visiting Surgeon and Physician to the Bournemouth Homœopathic Dispensaries; Consulting Surgeon to the Victoria Home for Crippled Children, Westbourne; Honorary Physician, Y.M.C.A., Bournemouth; Honorary Surgeon to the Bournemouth Ambulance Association; Woodstock, West Cliff Road, Bournemouth.
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- 1888 ***NANKIVELL, HERBERT** (*President*), M.D.Edin., M.R.C.S. Eng.; Consulting Physician to the Hahnemann Convalescent Home, Bournemouth; Penmellyn, Richmond Hill, Bournemouth, (P. 1903, V.-P. 1901-2.)
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- 1898 NEILD, EDITH, M.B.Lond., L.R.C.P., L.R.C.S.Edin., L.F.P.S. Glas.; Honorary Physician to the Tunbridge Wells Homœopathic Hospital; Mount Pleasant House, Tunbridge Wells.
- 1885 NEILD, FREDERIC, M.D., C.M.Edin., L.R.C.P.Edin.; Consulting Physician to the Tunbridge Wells Homœopathic Hospital and Dispensary; Mount Pleasant House, Tunbridge Wells.
- 1891 NEWBERRY, WILLIAM FREDERICK HOYLE, M.D., C.M., Trinity College, Toronto, L.S.A.Lond.; Senior Physician and Physician for Diseases of Women to the Devon and Cornwall Homœopathic Hospital; 8, Queen Anne Terrace, Plymouth.
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- 1880 NOBLE, JAMES BLACK, M.R.C.S.Eng., L.R.C.P., L.M.Edin.; 167, Kennington Park Road, S.E., and Crosby House, 36 and 37, Great St. Helen's, Bishopsgate Street, E.C.
- 1876 NORMAN, GEORGE, M.R.C.S.Eng., L.S.A.; 12, Brock Street, Bath.
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- 1895 †ORR, FREDERICK LAYTON, M.D.Lond., M.R.C.S.Eng., L.R.C.P.Lond. (*Address not communicated.*)

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- 1886 **PINCOTT, JAMES COLE**, M.R.C.S.Eng., L.R.C.P., L.M.Edin., Surgeon to the Tunbridge Wells Homœopathic Hospital and Dispensary ; Culverden Grange, 12, St. John's Road, Tunbridge Wells.
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- 1902 **POWELL, JOSIAH CECIL**, M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer to the Homœopathic Dispensary, Stoke-on-Trent ; 192, Oakhill, Stoke-on-Trent.
- 1898 **PRITCHARD, JOSEPH JAMES GAWLER**, L.R.C.P.Lond., M.R.C.S.Eng. ; Heathfield, West Park Street, Dewsbury.
- 1868 †**PRITCHARD, JOSIAH**, M.R.C.S.Eng., L.S.A. ; 63, Richmond Road, Montpelier, Bristol.
- 1898 **PRITCHARD, WILLIAM CLOWES**, B.A., M.R.C.S., L.R.C.P. ; Surgeon to the Buchanan Hospital ; Ophthalmic Surgeon to the Hastings and St. Leonards Homœopathic Dispensary ; 29, Wellington Square, Hastings.
- 1893 **PROCTOR, PETER**, M.R.C.S.Eng., L.R.C.P.Edin., L.S.A. ; 17, Hamilton Square, Birkenhead.
- 1902 **PROWSE, WILLIAM BARRINGTON**, M.R.C.S.Eng., L.R.C.P. Lond. ; Honorary Physician to the Sussex County Homœopathic Dispensary, Brighton ; 11, St. George's Place, Brighton.
- 1884 **PULLAR, ALFRED**, M.D., C.M.Edin. ; 111, Denmark Hill, S.E.
- 1883 **PURDOM, THOMAS EADIE**, M.D., C.M.Edin., L.R.C.P., L.R.C.S. Edin. ; Senior Physician to the Croydon Homœopathic Dispensary ; Ellerslie, 25, Park Hill Road, and 40, George Street, Croydon.
- 1894 **RAMSBOTHAM, SAMUEL HENRY**, M.D.Edin., M.R.C.S.Eng. ; Honorary Medical Officer to the Leeds Homœopathic Dispensary ; Fairstead, Ripon Road, Harrogate, and 68, Great George Street, Leeds.

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- 1892 *REED, WILLIAM CASH, M.D., C.M.Edin.; Honorary Assistant Surgeon and Joint Gynæcologist to the Hahnemann Hospital, and Honorary Gynæcologist to the Roscommon Street Dispensary; 15, Princes Avenue, Liverpool. (V.-P. 1900. P. *Liverpool Branch*, 1902. V.-P. 1901.)
- 1895 REID, ARTHUR LESTOCK, M.R.C.S.Eng., L.R.C.P.Lond.; Thornborough House, Clarendon Road, Watford. (C. 1900-1.)
- 1872 †REID, LESTOCK HOLLAND, M.R.C.S.Eng., L.R.C.P.Lond.; Bowmanville, Ontario, Canada.
- 1894 RENDALL, JOHN MURLY, L.R.C.P., L.R.C.S.Edin.; L.F.P. & S.Glas.; 1, Coates Crescent, Edinburgh.
- 1885 RENNER, CHARLES, M.D.Wurzburg, L.R.C.P.Lond., M.R.C.S.Eng.; 186, Marylebone Road, N.W.
- 1902 REYNOLDS, AUSTIN EDWARD, M.R.C.S.Eng., L.R.C.P.Lond., L.S.A.Lond.; Assistant Ophthalmic Surgeon to the London Homœopathic Hospital; Highcroft, Shepherd's Hill, Highgate, N.; 27, New Cavendish Street, Cavendish Square, W., and 28A, Basinghall Street, E.C.
- 1893 ROBERTS, WILLIAM HENRY, L.R.C.P., L.R.C.S.Edin., L.M.; Physician to the Dublin Homœopathic Dispensary; 63, Lower Mount Street, Dublin.
- 1878 *ROCHE, ELEAZER BIRCH, L.R.C.P.Lond., M.R.C.S.Eng., L.M.; Physician to the Norwich Homœopathic Dispensary; Honorary Medical Officer to the Orphans' Home, Norwich, and to the Norwich City Mission; 27, Surrey Street, Norwich. (C. 1897.)
- 1892 ROCHE, WILLIAM, L.R.C.P.I., L.M., M.R.C.S.Eng.; The Limes, 10, Warwick Road, Upper Clapton, N.E.
- 1901 ROSS, PERCY ALEXANDER, B.A.Cantab., M.R.C.S., L.R.C.P.Lond.; Assistant Ophthalmic Surgeon to the London Homœopathic Hospital; Sudbury, Hamlet Court Road, Westcliff-on-Sea, Southend.
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- 1892 ROWSE, EDWARD LEOPOLD, M.D.Brux. (Honours), L.R.C.P. Lond., M.R.C.S.Eng. ; Garryowen, Putney Hill, Putney, S.W.
- 1880 SANDBERG, ARTHUR GREGORY, M.D. Verm., L.R.C.P., L.R.C.S., L.M.Edin. ; 72, Streatham Hill, S.W.
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- 1892 SCRIVEN, GEORGE, M.D., B.Ch.Dub., L.M., F.R.G.S. ; Physician to the Dublin Homœopathic Dispensary ; 33, St. Stephen's Green, Dublin.
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- 1884 SHACKLETON, HENRY, B.A., M.D.Dub., M.R.C.S.Eng., L.M.K.Q.C.P.I., L.M., Rot. Hosp., Dub. ; 12, West Hill, Sydenham, S.E.
- 1883 *SHAW, CHARLES THOMAS KNOX (*Hon. Secretary*), L.R.C.P. Lond., M.R.C.S.Eng., Senior Surgeon and Ophthalmic Surgeon to the London Homœopathic Hospital ; Consulting Surgeon to the Buchanan Cottage Hospital, St. Leonards ; to the Tunbridge Wells Homœopathic Hospital ; to the Phillips Memorial Hospital, Bromley ; to the Bath Homœopathic Hospital ; and to the Devon and Cornwall Homœopathic Hospital ; Consulting Ophthalmic Surgeon to the Hastings and St. Leonards Homœopathic Dispensary ; 19, Upper Wimpole Street, W. (P. 1891. V.-P. 1890. C. 1900. S. 1892-98, 1900-3.)
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- 1899 STACEY, FREDERIC GEORGE, B.A., M.B., B.C.Cantab., M.R.C.S.Eng., L.R.C.P.Lond.; Cliff House, Ranmoor, Sheffield, and 711, Ecclesall Road, Hunter's Bar, Sheffield.
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- 1889 STONHAM, THOMAS GEORGE, M.D.Lond., M.R.C.S.Eng.; Assistant Physician to the London Homœopathic Hospital; 128, Broadhurst Gardens, West Hampstead, N.W. (C. 1898, 1901.)
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- 1892 STUART, PETER, L.R.C.P., L.R.C.S.Edin., L.M.; Assistant Physician to the Hahnemann Hospital, Liverpool; 36A, Rodney Street, Liverpool.
- 1877 *SUSS-HAHNEMANN, FREDERICK LEOPOLD ROBERT, M.D. Leipzig; Tweed Mount, Bath Road, Ventnor, Isle of Wight.

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- 1886 THOMAS, EDWARD JOHN HAYNES, L.R.C.P., L.R.C.S.Edin.; Physician to the Chester Free Homœopathic Dispensary; 18, Pepper Street, Chester.
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- 1896 TINDALL, ERNEST EDWARD PATRIDGE, R.N., M.R.C.S.Eng., L.R.C.P.Lond.; Medical Officer to the Devon and Exeter Homœopathic Dispensary; 20, Southernhay East, Exeter.
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- 1862 †WATSON, CHARLES GEORGE, L.R.C.S., L.R.C.P.I., L.M. (*Address not communicated.*)
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- 1898 WEBSTER, NORMAN PETER, L.S.A., M.R.C.S.Ontario ; George Place, Guernsey.
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- 1861 WHEELER, HENRY, L.R.C.P.Lond., M.R.C.S.Eng. ; Bridge House, Marden, Kent.
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- 1892 WILKINSON, CLEMENT JOHN, M.R.C.S.Eng., L.S.A. ; 3, Osborne Villas, Windsor. (C. 1898-99.)
- 1892 †WILLIAMS, EUBULUS, M.D.St.And., M.R.C.S.Eng., L.M., L.A.C. ; Hon. Consulting Physician to Müller's Orphan Houses ; 1, Lansdowne Place, Clifton.

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SOME PRESENT-DAY THERAPEUTICS.

BEING THE PRESIDENTIAL ADDRESS DELIVERED BEFORE
THE SOCIETY FOR THE SESSION 1903-1904.

BY HERBERT NANKIVELL, M.D. EDIN.

President of the Society.

GENTLEMEN,—Fellows and members of the British Homœopathic Society—I have to thank you very heartily for the great honour you have done me by electing me President of this Society for the coming “annus medicus.” I feel strongly that in doing me this honour you have laid yourselves as members of this Society under a certain disadvantage, not only because I reside at so considerable a distance from this Board Room, but also because it is impossible for me to be so completely in touch as others, with those waves of thought and feeling, to which the fellows and members residing in London are naturally sensitive; also because, as a provincial, I must from the necessities of the case be less fully up in all that is new and best in medical conceptions and literature, than you yourselves are.

I therefore crave from you that which I am sure you will be ready to grant me—a pardon for my many possible shortcomings throughout the ensuing session, and a tender consideration for my errors. You have already lightened my task by electing as Vice-Presidents men of so marked ability, that this chair will gain in authority rather than lose by my occasional absence. Relying on their friendly support and on the assistance which our Honorary Secretary never withholds from those in need thereof, I can only assure you that I will do my best in the position in which I find myself placed, and I trust that my energies, such as they are, will be devoted to the true welfare of our Society, and to the propagation of that special therapeusis to which we are personally and collectively devoted.

The years 1903 and 1904 are to us of considerable interest. Sixty years ago the Master finished his course; sixty years ago this Society was founded. We are reaching our diamond jubilee, and in the nature of things our Society is now in at least its third generation. But we have at any rate amongst us to-night one stalwart patriarch of the early days, whose ripe wisdom and pungent wit we have still the privilege of enjoying and profiting by. I voice the sentiment of the Society in expressing the hope that long years may yet elapse ere Robert Ellis Dudgeon is unable to attend our meetings.

Our law of cure—the law of similars—misunderstood as it still is, wilfully or unwilfully, misrepresented as it often has been, voluntarily or involuntarily, yet holds the field as the one therapeutic law which has survived the protean changes of medical opinion during the last century. Apart from the many productions of men of our own school in all civilised countries and nations, we recognise the fact, that in many of the publications of the so-called dominant school during the past half century, our therapeutic law has been to a greater or less degree acknowledged, while to a large extent what we call “applied homœopathy,” hints for treatment, the use of the single remedy, the frequent administration of minute doses, have been recommended by many writers. We recognise also the fact that there is a slightly

more spacious liberality in the consideration bestowed upon us by our friends the enemy; consultations are occasionally held between ourselves and some more liberal and advanced members of the ancient school, and the difficulty of obtaining urgent surgical assistance by men practising in isolated situations is now in large measure reduced. We accord honour to those who have been able to overstep the narrow and bigoted limitations imposed on them by the British Medical Association, and who act as gentlemen should, in obedience to the dictates of their consciences.

Notwithstanding all this, the old rule of exclusion holds good in many important instances: medical societies of the ordinary type are still closed to us, appointments to general hospitals and dispensaries are still withdrawn from our competition, advertising columns in the ordinary medical journals, which are open to the laudation of the last medical craze, or of every possible or impossible therapeutic or dietetic enormity, are yet closed to notices of works in which the homœopathic doctrine and art is openly set forth, to any appeals for the support of our hospitals and dispensaries, to any announcement of courses of lectures which have to do with the propagation of our tenets amongst those in the profession who are ignorant of them, and therefore hostile to them. Never has the noble motto "*audi alteram partem*" been more thoroughly prostituted to base purposes than during later years, and the power of a hostile and exclusive medical press has still been exercised to its uttermost to misrepresent our teaching, to prevent a true conception of our law and of its consequences becoming known, and to stir up, as occasion may serve, the dying embers of an antiquated and dishonourable persecution.

But we pass from consideration of the policy of the "baser sort" to matters which are of greater importance. The domination of the bacteriological school in medicine during the last few years has become strikingly marked and important. Not only are an increasing number of diseases now scheduled under this pathological department, but the belief that, in the series of morbid changes with which he is associated, the bacterium is indeed the "roof and crown

of things" is gaining a larger hold on medical opinion. Whether he really holds this position, or whether he is merely a *roi fainèaut* is a question which will not be absolutely settled for many a day. So long as the Loeffler bacillus may exist without a symptom of diphtheria, and on the other hand diphtheria without the bacillus, we must acknowledge the claims of the theorists to be not all proven. In the meantime, naturally and logically, the influence of bacteriological science has been felt in every department of preventive medicine and of the active treatment of disease. The terms "asepsis" and "antisepsis" are no longer confined to the region of surgical technique.

The internal use of ordinary bactericides has proved of no avail in medical practice, or of very little avail, outside certain conditions of the digestive tract. As they are all destructive of cell life, it has been found, naturally enough, that the attempt to slay the bacterium is distinctly injurious to its living *habitat*. This conclusion might, indeed, have been arrived at without any clinical proofs, merely by a mathematical demonstration. Even weak carbolic acid dressings may be fatal to the vitality of the parts to which they are applied. The unwisdom, therefore, of attempting the destruction of bacilli by internal administrations of this acid, and of its congeners is evident on the face of it.

The development of serum-therapy has arisen pretty directly from the influence of bacteriology on treatment. To those of you who listened to Dr. James Johnstone's profound and lucid paper on "Immunity and Serum-therapeutics," at Oxford, and to all of us who have since read that paper with the attention which it deserves, the main lines of his argument must have commended themselves. Serum-therapy occupies a position in very distinct and parallel accord with homœo-therapy. Essentially it must be either isopathic or homœopathic, just as we have all recognised that the vaccine immunity—the primitive instance of serum-therapy—must have been either one or the other. There is nothing in the method which bears any relationship with any other therapeutic law than that of similars; and I think there are but few of us here present

who will not allow the sweet reasonableness of Dr. Johnstone's concluding words:—

“These are a few examples, including toxic, animal, vegetable and mineral poisons, in proof of the fact that immunity or toleration to one poison may prevent another acting injuriously.

“It would seem an obvious, or at least a justifiable deduction from this that drugs selected by the rule of similars, and given in not too infinitesimal doses bring about a cure of the diseases to which they are the *simillimum* in virtue of the immunity to them which the cells of the body acquire.”

And if we render this “cell immunity” as equivalent to what we recognise as the *plus* condition of a cell under the influence of a non-physiological dose of the *simillimum*, I think we shall be expressing the condition under discussion in distinct but equivalent terms.

In passing, I will just refer to one subject which did not find a place in the Oxford programme, and that is gland-therapy. Known first of all by the introduction of pepsin and pancreatine in certain conditions of wasting and disordered digestion, it has now brought both the thyroid and the adrenals, besides other glands, within its sway. And the use of the special extracts of these glands, or of the dried or fresh gland itself has been productive of valuable and beautiful results in practice. I should doubt whether their action comes under any therapeutic law known to us. It appears to me that they act as valuable adjuncts when the function of the gland in question has been depressed below the normal, and myxœdema on the one hand, or tendency to recurrent hæmorrhages on the other has become established. Of the value of adrenals in recurrent pulmonary hæmorrhages I have had some excellent evidence in my own practice; locally of course in epistaxis and in certain operations in vascular tissues, its action is well known. Perhaps the old-time term “adjuvant” is the best one to apply to the action of these gland remedies, as practically covering and denoting the advantages we obtain in certain cases from their employment.

Passing, however, from these special and enticing subjects, we note further that the theory of killing off the invading morbid organism directly, and then permitting the suffering macrobe to recover its vital equilibrium, is a very captivating one. There is a charming simplicity about it. So has it come to pass that ancient drugs which had been prescribed empirically by the old school, and scientifically and rationally by ourselves—those, in fact, which have a specific and strikingly curative action in disease—have been tricked out in fresh colours, furbished up in theatrical armour, and reintroduced to our notice as “bactericides.”

The Presidential Address at the British Medical Association's meeting last July contains the following passages on this subject :—

“THERAPEUTICS.

“Both bacteriology and Listerism have greatly helped to advance our knowledge of the action of medicine. Therapeutics have now been raised in many departments from the plane of empiricism to that of science. Peruvian bark, the active principle of which is quinine, was accidentally discovered to be of great value in the treatment of malarial fever. The discovery was the result of observation, but the knowledge gained was entirely empirical. Prior to the discovery of the hæmamoeba and the observation of its action on the red blood corpuscles, and until the Listerian property of quinine was ascertained, we had no idea how the drug acted as a curative agent. It is now evident that it acts simply as an antiseptic in destroying the malarial parasites which are conveyed to the human body by mosquitoes, and it is now very doubtful whether it has any other beneficial action as a therapeutic agent.”

“Very much the same remarks may be applied to salicin, salicylic acid, and the salicylates, which are powerful antiseptics. The discovery that these drugs were specially valuable in the treatment of rheumatic fever was accidental also. It is now acknowledged that rheumatic fever is due to a micro-organism which probably gains access to the circulation through the tonsils or mucous membrane of the

pharynx. Sore throat is a frequent precursor of acute rheumatism. It is probable that scarlatinal sore throat predisposes the patient to infection by rheumatic micro-organisms, over which the salts of salicin have a lethal action.

“Mercurial salts are the most efficient antiseptic agents we possess in surgical practice, and it may be argued that the therapeutic action of mercury when administered internally is to be accounted for, to a great extent, by its antiseptic property; hence its specific action on syphilis, which is now stated to be a bacterial disease. It has been recognised for many years that mercury is a valuable remedy in tonsillitis, which is also, no doubt, caused by micro-organisms. Dr. Jamieson, of Edinburgh, pointed out some years since that mercuric chloride is most valuable as a bactericide in the treatment of scarlet fever. Arsenic, like mercury, a valuable remedy, is a powerful bactericide. It has been stated lately, on very good authority, that it is useful in the treatment of tuberculosis. It is well known as a most valuable remedy in malarial diseases. Its lethal action on other micro-organisms, which we have not yet discovered, may account for its therapeutic value in the treatment of anæmia, pernicious anæmia, skin diseases, and degenerative changes which are attributed to premature old age.

“In any case, the facts before us are sufficient to justify the suggestion as a working hypothesis. Iodine is another powerful antiseptic agent, and a cell stimulant favouring absorption of exudative and inflammatory products; as it possesses these two properties to a high degree, and is readily tolerated by the animal economy, it ranks among the most useful remedies we have in our Pharmacopœia. Iron may act as a powerful antiseptic remedy indirectly.

“Time will not permit me even to enumerate, much less to expatiate on, all the antiseptic agents which we have now at our command. We now see that Listerism is as valuable in the practice of medicine as it is in surgery.”

I draw your attention closely to the fact that in these extracts there is simply no acknowledgment whatever of our

old friend the *vis medicatrix naturæ*; there is no suggestion that these drugs may act as stimulants to cell vitality or to phagocytal energies; there is not a single allusion to the possibility that these agents, when introduced into the organism, have any special action on it and on its cell constituents, but simply on the hostile bacteria, who are giving trouble like boisterous lodgers or vicious immigrants.

Further, the statements, or rather the hypotheses, of the President do not stand being brought into contact with the touchstone of fact.

I well remember in 1866 treating a malarious sailor at the Liverpool Homœopathic Dispensary. He had contracted his fever in Jamaica, and had been under medical treatment in the island and on his way home for several weeks, *i.e.*, he had taken daily several considerable doses of quinine, but without any relief. He had a marked tertian ague, and was in the cold fit when in the Dispensary rooms. He was ordered one drop of arsen. alb. 3x every three hours, and had but one return of the attack after commencing this treatment.

Of two things, one; either his symptoms were quinine symptoms, and ceased on his omitting the quinine, and on this supposition he presented a magnificent display of an intermittent, induced by quinine; or else the arsenic afforded such a *simillimum* to his fever that the cure was rapid and permanent. And according to the bactericidal theory in therapeutics, the death and expulsion of these bacteria were directly brought about by the ingestion of $\frac{1}{1000}$ gr. of arsenic repeated three times daily for a few days, after the bactericidal action of large and frequent doses of quinine had been tried and found wanting.

I turn to the salicylates. Have they no relation to the febrile and rheumatic state but that which they possess as direct poisoners of the special micro-organism? Were this the case they would be absolutely specific to the rheumatic fever condition. Given in sufficient dose, they should jugulate the fever, cut short the pains, and prevent the occurrence of any fresh complications, such as pericarditis and endocarditis. But is such a statement consonant with the facts of the case? By no means so.

We know that the salicylates are curative in some forms of rheumatic fever, as in some forms of influenza, in quite small doses, *i.e.*, within what we recognise as the physiological limit. We also know that this is so in virtue of a power possessed by these drugs on the living organism of the patient, for undoubtedly in full doses the salicylates can induce a pyretic condition, and in a smaller dose they will, owing to the varying reaction of cell-life, reduce a fever of a similar character.

The President is not so sure about mercury: he says "it may be argued" that its preparations act antiseptically, at any rate to "a certain extent" and so on. I think we may well leave him to a consideration of the mischief produced by free doses of mercury in the treatment of syphilis and its sequelæ, and to the conclusions which Mr. Jonathan Hutchinson has come to after many years of practice and observation; conclusions which are practically in accord with Hahnemann's thesis of a century ago, that mercury is necessary for the cure of syphilis, and that the dose administered be the smallest that can effect its object. This conclusion is reconcilable only with what may be called the præprimary, or stimulant action of mercury on the living cells of the economy, and not in any sense with its supposed value as a bactericide of the syphilitic microbe. As to the value of arsenic in phthisis our school certainly has records extending backwards now for over thirty years. But in all these records it has been exhibited in far too small doses to permit the idea of bactericidal action coming in. Its method of work must be on the living tissues of the economy, and not on the dead or half dead lung cells which form the habitat of the tubercle bacillus. And for my own part, and I daresay for yours also, I must hold the statement that "Listerism is as valuable in the practice of Medicine as it is in Surgery" to be distinctly not proven. For the fact of the matter is that these drugs which the President of the British Medical Association has brought under our notice, and many others also, are bactericides without any matter of doubt, *i.e.*, in certain circumstances. But it is quite impossible that they can act as bactericides within the

tissues of the body in the only doses in which it is practicable to administer them. Their curative properties do not therefore depend on their bactericidal powers, any more than a horse's speed depends on his power of neighing, or a donkey's stubbornness on his power of braying.

I think it a matter on which we may congratulate ourselves, that at the Oxford Congress the address of the President entered so fully into therapeutic questions, and that his address was so ably supported by papers read by Dr. Maclachlan, Dr. Madden, and Dr. Johnstone. I much regretted my inability to be present, but a careful consideration of the reports since published leads me to the conclusion that this Congress was one of the most important held by our body for some time past.

We have been very wisely spending much of our energy the last few years in the way of hospital development, in the establishment of a more extensive propaganda, and in strengthening the outworks, which the fortification of our position demanded. The admirable address of your President, Dr. Burford, delivered here two years ago, is fresh in our memory, and the Twentieth Century Fund he then started has been crowned with remarkable success, and is bringing forth some excellent fruit. We await now without impatience, but with earnest hopefulness, the re-proving in modern scientific light, with the exactitude which the stethoscope, microscope, the ophthalmoscope, and test-tube afford, at the very least our polychrest medicines; we want to know what can be told us exactly of lung and kidney, heart and brain, under the influence of those drugs we have learnt to employ in our daily work from records, which are in these directions deficient in exactitude.

And while we are waiting for these developments, we do well to direct our attention once more to the conservation of that citadel of therapeutic truth, which circumstances have placed in our keeping. This is important, not for our own sakes alone, or chiefly, but for the true advancement of therapeutic science, which is, after all, the main object of our efforts. And when we set ourselves to this task we find that in most instances we are only re-casting and re-present-

ing many of the aphorisms of the Master himself, as Dr. Madden has lately shown us, and herein does not our school compare in a remarkable degree with that of our opponents; perhaps it would be better to say contrast than compare. Shall we find anywhere in all their late deliverances on therapeutics any single thread of continuity in principle or in practice with what was in vogue fifty or even twenty-five years ago? Shall we find any reference made to the practice of the early parts of last century? Had those older men no glimpse of the science, no dependable knowledge of the art of therapeutics? No, they are neither *laudatores temporis acti*, nor are they very sure of the outcome of even some of the most interesting departures of the present day. As Roberts says in his remarks on serum-therapy:—

“There are other complaints, however, in which thus far it has entirely failed in its objects, while in others still it is on its trial; and those who are in a position to speak authoritatively differ widely in their views and conclusions as to its efficacy in some of the most important infectious diseases.”

For ourselves we hold a different position. Armed with a knowledge of the law of similars, we look forward through the careful proving of medicines, to fresh applications thereof in the use of all new drugs, in the treatment of all novel forms of disease, and we look back with gratitude to Hahnemann as the great elucidator of this law. Whatever opinions we may individually hold on the value of his theoretical views, his explanation of the *modus operandi* of medicines, his ideas as to the existence and powers of the vital force, and his theories as to the causation of chronic diatheses and diseases, we realise as strongly as ever our indebtedness to the man who set the doctrine of similars in the forefront of therapeutics. And if to-night I may seem to some of you to be dealing with simple and elementary truths, it is because we, as a Society, cannot too strongly insist on them, nor can we exert ourselves too vigorously in making plain our tenets, and in rendering them as acceptable as may be to the minds of those who do not yet see with us.

Just now I used the phrase "præprimary," to indicate the effect of the small and less than physiological dose of a drug—one that is followed neither by the ordinary primary effects, and less still by any secondary action. In his 66th aphorism, Hahnemann wrote, "An obvious antagonistic secondary action, however, is, as may be readily conceived, not to be noticed from the action of quite minute (homœopathic) doses of the deranging agents on the human body. A small dose of every one of them certainly produces a primary action, that is perceptible to a sufficiently attentive observer. But the living organism employs against it only so much reaction as is necessary for the restoration of the normal condition."

That, I think, covers my suggestion that he does not here refer to what elsewhere he speaks of as "primary action," and which we generally refer to as such; which is in fact a quite distinctly marked action, and recognised as such by definite symptoms. Thus in aphorism 63 Hahnemann says:—"Every agent that acts upon the vitality, every medicine, deranges more or less the vital force and causes a certain alteration in the health of the individual for a longer or shorter period. This is termed *primary action*," and in the ensuing lines he adds:—

"Although a product of the medicinal and vital powers conjointly, it is principally due to the former power. To its action our vital force endeavours to oppose its own energy. The resistant action is a property, is, indeed, an automatic action of our life-preserving power, which goes by the name of secondary action, or counteraction."

The period of primary action is therefore one of invasion, that of secondary action one of recovery. The one indicates a condition in which the cell is suffering loss from the effects of a drug in physiological dose; the second or counteraction indicates a condition tending to a recovery of its normal equilibrium.

The præprimary action and dose is therefore correlated to and syn-energetic with the therapeutic action and dose, but we cannot well use the latter term except in connection with treatment and restoration, and therefore I think it

might be well when speaking simply of drug action, to use the former term in preference. This *plus* action is, of course, inconceivably small on the normal cell; it may be recognised by careful observation if the cell is fatigued, *i.e.*, if it is approaching a *minus* condition; it may be readily observed when normal equilibrium has been disturbed, and the cell is in a distinctly *minus* state.

I always remember with delight the graphic picture of this præprimary or therapeutic action pourtrayed by an old teacher of mine, Dr. John Harley, in his "Old Vegetable Neurotics." It is familiar to most of you as a classic illustration, not only of the action of belladonna or atropia, but also of the blindness, not in part, but absolute and complete, which may reign in the mind of an intellectual and well-equipped physician, on any subject in which his prejudices have become involved.

Dr. Harley writes as follows :—

"An infinitesimal quantity of atropia—a mere atom—as soon as it enters the blood originates an action which is closely allied to, if it be not identical with, that which induces the circulatory and nervous phenomena which accompany meningitis, enteric, or typhus fevers; and as the alkaloid gradually passes out of the body, and is finally eliminated undiminished and unchanged, we see these great functional disturbances decrease, *pari passu*, until the body is restored to its natural condition. Such an action is strictly comparable to that of sunlight on a mixture of chlorine and hydrogen, or of spongy platinum on hydrogen. Atropia determines an action as powerful and rapid as either of these agents, and, like them, it is only the determining cause.

"My experience of the beneficial action of belladonna in acute disease, in hyperæmia and stasis from impaired power and disordered action of the sympathetic, either general or local, leads me to believe that it has not yet attained to its legitimate place as a therapeutical agent, and to anticipate that its sphere of usefulness will be acknowledged before long to be co-extensive with that of acute disease itself.

“The similarity of the general phenomena which attend the operation of belladonna and those which accompany pneumonia, enteritis, the development of pus in any of the tissues or organs of the body, &c., has already arrested the attention. We know that these local diseases are the result of hyperæmia and stasis, and of exudations and their transformations which are taking place to relieve the congestion of the blood-vessels of the part. But what of the pyrexia? Why the general vascular excitement because the bed of the nail, or the tonsil is inflamed? We call it symptomatic, or sympathetic, and so it really is. One part of the sympathetic nerve is irritated, and the whole system is aroused against a local offender. The pyrexia, then, is not the disease, but the remedy. Nature is lavish in this, as in all else; she develops the curative means abundantly, and leaves us to control them. Thus we dissociate pyrexia from morbid action, but if it be left uncontrolled exhaustion ensues, and the remedial action becomes a part of the morbid process, just as occurs with belladonna itself when used injudiciously.

“Thus, in applying belladonna to the treatment of acute disease, we are not blindly led by an unscientific dogma, but simply follow nature. We divert the sympathetic from the original cause of its irritation by the introduction of another and more general influence, which can be readily adjusted and controlled. Under the influence of this more general action we see the local irritation and pain abate, as soon as the hyperæmia is relieved; and the products of the inflammatory process are rapidly removed as the circulation through the part is rapidly established.

“We may readily satisfy ourselves of the influence of the drug in removing congestion and stasis. Thus, if $\frac{1}{100}$ of a grain of sulphate of atropia be injected under the skin of a frog, in which some cardiac paralyser has previously produced a condition of stasis in the web, we shall soon see the oscillating current begin to take a forward course, and in a short time the flow will be re-established, the dilated vessels will recover their original dimensions, the circulation will proceed with unwonted tone and vigour, and for many hours a slight contraction of the vessels may be observed.

“Passing from these observations to a consideration of the action of belladonna in inflammation, we are naturally led to expect that its influence would be both powerful and beneficial. And such, indeed, is the case, provided that the medicine be timely and judiciously used.

“The action of belladonna in febrile diseases is frequently attended with results which are not only unexpected, but exactly the opposite of what is observed in health. Thus, it may be, if we give a full dose of atropia to a patient with a pulse of 120 and higher, a dry and hard tongue, and pupils measuring $\frac{1}{8}$ in., that after ten or twenty or thirty minutes, when the action of the belladonna is fully developed, the pulse will be decreased, the tongue be moist, and the pupils contracted. Two similar effects, the one arising from a local irritation, and the other from the presence of belladonna, like spreading circles on a smooth sheet of water, interfere with and neutralise each other. The coincidence of the two actions, and a corresponding augmentation of the effects may be possible, but this I have never witnessed. It appears, therefore, that the stimulant action of belladonna is converted in a great measure in febrile diseases into a tonic and sedative influence.”

So far Dr. Harley: I think you will agree with me that no one ever gave away his position more thoroughly, or endeavoured to obscure his surrender more completely than he did, in well-chosen and scientific phraseology.

We can recognise, of course, the præprimary action in the stimulant dose of morphia, of tea, coffee, and alcohol. When the cells have not acquired a toleration for the drug, when they are not, so to speak, *blasés*, they answer to a very small dose. When habituation has taken place, they need a larger one to produce the same effect. Here, as elsewhere, dose depends on susceptibility.

In diseased conditions, where the *minus* state of cell is established, this action is co-extensive with our practice and experience. Our old-school friends are not by any means ignorant of its value, and they console themselves by the development of a terminology, in which the words “tonic,” “alterative,” “specific,” and “sedative”—nay, “bacteri-

cidal"—are largely used; and they avail themselves of explanations, of which Dr. Harley's parables are typical, in the passage I have just quoted at length. And in connection with this matter I must here refer to the singularly valuable and exhaustive series of papers now being issued by our gifted colleague, Dr. Dyce Brown, in the *Review*, a series which I trust will in time see the light in a more compact form. Its value, not only as a polemic, but also as an apologetic, is, I believe, not easily to be expressed in terms. "Homœopathy amongst the allo-paths" will yet be a cry as far-reaching and influential as was that of old time: "Is Saul also among the prophets?"

Let us pass now to a short consideration of the *minus* action of a drug, generally named the *primary* action; in reality one should now say, as Dr. Percy Wilde has taught us, an action in such a dose that *primary* or *minus* effects are produced on the cells and tissues affected. We take as examples the soporific effect of morphia, the emetic effect of ipecacuanha, the cathartic effect of colocynth, and so on. This is the action which is recognised by the old school, and forms the basis of their ordinary prescriptions. So that, in effect, they classify their drugs as emetics, diaphoretics, purgatives, diuretics, sialogogues, and so forth; that is to say, they use their drugs in an antipathic or enantiopathic way, and, necessarily, in such doses that produce a *minus* condition of the cells affected. Of course this is a direct disadvantage to a patient who, by the necessity of the case, is already in a *minus* condition; and, moreover, it is not the way to cure him in the true sense of the term. His symptoms may be palliated; a constipation will give way to the temporary action of a purgative, an insomnia to the temporary action of a soporific, but the symptoms must recur, and recur, too, in a more aggravated condition than they were in at first. Unfortunately, it is this use of drug action to which the patient himself becomes so easily addicted, and, in these days of pocket tabloids, is so readily provided with agents which he foolishly believes to be necessary for his comfortable existence, and not only for his own, but for that of his friends as well.

Comparatively valueless, harmful, indeed, as it often is in old-fashioned prescribing, this primary action is of course the source of almost, if not quite, all the symptoms, which for us constitute the indications for the use of drugs according to the law of similars. We recognise drug action in its locality and in its quality by reason of them, and as surely as we can establish in our own minds a parallelism and a similarity between the two pictures of the diseased condition on the one hand, and of the drug effects on the other, so surely may we predicate that the action of the small dose, of the præprimary dose, will cure, because it will without fail stimulate and restore the normal equilibrium in those cells which have been reduced through disease to a *minus* condition:—"The doctrine of similars is the only method whereby the practice of contraries can be faithfully and scientifically developed."—(*M. H. R.*, vol. xviii., p. 198).

As I have already remarked, we recognise that the secondary condition is primarily one of recovery, and that, therefore, the symptoms occurring during this stage, must be accepted by us as indications for the selection of suitable medicines in a more restricted sense, than those which occur in the primary period. Hahnemann, speaking of this state, and referring to the vital force, says that after the primary state of drug action has passed "it (the vital force) appears to rouse itself again, as it were, and to develop (*a*) the exact opposite condition (counteraction, secondary action) to this effect (primary action) produced upon it, if there be such an opposite, and that in as great a degree as was the effect (primary action) of the artificial morbid or medicinal agent on it, and proportionate to its own agency; or (*b*), if there be not in nature an exact opposite of the primary action, it appears to endeavour to differentiate itself, *i.e.*, to make its superior power available in the extinction of the change wrought in it from without (by the medicine), in the place of which it substitutes its normal state (secondary action, curative action)." And out of the many examples he adduces in support of this statement, we select the following: "After the profound stupefied sleep caused by opium (P.A.) the following night will be all the more sleep-

less (S.A.). After the constipation produced by opium (P.A.) diarrhoea ensues (S.A.); after purgation with medicines that irritate the bowels, constipation of several days duration ensues."

The recovery in the second stage is probably due to three factors —

(1) The reaction of the system (Hahnemann's vital force) against the invasion of the drug.

(2) The gradual removal of the drug from the system by different enunctories.

(3) The establishment of a condition of tolerance, or even of immunity, in the cells which have been affected.

The value of secondary symptoms to us as prescribers lies in the fact that during this stage contingent and remote drug effects are discoverable which might have been overlooked in the crowd of primary symptoms. And these symptoms are of the greatest value if carefully differentiated from those sensations dependent on the struggle of cell-life back to equilibrium.

While we divide drug effects into three classes, we should remember that each class merges into the next like the colours of the spectrum, and that between them there is no definable borderland; that we may get the curative action of the first group while some marks of the next action are being developed, and that even when counteraction has set in, some groups of cells may still be suffering in some degree from the primary action of the drug.

Præprimary, primary, and secondary effects complete in a certain sense the cycle of phenomena due to drug action. It is curious to notice that the relation of the first group to the second is that of opposition, that of the second to the third again one of opposition. And this is due no doubt to the fact that in the first class we see the cell in a condition of more or less stable equilibrium, in the second class in one of more or less disturbed equilibrium, and in the third by a process of increasing tolerance to the disturbing cause, forcing its way slowly backward to a re-established equilibrium.

Finally, as to the reason of drug action at all. It is, of course, conceivable to our minds that the presence in the

system of large quantities of crude drugs, say of arsenic, mercury, or antimony should, by their very presence, militate against the ordinary equilibrium of the natural forces, and the delicate functionings of cell-life. But that minute quantities of the potent alkaloids, of hydrocyanic acid, of the serpent-poisons, should, when introduced into the circulation, and diluted by the large quantity of fluid material which the body contains, act as they do on the germinal or irritable matter of the system, so as to produce grave disturbance, serious illness, and even death itself, is a most remarkable fact—one of those ultimate facts which we can no more explain than we can other ultimate facts of the universe.

Chemical analysis and microscopic investigation help us not at all towards a solution. We can only say that it is a property of the poison, inseparable from it so long as it retains its integrity—that is, its identity. We may investigate the mode of action of drugs, the special nerves through which they act, the special organs for which they have an affinity, and the quality of the disturbances they excite. Beyond this we have not gone, possibly in the nature of things we never shall. With all our investigations, and all our modern progress, we do not in this question take up a position much beyond that of Molière's sapient medico.

" Mihi à docto doctores
 Domandatur causam et rationem quare
 Opium facit dormire.
 A quoi respondeo,
 Quia est in eo
 Virtus dormitiva,
 Cujus est natura
 Sensus assoupire."

to which answer the chorus of examiners unanimously replies :—

" Bene, bene, bene, bene, respondere
 Dignus, dignus, est intrare
 In nostro docto corpore."

But to resume, it may be that in these days of high velocity currents, of the therapeutical use of light, of the Röntgen ray, and of the emanations of radium, we are

approaching a time in which the deepest secrets of the universe will be laid bare.

The recognition of the essential oneness of heat, light and electricity, leads us forward to the conception of the unity of all forms of force, in which must be included that of the influence exerted by medicines on the living organism.

It may be also that the conception of matter in all its variety, from the massive mountain range to the tenuous hydrogen, as being merely forms and groupings of force itself, will set us free from that materialism, which has often weighed down the most intellectual and most spiritual; and will reveal to us in clearer vision the immensities of the *Δύναμις*, which is subliminal to all creation, seeking, as it does, its manifestation in the living cell and in the thunder-storm, in the radium emanation and the destructive power of the alkaloid crystal.

This conception must be a unity co-extensive with the universe: the expressions of that unity must remain as diverse, as elements and combinations of elements, and as what we now think of as material, dynamic, or vital in the Cosmos, can supply. And these expressions, these phenomena, are with us for the consideration and investigation of that which transcends them all—the mind of the reverent and earnest student. Transcends them indeed, because such mind is cognate to that Universal Mind, Who is “before all things and by Whom all things consist.”

RATIONALISM AND MEDICINE.¹

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THE object of the address I shall lay before you this evening is that I may urge the overwhelming claims of reason, in its highest sense, to control our actions in medicine, as it should do in other departments of thought and action, and to help to establish that undisputed reign of "rationalism" in medicine, which it should be the aim of every deep thinker to forward by every means in his power in regard to this and all other forms of knowledge and belief. And firstly let me offer some explanation as to what is meant by the term "rationalism."

By "rationalism" is meant that condition of mind which maintains the faculty of "reason" to be the highest development of the animal creation, and which holds that it is the highest duty of man, in whom alone amongst the animal creation this faculty attains its highest development, to conscientiously exercise this power as the supreme guide and arbitrator upon all his thoughts and actions, subjecting all knowledge and theories, all actions and purposes, to the keen criticism of his reason.

I can never understand the grounds upon which many people appear to neglect or deride this power of reason. It is the one only attribute which man enjoys in distinction from the rest of the animal creation. Do we contemplate the beauty of Nature's work? Man is far inferior to the beauty of the butterfly or of many of the birds. If we regard the strength of man, this is as nothing compared with the strength of the horse or elephant. Even the flea and the ant have, in proportion to their size, strength in

¹ The Presidential Address read at the Liverpool Branch, October 8, 1903.

comparison with which man's mightiest physical efforts are but weakness. What man can run a race with the greyhound, or sing, so that it were not better he were dumb than that his song should interrupt the trill of the nightingale?

Nay, even in the exercise of all his special senses is man crude and impotent compared with the animal creation. What man has sight like the eagle? The keenness of man's vision is, compared with that of the eagle, as partial blindness, and an eagle would starve from inability to find food were its vision reduced to human limits.

The human power of hearing appears feeble compared to that of the antelope, and other animals, which hear sounds so delicate that to man all seems undisturbed silence. And though man's auditory apparatus can follow sound up to 40,000 vibrations per second, many animals can perceive vibrations more rapid and sounds of higher pitch than any of which man, with his clumsier apparatus, has knowledge.

With smell, how poor is man's power compared with that of the dog, which can appreciate by this sense the infinitesimal trace of an odour left by the passage of a person or animal, an odour which in the concentrated mass of contact with the person in question still leaves man's olfactory organ unaffected.

In touch, what comparison is there between the delicacy of even the lip of man (where his tactile sense is keenest) and that of some of the lowest forms of life, where the hair-like antennæ react to stimuli which, when compared to the minimum stimulus of the human sense, are as a gentle tap at the door to the impact of a cannon-ball.

In taste, also, animals enjoy a keenness which man does not possess. A dog or monkey will refuse food when the proportion of some added material, the taste of which is obnoxious to them, is such that man could scarcely trace it by analysis, much less by his crude sense of taste.

In the one advantage of reason alone lies all man's superiority and his power to control all other animals for his own benefit. Animals may have knowledge of events, and even be able in some measure to shape their actions by such knowledge, thus displaying such adaptation of means to an

end, as in the ant, bee, dog, and other familiar instances, that it makes us almost credit them with some measure of reason. But it is the power of human reason to search out and store up, and pass on from one individual to another, and from one generation to another, the results of his reason, and to accumulate this wealth at compound interest for the general good, which has caused the immense progress of mankind.

Although animals may have experiences and acquire personal knowledge of cause and effect, they do not—lacking the especial feature of human reason—extract the true meaning from events, and deduce such lessons as may be of use to later representatives of the race.

A herd of buffaloes of to-day have no more knowledge of the dangers or advantages to which they may be exposed than had a similar herd of buffaloes two thousand years ago. While man has added at compound interest to the stock of experiences and knowledge, so that each generation finds him at greater advantage in his contention with the unreasoning forces of nature.

And it is the exercise of reason which makes any action of man commendable or not. For however good or clever his action may appear, unless it is performed under the conscious guidance of his reason, it deserves no higher credit than is given to the animals for any similarly commendable action.

We do not praise the bird for its skill in building a nest, nor congratulate the race of coral insects upon its knowledge of architecture in the formation of a reef. Nor do we give a testimonial to the bee for its industry, nor a recommendation for organising ability to the ant; but in all these and countless other instances the excellent qualities displayed are never surpassed, and but rarely equalled in their excellence by man. And when man performs necessary or even beneficent actions from the same unreasoning instinct which orders the animals in their efforts, he deserves only the same recognition that they receive. His actions may excite wonder and admiration, but they are animal, and it is to his animal nature that the credit is due;

not to the reasonable being "man," the highest and only reasoning creation in the universe.

That this reason should be the undisputed guide of man's beliefs and actions, is denied by many, who maintain that what is called "ancient authority" should be free from the criticism of this cold and calculating "reason," which shows no respect for age, or sentimental regard for customs, however ancient or respected, but applies its searching test of enquiry into old theories and beliefs, as readily as into the most recent propositions.

We are told by some that reason of itself can teach man nothing, but those who make such a statement only prove the poverty of their own reason. What is astronomy but a science built up entirely by means of reason? Who has ever run a race with the moon, so as to measure its speed in the heavens round the sun? Yet by the exercise of reason alone we can, with knowledge which has been already gained, measure exactly the course and pace of its progress, and can positively say, not only that at such a stated time in the future will its position be so-and-so, but that at any particular time in the past it occupied such a specified position.

Who has analysed a portion of the sun or stars? Yet by reason we can prove by the spectroscope that they are composed of elements similar to those which exist on our earth, and can demonstrate the quantity and condition of these elements.

Astronomy is, so far as it has yet attained, an exact science, and is the product entirely of reason.

So also the other great discoveries of science are entirely due to man's reason, which is to scientific men like some all-powerful grapnel, which they let down into the still seemingly boundless sea of the unknown, searching for the discovery of nature's treasure-secrets; and when by patient and careful work they seize upon some new treasure, they drag it forth to add to the ever-accumulating wealth and enrich the human race. Thus has the latest and greatest discovery been made through the marvellous researches of M. and Mme. Curie in regard to radium and its salts, and

which has confirmed theories founded on secrets wrested from nature, and we now know that the atoms which we recognised as the minutest individualities, whose aggregations and motions constituted all matter, are themselves—in proportion to the “electrons” or “ions” of which they are constituted—vast systems, permitting of almost infinite congregations and motions of their constituting “ions.”

As the microscope has been baffled by the minuteness of the atoms which man's reason discovered and established beyond dispute, so the imagination is staggered at the inconceivable minuteness of these “ions.” Further—these “ions” are the ultimate manifestations of the one force back of the universe—a concrete form of electricity, and are the same in all atoms, whatever the nature of each particular atom may be. It is the number of ions, and the manifestations of the forces of their incessant motions within these atoms, which give to these atoms those varying characters which we have recognised by various names.

Thus, an atom with 11,200 ions or electrons is an atom of oxygen. An atom with 137,200 ions is an atom of gold: and one containing 36,583 ions is an atom of the human brain; and the infinite variety in the activities of the atoms of the brain depends upon the numbers of ions in each atom, any variations of ions in each atom of a brain-cell determining the activity of that cell, as anger, speech, and so on.

I am of opinion that the old adage that “Necessity is the mother of invention” is certainly no more true than that “Reason is the father of knowledge.” It is the exercise of man's reason which discovers those facts, the recognition of which is knowledge, and as more and more facts are discovered, so the reason becomes more vigorous, and having accumulated fresh strength from their absorption, it is empowered to penetrate still further into what is at present the unknown.

All the facts which constitute knowledge, and which we have known in the past, know now, or shall discover in the future, exist now, and have always existed. It is man's reason alone which has revealed these facts to us, and made them part of our present and ever-extending knowledge.

The earth moved round the sun before Galileo discovered the fact by the exercise of his reason upon data he had observed. Apples fell since their trees grew, but it was only Newton's reason which saw the inward meaning of their doing so. Steam exercised power before James Watt watched the lid of a kettle, and reasoned that such force might be applied to useful ends. Electricity was no invention of Edison's. It existed from the beginning. The discoveries of Edison which have chained this power for our use were not made through chance; it was the incisive action of his reason which wrested nature's secrets from her, and made this power man's slave, instead of his destroyer. The relationship of drug action to the manifestations of disease existed since the time when the earliest man suffered from toothache, indigestion, or other ailment, but it was only the reason of Hahnemann which fully recognised this relationship, and enunciated it in his law *Similia Similibus Curentur*.

Those who cling to old theories and beliefs tell us that if all these ancient ties and anchors are cast aside and rejected by reason, a condition of chaos will result, in which this reason will stalk unbridled like some giant anarchist, destroying everything, but building up nothing. Such fears are childish. It is true that when by more enlightenment men have seen the error of some rule of action, they often do—drunk with their deeper draught of knowledge—run amuk, and allow their passions to run riot, unquestioned and uncontrolled by their reason, which lies in a drunken stupor. Such occurrences we find in the persecutions which reformers measure out to those who persist in the old opinions—as after the reformation, and as now some of those who are called "Socialists," seem to desire to apply to all who linger behind them in the advancing march of democracy.

This is not a reproach to reason, but to the improper and partial action of the faculty. All the errors which have been made in the advance of the race, have been due to the exercise of reason sufficiently to advance beyond the position previously held, but the failure of persistence in main-

taining reason as the supreme guide of conduct under the new conditions.

As the object to be attained is the advancement and good of the race, even a hasty appeal to reason would demonstrate the absurdity of any hope of assisting such an end by means of barbarity, cruelty or injustice.

Such an abuse of man's highest attribute is as if the first mariner who discovered the use of the compass (an individual who is almost mythical, as the origin of this aid to navigation is enshrouded in mystery, and we only know that it was supposed to be introduced into Europe about 1260, and to be borrowed from the Chinese), it is as if this early mariner who, previous to his discovery, had guided his craft in narrow waters where, if his voyages were restricted, so also were his dangers limited, and he had drunk with joy and enthusiasm over his new-found guide, embarked upon unlimited and tempestuous voyages, and in his delirium steered wildly, neglecting to apply each moment the correcting influence of the new power, which, if properly used, would have been a safe guide. Disaster would all the sooner overtake him because of the courage with which his discovery had inspired him, but which his neglect had converted into foolhardiness.

Pitiable examples of such human action are to be seen in all cases of so-called "enthusiasts," men who are so carried away by their ardour in some one direction that they are incapable of either applying or following the test of reason in regard to this or kindred subjects. "Enthusiasm" is really mono-mania in a mild, but, unfortunately, rarely harmless form.

Only to take one or two instances in the single department of medical practice; we can all remember the temporary insanity which seized many medical men with badly balanced mental powers when the discovery of tuberculin was announced. How they struggled to be first and foremost with the squirt and bottle of tuberculous lymph, wildly diagnosing tuberculosis in almost every departure from normal health, from a fracture to favus, and recklessly subjecting the unfortunate people who had placed them-

selves under their guidance to greater dangers than those from which they had originally sought to escape. Similar blame attaches to "open-air" enthusiasts, whose mental capacity has no room for any other conception of the treatment of consumption than an all-pervading mania for the exposure of every unfortunate sufferer to all the storms of wind and rain which, with a minimum admixture of suitably fine weather, make up the climate which we in this country are supposed to enjoy.

I have had experience of the damage done to one of my own patients by the criminal foolery of one of these enthusiasts, and I desire to inform them that in such cases they sail perilously near a form of manslaughter which, I am sorry to say, is as yet included amongst those means of injury through carelessness to the lives of others upon which no personal criminal charge can be founded, but which, I trust, will, by some test case, be soon found to be amenable to the ordinary law of the realm. The cult of the "official surgeons" is another instance wherein enthusiasm caused such a form of dementia that all human ills were regarded as being bounded and embraced by the sphincter of the particular orifice selected for attention.

In all these, as in other numerous specialised lines of treatment, as hydropathy, electricity, magnetism, &c., which some of us regard as fads, and others as panaceas—both being equally wrong—there is an amount of extremely valuable truth; but as the bestowing of one's goods may by excess pass from philanthropy to madness, so each of these methods may cease to be good and prove instruments of danger instead of benefit through want of the guidance of reason in those by whom they are used. Our particular law of drug action, although not quite in the same category as the instances quoted, in that it is a law governing the whole of drug action, and therefore is of far more universal application than any of the other medical discoveries, has, nevertheless, been abused by many, especially the earlier homœopaths, and has justly laid those who so abused it open to the same condemnation which is merited in these instances. For, while true and complete so far as drug action is con-

cerned, it has been wildly and unreasonably applied and persisted in as the sole guide in cases quite outside the domain of drug action. When Hahnemann first published his discovery of the law of drug action, his genius naturally aroused the jealousy especially of the leaders, who derided the possibility of there being any law in the domain of medical practice, which, according to their experience, was a chaotic jumble of experimental efforts. Similar opposition has always been aroused by the enunciation of any new doctrine, partly from the hatred which many men have for anything which might force a change of opinions or practice, and partly from the jealousy of those small minds who try to abort anything which might by its development confer glory upon a rival. This bitterness was increased by the enthusiasm of some of the earlier homœopaths, and even by some extravagant assertions by Hahnemann himself, wherein they made ridiculous claims, and in their enthusiasm over the new guiding truth, neglected other departments of the healing art to the detriment of their patients.

It was as if the mariner of whom we have spoken previously, was so intent upon following the pointing of his compass-needle, that he was incapable of either recognising or rectifying some structural defect in the hull of his ship, or some tear in his sail, or shifting of the cargo which gave the vessel such a list that it was impossible that it could follow even this carefully-applied course, unless he firstly mechanically restored her balance, or repaired the damage which both threatened present danger, and hindered her fair progress on the well-planned course, however conscientiously he might follow the guidance of the needle.

Enthusiasm is no excuse for such mistakes. No man has a right, even if he has by the genius of his reason discovered some new facts the application of which may produce benefit to the race, to allow his joy to produce a state of such delirium that he is incapable of exercising, coolly and calmly, his reason in regard to every further step he may make in this direction. For, if the truth discovered be far-reaching and powerful, how much more is it imperative that each new trial should be carried out with the most

anxious caution and careful criticism, in order that that which may be powerful for good may not be so administered as to be still more powerful for evil.

I am thankful that I and many more of us have never deserved the title of "enthusiasts" for homœopathy, as I believe that by our calm adoption of its principles and our honest carrying out of those principles through the calm and unfettered action of our reason, we possess more force in establishing the principle, and constitute a far more trustworthy recommendation of this principle to others, than the most fiery enthusiasm of thousands of advocates whose interest had been caught up by sentiment and whose warmth hindered them from the just and unbiased action and control of their reason.

That it is necessary to follow out each step attained by the same processes of searching into any new step presenting itself, may be, perhaps, recognised by an illustration, which will at the same time sweep away the objection which some raise by insisting that as it is impossible to reason out many things to an ultimate definite conclusion, we shall be left at an impasse, where we have broken away from old charts, and cannot pursue the new direction to its bitter end, and thus construct the new guide which we have attempted to work out.

It is not necessary to satisfy reason that its action should be illimitable, and it is none the less our truest guide because it will not lead us beyond what is humanly knowable.

In the establishment of the law of gravitation the first question was—"Why did the apple fall?" This led to the deduction that there existed some form of attraction of the earth for the apple, which had so far been held in check by the opposing force of a greater attraction of the tree for the stem of the fruit; but that immediately this greater force weakened sufficiently, then the ever-present, ever-persisting downward pull triumphed, and the apple fell.

From this the remaining grand manifestations of the same law were demonstrated by the aid of the reasoning faculty, until the law was established that every mass of matter has an attraction for every other mass of matter,

which of course varies according to their respective masses and distances. As all the matter of which we have any experience came from the mass of the earth, and will return to this again, for us in our every-day life the law of this attraction practically means the attraction of the earth for all smaller masses upon it.

Still, we know that gravitation is a universal law, and holds the same beneficent sway upon the sun, moon, and each and every star or planet of the universe; and not only upon them individually, but also between them collectively; that it is this law which produces cosmos where otherwise there would have been chaos, and that gravitation forms the whole foundation of the science of astronomy.

This grander gravitation, which commands our highest reverence, may not be recognised by many, and yet—as their actions never penetrate beyond the affairs of this earth—they need not feel the deprivation. Nor do they manifest deficiency, because they do not know that this gravitation attracts objects to one another as well as to the earth, and that this has an appreciable effect, which may be demonstrated by the interference with the swinging of a pendulum when it is brought near to a mountain, and the force of its swing to and from the mountain mass is augmented in the former but retarded in the latter direction; as, in ordinary life, such delicate interactions may be neglected.

Nor is there any sense in the suggestion that gravitation cannot be a perfect guide, because we know not the essence of this force.

This matters not so far as its usefulness to us is concerned; nor should it matter that we cannot yet explain the essence of the force exerted by the action of a drug over the cell in the body. Although we cannot explain the essence of gravitation, still, the man would be a fool who refused to abide by its power, and who persisted that as he could not know the nature of the force he would neglect to regulate his actions by it, and thereupon proceeded to walk out of his second storey window, counting it as at least as likely that he should fall gently up to his fourth floor as that he should be dashed upon the pavement.

RATIONALISM AND MEDICINE

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From this the remaining grand manifestation of the same law were demonstrated, by the ever-present, ever-persisting faculty, until the law was established, that every matter has an attraction for every other matter.

So the medical profession is deficient in sense in denying the law of similars, because there is as yet no explanation of its method of action. All academical discussions as to its method are interesting, but quite unnecessary for its adoption as a law deduced like gravitation from innumerable manifestations of its action, and this law would have been accepted and acted upon, as is gravitation, by all, had the consequences of its neglect been as personal and as disastrous as would be the rejection of gravitation.

A most interesting question as to the method of action of drugs has been opened up by the discovery by M. and Mme. Curie of the activity possessed by radium and other substances, and which is in the nature of ray emanations. This radio-activity is already known to be widely diffused, and has been found in small degree in most metals and many other substances, even traces of it in common water from deep wells; and it is reasonable to infer that this may even be part at least of the explanation of drug action on the body cells, and that such action of the drug atoms may be rendered more vigorous by the special treatment of trituration or solution to which our drugs are subjected, breaking down the masses of the drug molecules or atoms, and thus in some way liberating more of this radio-active power.

And in that the power of action of our medicines is often questioned, because the mass of the drug employed is imponderable; it is interesting to note the following from Sir Oliver Lodge on the emanations of the active rays from radium:—"The solid deposit left behind by the radium emanation can be dissolved off by suitable reagents, and can be then precipitated or evaporated to dryness, and treated in other chemical ways, although nothing is visible or weighable or detectable by any known means except the means of radio-activity."

As the law of gravitation shows the essential direction taken by falling bodies, and demonstrates a force to which everything is subject, though it may be nullified for a time by some counter-force, so the law of similars shows the pervading force of drug action, though it may not be always demonstrable because of other overpowering forces which disguise or overwhelm its action.

And, further, let us beware of error through not calmly reasoning out whatever of these opposing forces may be recognisable, and which we at first would look upon as contradicting the universality of this central law.

The ascent of a balloon appears to those whose reasoning is defective to contradict the law of gravitation, and even many of those who reason upon it think that here is conclusive evidence of a force opposed to and nullifying gravitation. But their reasoning is incomplete, and had they carried it out logically they would recognise that the apparent incongruity is really only a further manifestation of the same force. For the upward flight of the balloon is due to the greater attraction of gravity for the denser mass of air displaced by its presence, which greater attraction causes gravity to attract again into the space so occupied a mass of the heavier air, and when by the removal of opposing force this action of gravity is permitted, the denser air is drawn in and the balloon driven further and further away, ever seeking that point at which the attraction of gravity has become so weakened by distance that its attraction for an equal mass of the atmosphere is just equal to its attraction for the balloon mass, when equilibrium is attained, and any progress (were such possible) above this level would end in an immediate fall of the balloon until the equilibrium was again attained, thus proving that the attraction of gravity upon the balloon mass has persisted throughout the apparent denial of it by the balloon's upward flight. So also a rocket is simply propelled against gravity by some greater force. But all forces acting against the unchanging and ever-pursuing gravity must sooner or later be annihilated, and soon we find this force reduced, then extinguished, and then gravity re-establishing its sway in undisputed sovereignty, and dragging the projected matter down again to the earth.

So medical men should learn the lesson that because they can point to some process in the body which seems in opposition to the law of similars in regard to the action of drugs, such process is not a denial of the law. Had they the knowledge and reason necessary they would find that it was the opposition of some other force, or a similarly

paradoxical manifestation of this force, and that when the excessive action in other directions had been nullified, the ever present law of similars would then again be demonstrable, acting harmoniously in the equilibrium thus established.

Of course the power of man's reason has increased with the accumulation of knowledge, as it has continuously dug into the mine of the unknown, and brought forth material of knowledge with which to fashion instruments for further discoveries, and to-day it is greater than ever before—the modern facilities conferring upon it a keenness which enables it to penetrate deeper into realms of thought which were closed continents to older reasoners. This reasoning faculty is simply the highest development of the intellectual faculties in man, which in themselves are but the higher stages of the progressive evolution of the cell-sensations found in the lowest forms of life. It can be traced in its progression throughout evolution to the higher forms, but it is only in man that it attains those characters which strongly mark it off from the highest developments found in the lower animals. It has evolved from the primitive reason which must have existed in primitive man millions of years ago, but its progress has been so slow that the period of time during which we have records is too short (being only some eight or perhaps up to ten thousand years) to show any startling development, and we are surprised at the vigorous philosophical reasoning powers of the earliest recorded reasoners; and while the last two thousand years seems to have immensely increased the facilities at its disposal, the reasoning faculty itself, apart from these aids, remains the same. Have we deeper thinkers or better reasoners now than Anaximander, Pythagoras, Heraclitus, Leucippus, Aristotle, Epicurus or Lucretius?

Their reason was as vigorous, and considering the facilities at their disposal almost more wonderful than that of Darwin, Huxley, Tyndall and Haeckel. What present reasoner has more genius than Shakespeare?

It is only the assistance which the present day reasoners have enjoyed from the wealthy accumulations of these older

treasure-gatherers, and their approximation to our vision, which gives them the appearance of grander stature than the old philosophers.

And since such profound reason existed in such ancient times, we cannot excuse the errors of the past on the ground that man's reason was crude, and that it was incompetent to restrain him from some of the lamentable performances which we cannot now defend, but for which we charitably endeavour to find excuses. It was not his reason which was at fault, but his abuse of it, his forcible and often times wilful repression of it by his animal passions or superstitions.

To keep to our one department of medicine, there is evidence that the art of medicine was encouraged and protected by the State as early as 430 B.C., and yet in an old Welsh pharmacopœia dating from the thirteenth century, 1700 years later, our representatives at that time had so prostituted their reason, and allowed their ignorance to run riot, that we find, amongst others, these disgusting therapeutical instructions for which no apology for man's feeble reasoning power will be any excuse.

"For deafness.—Ram's urine and eel's bile, and the juice of ash, and express into the ear.

"For a punctured wound.—Take the dung of a bull and apply thereto."

While considerably later in another manuscript is found:—

"For worms in children.—Take the child's hair, cut it as small as you can, and mix as much as will stand on a golden crown with the pulp of roasted apple or with honey. With this you will kill the worm.

"For pain in the eye.—Take the gall of a hare, of a hen, of an eel, and of a stag, with fresh urine and honeysuckle leaves, and then inflict a wound upon an ivy tree, and mix the gum that exudes from the tree therewith, boiling it quickly, and straining it through a fine linen cloth. When cold, insert a little thereof in the corner of the eye, and it will be a wonder if he who makes use of it does not see the stars in the mid-day in consequence of the virtues of the remedy."

The ancient medical man mentions that the effect upon the vision will be "a wonder" and "make the sufferer see stars," but I should be interested to know if greater wonder was not produced in the patient by the presence of such a concoction in close proximity to his olfactory organ.

We see, therefore, that no one age has its monopoly of reason, for in all times we recognise the deep reasoner and the unreasoning blunderer. In ancient times we have Hippocrates, Æsculapius, and Galen, and also multitudinous instances of unreasoning superstition mongers. In recent times we have our Hahnemann, Lister, Koch, and other acute reasoners, but, alas, also our lymph-squirt, open air, orificial, expectant, and other mono-maniacs, who bring unmerited opprobrium upon special developments, each of which would in the hands of sane and reasoning men be valuable auxiliaries.

In conclusion, I would urge that the same rationalism which I have been advocating in medicine should be our consistent demeanour in regard to all other problems of life. For myself, I do not see how any man who prizes his reason above all other possessions can be fully and truly described by the name of any party in state, medicine, or church. "Liberal" does not describe my politics, for in the Liberal programme there are details my reason cannot approve. "Tory" will not suit me, as there are many planks in their platform which I reject. "Socialist" is not adequate, as in the common acceptance of the term it includes objects with which my reason cannot agree. I am only a "rationalist" in politics, as in other things, and should support any movement which the honest exercise of my reason approved, and denounce anything which it condemned, irrespective of the party organisation by which it might be introduced. In religion also, not only are there many parties, multitudinous sects, but each man has his own religion which he classifies and includes under that recognised "genus" with which he has most agreement. But whatever opinions may prevail in any or all sects as to the type and binding in which they will offer their faith to the world, I hold that above all these is the recognition of

this reason, and the paramount duty of preserving this untarnished by any stain either of ancient or modern excesses, unfettered by any trammels or formalities, and that the highest possible duty of man is the sincerest honest seeking out of all knowledge which is attainable, and a following of the light and guidance which his reason then affords.

Especially let me lay stress on the cowardice with which many men shrink from saying "Agnosco—I do not know." Any man who is conscientious in the exercise of his reason knows that while his criticism will demonstrate the fallacy of many present theories, it will not with our present available knowledge explain all things. Men may say that it is useless to ask them to believe in or follow a law like *Similia Similibus Curentur*, unless we can demonstrate its method of action. We can retaliate by inviting them to refuse to believe in, or to regulate their actions by, the law of gravitation, until they can explain to us its true essence. Or let us insist that, until they can by some indisputable theory settle the nature of electricity, they must neglect those precautions which the rest of us find advisable, and attempt to grasp the lightning in their hands.

Such a course as I have pleaded for will not make us popular. Every man who does not act similarly will have a grudge against us, in that his particular fad does not appeal to us, but our honest purpose will command the respect of all reason—that highest attribute of our fellow man, which is the only thing which would render their regard of more value than the unreasoning affection of the whole animal creation.

Let us therefore in all things live consistently as "rationalists," ever recognising that not only must it be our most sacred duty to use our reason fully and dispassionately on all the greater issues, but also remembering that no detail of our procedure, moral, social, intellectual and medical, is so small that it should not be as carefully criticised. And those of you who consider that I have been beating the air in recommending the medical profession—especially our branch of it—to reason, should recognise that although we may each have

followed reason in adopting the true therapeutic method, there is as much room for reason in deciding between one drug and another as there was in deciding between one system and the other. That it is a serious abuse of our reason, and an injustice to our patients, if we neglect in any case to consider whether it would not be possible to obtain any assistance towards cure from the additional use of other methods — therapeutic, extra-therapeutic, mechanical, or surgical; and to conscientiously use any or all accessory methods of treatment which may more fully render the cure conformable to the ideal of *tuto, cito, et jucunde*. Reason as forcibly impels us to adopt asepsis as it urges us to reject antisepsis as routine practice. Antisepsis exerts the same detrimental influence over the cell life as over bacterial life, and it is only the greater power of resistance of the body cell which fortunately enables it to survive while the bacterium is destroyed. Antisepsis is only called for to remedy our faulty asepsis. It is necessary that we should use antiseptics only to combat any septic conditions which may have been present when the injury or diseased condition came under our care. Reason commands, that for healthy life, fresh air and open air so far as our climate permits without danger, and care in diet, are imperative, as sternly as it condemns the foul-aired hovel, the madness of the exposure of our consumptives to the rigors of the climate in a way we dare not, out of regard for our pocket, expose our horses and cattle, and the abuses of food and drink which are universally committed. Reason would restrain the crank, and reform the immoral man and the criminal; as it would not be reason to suppose that society should permit them to indulge in actions the doing of which necessarily infringed the rights or property of its members.

So also reason would show the futility of the present enormous misapplication of the wealth which is given by those fortunate individuals who possess the comforts and luxuries of life, for the alleviation of distress in those less happily situated but which is at present wasted by each religious sect rivalling its fellows, and wasting as much capital and energy on advertising and pushing its own particular brand of theo-

retical doctrine as ever was spent on any variety of soap or quack nostrum; while all the time they do nothing, and comparatively little is done by other authorities to so improve the conditions of life among those who—under our present unfair conditions—cannot possibly help themselves, that they may not be herded together in such common quarters that the teaching of any religion which inculcates morals is a farce until such improvements are made that decency and cleanliness may exist as a foundation for the building up of morals, and while the shame is not removed from the race that at least one individual in every ten has to subsist below the “actual poverty line” on a diet which is less than the lowest possible minimum necessary for the maintenance of the body in health.

Reason would forbid that in politics, questions which affected the welfare of the people should have no claim on their own merits, but should be either adopted or rejected according to the colour of the printer’s ink—either blue, red or yellow—with which the party manifesto announcing them was printed; and that because first put forward in any one colour they must therefore necessarily be thwarted—however commendable—by those whose party whip drives them into pens of one of the other colours.

So in imperial matters reason would not tolerate that while robbery and insult are rightly punished in private life, both insult and robbery may be commendable in imperial matters, and that if those, whose selfish interests dictate the aggression, will only wave some paltry coloured rag in the eyes of any nation—even amongst those nations which with unconscious sarcasm we allude to as “civilised”—they can at once hypnotise their senses, and make the nation back up their brigandage with the snarls of “ultimatums,” accompanied by the exhibition of their brutish fangs—the army and navy, which exist only for the purpose of being bathed in the blood of others at least as good as their own; and then with unrestrained brutal passions of either one or both of these nations, aided by the unrestricted pouring out of their wealth, these human brutes will proceed to tear and kill one another, when the action which pro-

voked the trouble would have been considered a crime even by the nation whose representatives performed it, had it not been that the imaginary line drawn across the face of the continent, and intended to denote some supposed division between man and man, had acted as an impassible barrier to their reason, so that they could not, and would not recognise that the original action was either innocuous, or was criminal and deserving of condemnation and punishment by all the reasoning members of both nations, quite irrespective of upon which side of this imaginary—but in many ways convenient—line it had been committed, or of the colour or arrangement of the patches upon the flag under which it was performed.

Reason, if carried out fully and truly, would be a guide which would be above all laws and all commandments, and so far as in each of us lies we should help towards the nearer and nearer approximation to this ideal.

“Think naught must be accepted in blind faith,
Weigh well in Reason’s scales each word and tale
No matter whence it comes. For Reason is
The only attribute which raises man
Above the brute creation. ’Tis heaven’s best gift,
And if we may not use it—why the gift?
For I do rather think that if man hath
This almost more than human attribute
Whose light aye pierces deeper—deeper still
Into the great unknown—as spread the rays
Of science-burning lamp—and use it not,
’Tis blasphemy against the power that gives.

* * * * *

* * * No sadness death doth hold
When for an epitaph we true can say—
He honest lived, and followed Reason’s ray;
Wronged no man wittingly; had justice strong
To good reward—as aye to punish wrong.
He knew not what’s beyond, but living right
With eyes undaunted, sought the further light.”

BAD NAUHEIM.¹

BY SYDNEY GILBERT, L.R.C.P., L.R.C.S. EDIN.,
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SITUATION.

BAD NAUHEIM is placed 144 metres above sea-level in an open plain on the eastern slope of the Taunus mountain-range, which here is thickly planted with beautiful trees of all kinds, and the walks are in endless variety in lovely shady avenues, and extending a great distance. The highest point near Nauheim is Johannisberg, to which patients are generally allowed to climb gradually and by resting on the seats at intervals.

The town is beautifully placed in the midst of a lovely park, mostly of natural origin, but also embellished by the gardener's art, and of great beauty. The park contains about 350 acres, the trees are in long, stately avenues, the walks are numerous and nicely shaded, and in hot weather provide ample coolness; seats are numerous also, provided with tables (and even footstools) for the ladies to work, read, or write, and it is a common sight to see them using them. In the park is a large and pretty lake, surrounded by trees and walks, where boating and fishing can be had. The streets are lined with avenues of tall trees, so that in wet weather one can promenade comfortably. The houses are modern, pretty, and attractive, with numerous pensions and large, modern, up-to-date hotels. The Kaiserhof is perhaps the best, and possesses the attraction of a shady garden to recline in, good appointments, good food, and the attendance leaves little to be desired; others are the Metropole, a large stately building, somewhat out of the main thoroughfares, the Bristol, Prince of Wales', &c. The town has the usual Kursaal, a large building with large reading, billiard, drawing and dining rooms, and a theatre, with an extensive terrace overlooking the park, and on its highest point. This

¹ Presented to the Section of Medicine and Pathology, November 5, 1903.

is an attractive promenade, where the band performs in the morning, afternoon, and evening. The town has 5,000 inhabitants, and forty-five doctors.

The air is very clear and slightly bracing, although there in the late autumn, and unusually wet, I saw no mist or fog, the feeling of the air causes one to become soothed and sleepy, and yet not relaxed. It is a delight to lie in the open and sleep, and for sleepless patients I cannot imagine a greater elysium than to become non-existent from 10 p.m. to 8 a.m.

The water is excellent for drinking, slightly aerated, and with small percentages of Fe., Mg., Ca., K., in the form of chlorides mostly. It is pleasant to taste, and has an agreeable softness.

THE BAD NAUHEIM TREATMENT.

(1) *Diet*.—The treatment as to food is mainly directed to prevent distension or irritation of the stomach, hence food is eaten slowly, and all meals are to be as nearly as possible of equal nutritive value, so that the heart is kept evenly going and not overburdened by one or two very hearty meals. The forbidden foods are, “in *drinks*,” coffee, strong tea, beer, spirits, effervescent; “in *solids*,” new bread, heavy puddings, too much farinaceous element, ices, fried potatoes, cabbages, old peas, seasonings generally, hard cheese, nuts, &c. The following are “permitted”: *Meats*.—Mutton, veal, occasionally beef, boiled bacon, game, boiled fish; green vegetables, potatoes sparingly (not fried), light puddings, and fruit (ripe); tobacco, of course, under ban. Speaking generally, food is ample in variety to satisfy an epicure, and one avoids acidity, flatulence, and all the evils of dyspepsia.

(2) *The baths* are very central, and only five to eight minutes from most of the hotels, and, generally speaking, the houses are commodious and moderately well appointed in the newer ones; the older ones are more crude, and could easily be more up to date; they are very cleanly kept, lofty, well lighted usually, and attendants polite and attentive, but to any one not speaking the language little difficulties arise,

as few of them know English. On one occasion the attendant left the water partly on, and it was with difficulty I could get it stopped; another time the clock in the room forgot to go on, result—I must have overstayed my welcome in the water; a third time the hot tap was left on, and I got uncomfortably hot.

(3) "*The Waters.*" *Physical and chemical qualities.*—The waters contain mostly chlorides of sodium, lithium, potassium, calcium, magnesium, alum, and bicarbonates of these in the springs, with fair traces of Fe., Zn., manganese, and absorbed carbonic acid gas in large quantities; the percentage of sodium chloride is about $1\frac{1}{2}$ per cent., of calcium chloride about 1 per 1,000. Hence, in the thermal bath, the water combines the various salines and ferruginous salts, and in other springs with a large amount of free carbonic acid gas.

The various baths have here all gradations of strengths, from 1 per cent. of the salts to the strongest one, containing 2.3 per cent. of the sodium, and 0.5 to 1 per cent. of the calcium.

The baths are generally commenced with 1 to 2 per cent. of salt and a temperature of 33° C. = 91° to 92° F., and up to 95° F. The heat is regulated by a proportion of added fresh hot water (or in the case of some springs by adding ice), which reduces the percentage of salt, and the water is usually stored in reservoirs to allow a proportion of CO_2 to escape. Gradually the water is increased in strength and temperature lowered by lessening the amount of hot water added. The next step is to strengthen the water by the addition of mother lye, obtained from the salt works, which contains calcium chloride in quantity.

The cure is further advanced by the next series of baths, which is the *sprudel* or CO_2 bath, and the time of staying in the water increased from 8 or 10 minutes to 12-15. This CO_2 bath (contrasted from the thermal and mother lye bath water, which is very yellow brine), is here deliciously clear and sparkling.

The last series of baths is the *strome* or flowing sprudel, which is conveyed direct from the spring, and the bath overflows the whole time.

EFFECTS.

The following sections summarise anticipated effects:—

Thermal.—They exercise a soothing influence on the heart and nervous system, as well as epidermis and organs, allaying excitement and sleeplessness, neuralgias and rheumatism.

Ferruginous and stronger salt.—These act as tonic and exciting, and are useful in old neuralgias, old exudations, tabes dorsalis, diseases of the spinal cord, myelitis and lateral sclerosis.

It is supposed that the light gases penetrate the skin to the deeper tissues in the corium, which, with its rich blood supply, absorbs through the outermost layers of the skin (external stimulation travels along afferent nerves), acting on its contained nerves also the pneumogastric and vasomotor, and reflexly on the heart (systole stronger and diastole longer) and internal organs generally, and so probably both absorbing and neutralising the fatty tissues and also strengthening the muscular fibres. If this is so, the increased tissue changes by an increase of oxygen absorbing power of the cells, produce a feeling of languor, and sleep is induced, hence the imperative need to go to bed for twelve hours after the bath. Undoubtedly the baths have a quieting and soothing effect on the heart and nervous systems, allaying excitement and sleeplessness, and especially is this so in the thermal and weaker sprudels; *contrariwise* in the flowing sprudel, the tonic and exciting feeling is marked, and with some increase of the circulation, hence I occasionally felt old rheumatic pains appear in these baths, and the pulse increased both in number and impulse; but after dressing all these quickly subsided, and a delicious sensation of warmth and increased strength and exhilaration, which can scarcely be imagined by any one who has not had them; the buoyancy of the water, sometimes the difficulty of lying down in the bath, the continued bubbling of the gas, the coating all over one's body of gas bubbles, reminds one strongly of an aërated Christian ready to go anywhere and

fit to do anything; the lightness in work, the feeling being strongly suggestive of "I don't want to fight, but, by jingo, if I do," &c. In the weaker sprudels the pulse is fuller, stronger, yet lower in frequency; the breathing was quieter and easier, and so comfortable that often I overstayed my allotted time and was unwilling to leave.

In order to verify statements of the baths being so powerful that it was necessary to pause every third day, instead of doing so on one pause day, I took a bath on my own responsibility, and unknown to Professor Schott, and I found the next day I was very fatigued and incapable of my usual exercise. I also heard of another medico who took the flowing or strome bath without the pause on two occasions, and he suddenly became prostrate and delirious, and was in bed for three weeks, and the second night his life was despaired of, so I deduce the facts are as stated. I might here mention that the chief spring throws up a column of water fifteen yards high usually. The yearly number of baths is enormous, and one wonders the springs hold out.

The popularity of the baths may be judged by the thousands of visitors, of whom, roughly speaking, 70 per cent. are Germans, 15 per cent. Russians, and 15 per cent. British and American friends.

CASES SUITABLE AND UNSUITABLE.

(a) *Suitable Cases*.—The following may be considered suitable diseases for Nauheim treatment, namely, anæmia, scrofula, gastric catarrh, gout, rheumatism, locomotor ataxy, nervous types, and of course various affections of the heart (non-inflammatory), mitral and aortic valves, aortic stenosis, angina, hypertrophy, myocarditis, dilatation.

(b) *Unsuitable*.—Advanced fatty degeneration, medium or advanced angina, very advanced arterio-sclerosis, aneurisms of the heart or the larger vessels, other heart troubles in which emboli are likely to be formed, or where increased intracardial circulation is likely to lead through blood pressure to apoplectic tendencies, and Professor Schott told me he

was often astonished at cases of this type being sent to him by really eminent specialists, utterly unsuitable, and in which if the baths and exercises were given would lead to fatal issues.

ACCESSORIES.

(a) *Medicinal*.—I found little or no treatment was given in the majority of cases. Digitalis, strophanthus, cactus, amyl nitrite, glonoine and erythol tetranitrate were occasionally required, perhaps the greatest reliance was placed upon sodic iodide in aortic and angina cases.

(b) *The Zander Institute*.—A striking feature of Nauheim is this wonderful institute with its most ingenious and clever machinery appliances, supposed to be adapted by different movements to exercise every separate part and organ of the body. The whole is worked by electricity, and these wonderful appliances are so minutely under control that you can have them given in any conceivable strength to improve chest deficiencies, to develop muscular strength, and to alleviate obesity, rheumatism, gout, affection of lungs, emphysema, chronic bronchitis, asthma, nervous affections, hysteria, chorea, paralyses, digestive tract, constipation, gastric catarrh, liver troubles, muscles and joints.

The chief objection perhaps to their use seems to be that the strength of resistance cannot be so nicely regulated in individual cases, compared with the passive resistance methods as practised by the human operator.

(c) *Salt Works*.—These are supposed to greatly help in rheumatism, gout and bronchial troubles, and I observed many persons in the hotel went daily to them, and apparently with good results, the strong gases given off being thus inhaled in the open air, alleviating bronchial and asthmatic troubles.

(d) *Heart exercises*.—These are, to my mind, of equal value and importance to the baths. I found in my own case that they increased the force of the pulse, but at the same time lowered the number. On commencing the pulse was generally 86, and after half-an-hour's exercises

was reduced to 76, 78, and yet was a stronger beat. Where the exercises raise the pulse it is better to discontinue them. The slow resisting muscular movements, where done by an experienced masseur, cause an increased flow of blood to the muscles and limbs, and thus the dilated or weakened, or overburdened heart is to the same extent relieved of its blood pressure, and does its task easier. Professor Schott says the muscles of *limb* develop more, and with them the motor nerves increase in strength. These exercises provide thus a measure of resistance to be neutralised by the muscles, and this resistance is of two kinds, one by the masseur, the other by action of antagonising muscles, and as they affect the muscles of arms, legs, back, chest, &c., a trained operator, by watching the breathing, can judge how the strain is borne. There is a brief pause between each set of movements, and a rest of at least half-an-hour is ordered after their completion.

(e) *Walking*.—In cases of obesity and weak cardiac action walking with care is ordered, and gradually hill climbing, done slowly, resting at intervals, is nearly always most beneficial; this, however, is not permitted till the exercises have been given for a week or ten days to give time to allow the heart muscles to strengthen.

GENERAL RESULTS.

I cannot see that any other conclusion can be drawn than that extreme benefit is the rule, rather than the exception, the mildly stimulating air, the food, regularity of living, the enforced rest and quiet, the bath, the extra sleep enjoyed, which, or all of these factors, is hard to differentiate, but the result is pleasing; one has only to use his eyes and observing faculties to deduce this; to see the number of crippled and invalid patients entering the baths, watching them daily to observe the gradual disappearance of the cachectic hue of skin, to a healthy, rosier tint, to notice the breathing become stronger and deeper without the need to pause and rest, dispensing with their bath chairs and

carriages, and walking back to their hotels, afford proof that heart, rheumatism and gout troubles must have been substantially alleviated. The general feeling of brightness and cheerfulness and hope leaves me no other conclusion, and both in my own case and four or five of my patients I have sent there the end has more than justified the means. Undoubtedly physical changes of heart structure, in muscle strengthened and size contracted, have issued from the treatment.

AFTER EFFECTS.

For a time after returning home, and especially to those who, like myself, cannot afford an extra period to recuperate in a bracing air like Switzerland or some mountain air, the result is a little disappointing; one feels weak and unable to do the work previously done with comfort, and easily tiring is glad of rest; but in a very few weeks these symptoms go, and gradually the elasticity and brightness, and a freedom of consciousness of having a heart, or an uneasy numbness or dull pain, amply compensate one for the somewhat tedious rest. I am glad I went; I feel, although I do not look, younger. It was a revelation to me to see how quickly the doctors there diagnose and treat their patients; I have noticed two or three enter our hotel, visit four or five patients and go out again in less than half-an-hour.

Gentlemen, I owe you an ample apology for the length, the disjointed character and description, and the unscientific way I have introduced the subject to you, but I meant it, after all, as my personal experiences, and not a learned treatise, which I am incapable of giving; it is my first, it will be my last, in all probability, and so in saying adieu I crave your kind indulgence.

THE MINERAL WATERS OF HARROGATE.¹

BY S. H. RAMSBOTHAM, M.D. EDIN.

"Harrogate is not one of your ephemeral spas, dependent on fashion. Its almost peculiar waters are lasting, and so must and will be their reputation."
—Dr. Granville, *Spas of England*, 1841.

IN speaking to you this evening about the mineral waters of Harrogate, all I can offer is a sketch in outline of their nature, properties and uses. Even if our attention be confined to those waters chiefly used for drinking purposes, to fill in the details would be to trespass unreasonably on your time and your attention. Nor can I hope to put before you anything new: almost from the time of their first discovery until now there has issued from the press a stream of literature dealing with them, almost as unceasing as the flow of the springs themselves.

THEIR NUMBER AND VARIETY.

Harrogate suffers, in so far as it can be said to suffer at all, from a superabundance, a veritable plethora of resources, in the possession of no fewer than eighty different springs rising, for the most part, in close contiguity to each other, and each differing slightly from the rest in its composition, though not so widely as to prevent many of the sulphur waters being combined for bathing purposes. How close is this contiguity you may judge from the annexed map, the red and black dots on which indicate the position of an iron or a sulphur well. In the area entitled the Bogs Field, about two acres in extent, more than thirty springs take their rise.

Fortunately these eighty springs range themselves very conveniently into two chief groups:—The sulphur and the chalybeate waters, with a sub-division of each group into two classes: the alkaline and the saline sulphur waters, the pure and the saline chalybeates.

¹ Presented to the Section of General Medicine and Pathology, November 5, 1908.

SULPHUR WATERS.

A. Alkaline.

Starbeck Sulphur.
Beckwith Sulphur.
Harlow Car Baths.

B. Saline.

Old Sulphur, Royal Pump
Room.
Mild Sulphur, Royal Pump
Room.
Montpellier Strong Sulphur.
Montpellier Mild Sulphur.
Magnesia Well.
New, or 'No. 36' Well.

CHALYBEATE WATERS.

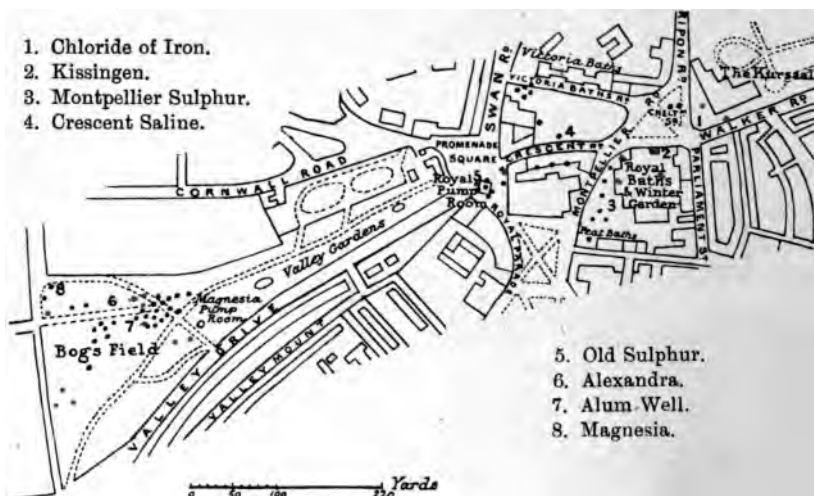
A. Pure.

Tewit Well.
John's Well.
Harrogate Pure Chalybeate.

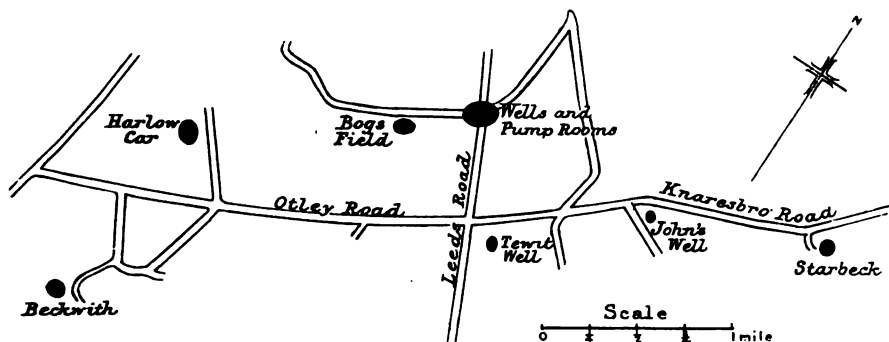
B. Saline.

Kissingen Well.
Chloride of Iron Well.
Alexandra Well.

*Crescent Saline Spring or Leamington Spa.
Alum Well.*



You will note that the alkaline sulphur waters do not rise in Harrogate itself, but in the outskirts. They are brought to Harrogate from Beckwith and Starbeck; the water at Harlow Car is left to be used *in situ*.



The saline sulphur waters rise in Harrogate itself, and to this class belong most of the waters used for drinking purposes. Of the pure chalybeates the Tewit well and John's well are found on the Stray, the higher ground about a mile from the centre of the town; the third water of this class, and all the saline chalybeates are found in the neighbourhood of the pump rooms.

Two springs which fall into neither group claim notice: the Crescent Saline, which contains neither sulphur nor iron, or, at most, but a faint trace of either; and the Alum well, an iron water indeed, but differing from all the others (though it rises in their midst), in that it alone of the Harrogate waters contains sulphate salts.

THEIR MINERALISATION.

In considering the mineralisation of these waters, especially those of the first group, you will be struck by the quantity no less than by the variety of the salts which they hold in perfect solution. The variety is shown in the tables before you: for these I am indebted to the courtesy of others who have kindly permitted me to use material compiled for or by themselves.¹

¹ I have to thank Dr. D'Oyly Grange for permission to use his tables of the composition of the waters; Dr. F. W. Smith for the use of his analysis of the No. 36 sulphur well, and for information about the electrolytic deposit of sulphur on the skin; Mr. R. Hayton Davis, Analyst to the Corporation, for much information as to the analyses and characters of the springs; the Chairman of the Baths Committee of the Corporation; the Librarian, the Manager of the Baths, and many other officials connected with them, of whom I have made enquiries connected with the working of their special departments.

TABLE OF THE SOLID AND GASEOUS CONTENTS OF THE SALINE
SULPHUR GROUP.

Saline Constituents in grains per pint.	Old Sulphur Well (Royal Pump Room).	Strong Sulphur Montpellier (Royal Baths Pump Room).	New or Mild Sulphur (Royal Pump Room).	Mild Sulphur Montpellier (Royal Baths Pump Room).	Magnesia, (Valley Gardens and Royal Pump Room).	"No. 86" Well (Valley Gardens).
Sodium Sulphurate	I		I			$\frac{1}{8}$
Sodium Sulphide		II		I	$\frac{1}{10}$	
Barium Chloride	I		$\frac{1}{10}$		$\frac{1}{8}$	
Calcium Chloride	IIII	IIIIIIII	II	IIII		
Magnesium Chloride	IIII	IIIIII		III	$\frac{1}{2}$	
Potassium Chloride	I		I	I	III	III
Sodium Chloride	110	103	73	48	27	30
Calcium Carbonate	III	I		II	II	I
Magnesium Carbonate	I				II	I
Barium Carbonate						$\frac{2}{3}$
Barium Sulphate		$\frac{2}{3}$				
Silica	$\frac{2}{3}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{1}{10}$
Other Contents	Iodine Bromine Lithium	Strontium Lithium		Strontium		Lithium
<i>Gases in Cubic Inches.</i>						
Sulphuretted Hydrogen	I		$\frac{1}{2}$			$\frac{2}{3}$
Carbon Dioxide	IIII	IIIIIIII	II $\frac{1}{2}$	IIIIII	II $\frac{1}{2}$	IIII
Carburetted Hydrogen		$\frac{3}{10}$		$\frac{1}{10}$		
Nitrogen		$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$		

TABLE OF THE SOLID CONTENTS OF THE SALINE
CHALYBEATES.

Saline Constituents in grains per pint.	Kissingen Spring.	Chloride of Iron Spring.	Alexandra Spring.
Ferrous Carbonate	I	I	$\frac{1}{2}$
Ferrous Chloride		$II\frac{1}{2}$	
Barium Chloride		$\frac{1}{2}$	
Barium Carbonate	$\frac{1}{2}$		
Potassium Chloride	III	$\frac{1}{2}$	
Sodium Chloride	84	35	25
Calcium Chloride .. ..	|||||	|||||	
Magnesium Chloride .. ..	|||||	|||||	
Calcium Carbonate	I		II
Magnesium Carbonate			I

CRESCENT SALINE.

Solid contents.	Grains per pint.
Calcium Carbonate ...	$II\frac{1}{2}$
Magnesium Carbonate	I
Sodium Carbonate ...	II
Sodium Chloride ...	|||||
Potassium Chloride ...	$II\frac{1}{2}$
Calcium Chloride ...	$\frac{1}{2}$
Magnesium Chloride...	$\frac{1}{2}$
Sodium Sulphate ...	I
Silica	$\frac{1}{10}$

ALUM WELL.

Solid contents.	Grains per pint.
Ferrous Sulphate ...	|||||
Ferric Sulphate ...	|||||
Aluminium Sulphate	|||||
Calcium Sulphate ...	|||||
Magnesium Sulphate	|||||
Potassium Sulphate	$\frac{1}{2}$
Ammonium Sulphate	$\frac{1}{3}$
Sodium Chloride ...	||||
Silica	$\frac{1}{2}$

These tables are not absolutely accurate, because fractional parts of a grain are mostly omitted, except where the total charge is less than one grain; but their inaccuracy is only that of a diagram as compared with a drawing; and they afford you a *conspectus* of the contents of the waters easily apprehended by the eye, and therefore more readily comprehended by the mind than an array of figures could be.

The quantity will be best appreciated by a concrete instance. Each pint of the old sulphur water holds in solution 128 grains—rather more than 2 drachms of solid matter—and as the well discharges about $12\frac{1}{2}$ gallons per hour, its output of solid matter for the year is equivalent to 7 tons of the chlorides of sodium, potassium, calcium, and magnesium; 240 lbs. sulphide of sodium, 100 lbs. chloride of barium, and 37 lbs. bromide and iodide of magnesium.¹ Not an inconsiderable mining record for one spring!

The waters in our first group derive their name from the charge of sulphur which they contain, and the form in which it is presented is important. Undoubtedly the characteristic odour of sulphuretted hydrogen is the first thing which appeals to the senses of a visitor entering the pump-room, but the sulphur charge is not merely a gaseous one. We find it also as sodium sulphide, a much more effective form. The gas is quickly dissipated when the water is exposed to the air; if it be taken into the stomach it is probably eliminated at once by the lungs, never passing into the arterial circulation at all.² The salt, on the other hand, being retained in solution, does enter into the arterial circulation, and though its effects on the blood after absorption are at present unascertained³ we know that sulphuretted hydrogen is evolved in its passage through the body, being subsequently eliminated by bowels, skin, and lungs; and we infer that the salt has been decomposed, and the tissues through which it passes thoroughly permeated and searched thereby.

¹ "The Harrogate Waters," by George Oliver, M.D., 1881, p. 49.

² Claude Bernard's experiments show this to be the case when sulphuretted hydrogen is injected into the veins.

³ Sydney Ringer, "Handbook of Therapeutics," 6th edition, p. 69.

In the alkaline sulphur waters this salt is associated chiefly with the carbonates of the alkalies and the earthy metals, the charge of sodium chloride being very small in the Starbeck water, and almost *nil*—only a fraction of a grain to the pint—in the Beckwith spring.

In the saline sulphur waters the proportions are reversed ; you will notice at once the great preponderance of the chlorides, the small proportion of the carbonates, and the entire absence of sulphates. The absence of these last is a determining factor in the character of the waters. When present, they are considered to be a hindrance rather than a help to the action of sulphureous waters,¹ and when taken into the stomach they are not absorbed, but pass away by the process of purgation, effecting no change of tissue. The chlorides, on the other hand, are believed to aid the action of the sulphides, and they certainly do affect very powerfully the process of nutrition, facilitating change of tissue, both formative and retrogressive.

I need not detain you by discussing the physiological properties of these chlorides. I would only ask you to note the large charge of the chloride of sodium, and to note also that chloride of barium—a rare constituent of mineral waters—is found in the old sulphur and chloride of iron waters in larger quantity than in any others as yet known, and in smaller but still appreciable quantities in the mild sulphur of the Royal pump room, the magnesia and Kissingen waters. Iodine, bromine, strontium, and silica, are also found, and though forming only a small proportion of the solid contents surpass in actual quantity the amount found in any other natural mineral springs.

Carbonate of iron is present in all the chalybeate springs, in the pure as well as in the saline. The former are good specimens of their class, for though the iron salt is associated with the alkaline and earthy carbonates, these are present in but small proportional quantities, smaller than in most of the allied ferruginous waters.

Of the saline chalybeates two, the Kissingen and the Chloride of iron, occupy a unique position among waters of

¹ Braun, "Curative Effects of Baths and Waters," 1875, p. 418.

their class; the Kissingen because it is the only water in this country in which the iron is associated with so strong a charge of chlorides; the Chloride spring, not only because it contains an unusually powerful charge of iron, but because that iron is in the form of the chloride. If it be correct that the carbonate of iron must be changed into chloride in the stomach before it can be absorbed,¹ the advantages possessed by this spring are obvious. And, further, it is the only known chalybeate water in which the iron is associated solely with chloride salts, no sulphates or carbonates being present. The Alexandra well is a much simpler water, but it also contains chloride of sodium as an accompaniment to its iron charge.

All these waters are non-thermal, yet many of them are served in the pump rooms both hot and cold. The heating is ingeniously effected: the water is allowed to flow from the well into air-tight cylinders or cisterns, whence it gravitates through pipes to the place where it is served. At one portion of their course these pipes pass in coils through chambers containing hot water, which can be raised to, and kept at any desired temperature. Thus the water receives heat by conduction; the gases are not driven off, nor is the water diluted as in the old processes, and never having been exposed to the air from the time it leaves the well till it reaches the drinker's tumbler, it is delivered in its natural condition, exactly as it flowed from the spring. The sulphur waters, strong and mild, the magnesia, and the Kissingen waters are all warmed in this way, and the Kissingen—when taken cold—the chloride of iron, and the Crescent saline are all artificially aerated, the aëration rendering them more easy of digestion.

MODE OF ADMINISTRATION.

It is interesting to observe that the records of the use made of these waters in bygone days show that they were used for much the same ailments and in much the same way that they are to-day. True our ancestors must have

¹ Braun, *op. cit.*, p. 245.

had far stronger stomachs than we have, for we find that habitually from three to four pints of sulphur water were daily imbibed ; while of the chalybeate spring three to four pints was regarded as a moderate dose to begin with, the quantity to be increased by half a pint daily till the maximum dose of three quarts was reached !¹ But though our patients are not now-a-days drenched in this manner the waters are still employed in doses quite sufficiently, if not even in some cases inconveniently large. Twenty ounces, or rather, two tumblers of ten ounces each, is the average dose of the strong sulphur or the Kissingen water taken daily before breakfast, and taken warm too, to ensure its more facile absorption, and promote that aperient action without which many of our patients would consider themselves defrauded of what they have come to look upon as the most beneficial effect of the Harrogate waters. This aperient action has always been highly esteemed, and I am disposed to think that when not excessive it is beneficial : it carries off with it so much of the water as cannot be absorbed, and facilitates the absorption of the remainder. It does not appear to have any lowering or reducing effect, and the immediate improvement so often seen in appetite and digestion is hailed as an indication of a successful result.

Many of our patients do not need this aperient action ; for them the so-called “ alterative ” action of smaller doses—half the above quantity or even less—is sufficient, and gives them the help they need without disturbing their ordinary mode of life. In some cases the waters seem almost to have a “ specific ” action ; an action “ manifested in the control they exercise over various cutaneous diseases, in certain forms of dyspepsia, but principally in the power they have over old-standing hepatic disorders.”²

Less doses are, of course, given of the chalybeate waters ; from four to six ounces is usually considered sufficient, see-

¹ Dr. Neal, of Leeds, in *Spadacrine Eboracensis*, 1656. Never separately published.

² Dr. Myrtle. “ Practical Observations on the Harrogate Waters,” 1893 edition.

ing how small a quantity of iron can possibly be absorbed into the blood.

The internal use of the waters is greatly aided by their external application. For this a very complete series of baths has been constructed, where the sulphur waters, both alkaline and saline, are applied externally by immersion, by douche, spray, or inhalation, and by vapour baths, general or local. To these baths, peculiar to the place, have been added such useful adjuncts as the Aix and Vichy douches, D'Arsonval, and "light and ozone" electric installations, the Greville hot air and the Dowsing light baths, peat baths, and quite recently brine baths, the water for these last being conveyed from the Middlesborough salt-springs, which also supply the baths at Saltburn. And I may add that both the Nauheim and the Schwalbach baths are not unsuccessfully reproduced by the addition of their natural salts to the alkaline sulphur water. As yet no use for bathing purposes is made of any of the chalybeate springs. The alum well was formerly used for gargles, sprays or injections in relaxed and catarrhal conditions of the mucous surfaces, but it has now fallen into complete disuse.

The bringing to Harrogate of the alkaline sulphur waters from Beckwith and Starbeck has made the arrangements for the external use of the sulphur waters very complete. Formerly those persons for whom the soothing and comforting effects of the alkaline waters were desired, rather than the stimulating and exciting effects of the salines, were obliged to undergo the fatigue of a journey of two to three miles each way in order to obtain the wished-for bath; now they can be obtained on the spot. Within the last few months they have also been supplied at the pump rooms for drinking purposes.

But perhaps the most important addition made of late years to our *armamentarium* has resulted from the discovery by Dr. F. W. Smith¹ of the possibility of depositing nascent sulphur on the skin by passing an electric current through the sulphureous waters, and even of driving it through the

¹ See *British Medical Journal*, April 16, and *Lancet*, August 10, 1901.

skin on to the tissues beneath. We are thus placed in possession of a new and very powerful remedial agent. Sulphur does not exist in a free state in the waters; it is only found combined with other substances in the form of sulphides. The action of these salts on the tissues is believed to be sedative, while that of free sulphur is stimulant¹; and if sulphur follows the analogies of other known substances this stimulant action will be developed more energetically in the nascent than in the ordinary state. Dr. Smith's experiments led him to the conclusion that a bath in which sulphur is thus produced is much more active and beneficial in its effects than an ordinary bath of sulphur water—a conclusion borne out by the daily experience of those who use the bath.

THERAPEUTIC USES.

The ailments for the treatment of which all these appliances are provided are many and various.

(1) First I would place *gout* in all its varied manifestations.

(2) *Disorders of the liver*, including congestion and enlargement such as is seen in those who have long resided in tropical countries, torpidity, gall-stones, and jaundice not arising from organic disease.

(3) *Abdominal and pelvic plethora*, including their accompaniments of constipation and piles, and some forms of uterine trouble.

(4) *Diseases of the skin*, especially eczema and psoriasis, which are so often associated with the gouty constitution.

(5) *Rheumatism* in some of its forms.

(6) *Catarrhal conditions* of all the mucous membranes—respiratory, gastric, intestinal, and uterine.

(7) *Strumous affections*, especially when characterised by enlarged glands, skin affections, and atonic dyspepsia, the form sometimes characterised as pre-tubercular.

(8) *Suppurative processes*, especially when manifested as boils or carbuncles.

¹ See Dr. Oliver's book, already quoted, pp. 148, *et seq.*

(9) *Neuralgia* and *neurasthenia*.

(10) *Brain fatigue*, from overwork, worry, or the like.

(11) *Anæmia* and *chlorosis*.

It is hardly possible to classify the above ailments into those demanding sulphur or chalybeate treatment ; if at the one end we take gout as the typical indication for the sulphur waters, and anæmia at the other for the chalybeates, the intermediate classes seem to require now one, now the other. Indeed, it may be said that few of the cases which have derived benefit from a course of the sulphur waters will not benefit still further by a subsequent short course of chalybeates, while a preceding short course of sulphur often happily prepares the way for the chalybeates, and promotes their beneficial action.

In a supplementary list I would place :—

(12) *Lead poisoning*.

(13) *Albuminuria*.

(14) *Pulmonary consumption*.

(15) *Cancer*.

The mere mention of most of these ailments is sufficient : they call for no extended comment. But attention may be drawn rather more closely to pulmonary consumption, albuminuria, and cancer, cases of all these diseases, dependent on organic change, having been known to derive benefit from the use of the Harrogate waters. Of lead poisoning I cannot speak from experience ; it is mentioned in so many treatises on the waters that I do not like to omit it altogether from the catalogue.

But I have certainly seen albuminuria completely and permanently disappear under a course of these waters. The favourable cases are those which Grainger Stewart¹ classes as the inflammatory, not the waxy, form of Bright's disease ; the latter from the first involves degenerative organic change.

In former years Harrogate was highly esteemed as a place to which consumptive patients might resort with advantage. Dr. Smith,² writing in 1847, tells us he had seen consumptive complaints much relieved and some cured by the use of the

¹ " Practical Treatise on Bright's Diseases of the Kidney," 1871.

² " On the Mineral Springs of Harrogate," 1847.

Crescent saline; but adds a caution against expecting too much when tubercles are present. His meaning evidently is that most benefit will be derived in the earlier stages. Later testimony is given by Dr. Kennion,¹ who, in addition to his own experience, cites a series of cases published by Grimaud,² illustrating the action of mineral waters in phthisis. He shows how in the first stage they may eradicate or at any rate render the disease stationary; in the second stage, the chances of a good result are less; while in the third, positive harm may be done. Dr. Myrtle³ also instances "certain stages of consumption" as among the pulmonary complaints which may derive benefit at Harrogate; and my own experience leads me to believe that it is a place where those threatened with phthisis might advantageously, for a time at any rate, take up their abode.

And as to cancer, Dr. Myrtle, in the earlier editions of his book,⁴ relates a very interesting case of cancer of the colon, in which the patient gained in weight, and "while drinking the water was free from his most distressing symptoms, and his life, if not prolonged, was rendered tolerable, which it had not been for months previous." In a case of the same disease which came under my own observation, the relief of the more urgent symptoms, the improvement in colour, the gain in weight, and the increased activity were so marked, that on the patient's return home hopes were excited that the diagnosis might be, after all, incorrect, hopes which the subsequent issue of the case showed were fallacious. But it is no small gain if the worst symptoms of so dire a disease can be alleviated.

The climate of Harrogate must be taken into account as a factor in the health-giving properties of the place. The description given more than a century ago⁶ holds good to-day. "No place in the kingdom can boast of a better or purer air than Harrogate; almost every person on coming here experiences its lively, bracing, exhilarating power. Situated at

¹ "Observations on the Medicinal Springs of Harrogate," 1853.

² *L'Union Medicale*, Tome xi., No. 77.

³ *Op. cit.*, 1893 Edition.

⁴ 1865 and 1869 Editions.

⁶ Dr. Garnett, "Treatise on the Mineral Waters of Harrogate," 1792.

nearly an equal distance between the eastern and the western shores and at a great height above the level of the sea, it experiences the winds from whatever part they blow; the air never stagnates, but circulates freely, not interrupted by wood or rendered humid by stagnant water." To this it may be added that the mean height of the plateau on which Harrogate is built is 400 feet above the sea level; that there is no large river, as well as no "stagnant water" in the near neighbourhood; and that the Pennine range of hills give shelter from the rain—though, indeed, at "a respectful distance"—intercepting the clouds which come up from the Atlantic on the south-west. Dr. Garnett emphasises the absence of wood, a seeming inconsistency with the inclusion of Harrogate in the Forest of Knaresborough. Formerly the Forest was so thick of wood that "he was accounted a cunning fellow who could readily find these spaws"¹; but the wood was cut down to provide fuel for the large ironworks which once existed here. And if the loss of its trees has for a time impaired the sylvan beauty of the scenery, it has added appreciably to the health-giving properties of the air. At the present time judicious planting is being carried on in an endeavour to restore to the place some of its woodland charm, without interfering with the free circulation of the air.

RELATION TO HOMŒOPATHY.

But you may ask: What has all this to do with homœopathy, and why are we as members of the British Homœopathic Society asked to listen to this description of the properties and uses of the Harrogate waters, when the doses in which they are given suggest that their physiological rather than their therapeutic action is made use of?

I have always held that as homœopaths we are entitled to use any and all means of combating disease which commend themselves to our reason; indeed, that we enjoy

¹ Dr. Short, "The Natural Experimental and Natural History of the Spaws of Derbyshire, Leicestershire, and Yorkshire," 1734.

a liberty in this direction denied to the majority of our professional brethren. And I am not prepared to admit that in using these waters we are exceeding the just limits of our liberty. I will admit that the connection seems slight if we are to hold that homœopathy involves the acceptance of the infinitesimal dose as its necessary corollary. But "some medicines require to be given in more tangible doses than others,"¹ and I think I have before now heard a claim made that the so-called "alterative" and "specific" actions of medicines—terms which merely conceal our ignorance of the manner in which they act—were in truth illustrations of homœopathy. If by "alterative" we mean that the sufferer is relieved or cured without any disturbance of the system more or less remote; and if by "specific" we merely wish to express that there is a special and peculiar relation between the disease and the remedy, we are not far from accepting the two main principles on which the method of treatment denominated Homœopathy is founded, viz., that there must be a definite relation between the remedy and the disease—a relation which we express as "similarity"—and that this remedy should be given in doses which will not excite any other than its therapeutic action.

So far the argument is negative. Let us for a few moments glance at the positive aspect of the question, as shown in the pathogenetic action of the waters.

First, we have records of accidents from their incautious use. Dr. Kennion records a fatal case of apoplexy, Dr. Myrtle another. I myself lost a friend, though not a patient, in whom an overdose was followed by coma and death; and Dr. Myrtle warns us² that "if taken injudiciously the water frequently creates serious constitutional disturbances, characterised by loss of appetite, thirst, giddiness, drowsiness, intense headache, and fever." Dr. Granville, who experienced in his own person some of these ill-effects, tells us³ "this headache differs from every other species of headache, and is much more severe and alarming.

¹ *Monthly Homœopathic Review*, October, 1903, p. 610.

² *Op. cit.*, 1898, p. 86.

³ "Spas of England: Northern Spas." 1841, pp. 69 *et seq.*

inasmuch as it seems to occupy the centre and basis of the brain, and is accompanied by a sensation of distension in the blood-vessels, together with a feeling that if you were to move the head quickly one of the gorged blood-vessels must give way." Dr. Hughes¹ records the case of a lady whom needless draughts of sulphur water sent home covered with boils; and Dr. Casanova made a series of pathogenetic observations on himself and others² while taking the waters; the effects noted may be briefly summarised as congestion of the brain, in greater or less degree; flying pains in limbs, with temporary loss of sensation; digestive disturbances, with flatulence; diarrhoea or constipation, according as the water was drunk hot or cold; acceleration of the heart's action; eruptions of various kinds; enlarged and indurated glands; low hypochondriac mood. Not a full or exhaustive pathogenesis, but you will notice how the symptoms elicited resemble in one way or another those of many of the ailments for which these waters are remedially used; and it is worth noting that there is a general *consensus* among all writers on the subject that they not infrequently aggravate the ailments they are meant to cure before any relief is experienced by the patient.³

It may be that the doses are larger than we are accustomed to employ; I seldom use the full doses, but I have not yet seen my way to reducing them much, though in 1868, when I first began to study and use these waters, I greatly desired to do so. I am, indeed, daily more and more convinced of the correctness of the view so forcibly set forth by the late Dr. Sharp, of Rugby, that in every medicine certain series of doses may be found, within the limits of which antagonistic actions exist; and I believe that mineral waters such as those which we have now been considering furnish us with at once an example and a proof of the correctness of that view, our acceptance of which involves no abandonment of our position as homœopaths.

Harrogate, Oct., 1903.

¹ "Manual of Pharmaco-Dynamics," 4th edition, p. 838.

² *British Journal of Homœopathy*, vol. xxi., p. 353.

³ Dr. Oliver lays special emphasis on this point, *op. cit.* p. 188.

The PRESIDENT was quite sure that the weighty words with which Dr. Ramsbotham had closed his address would commend themselves to the members, both as physicians and homœopaths. He did not think there was any doubt, if one studied the effects of medicinal wells, that it would be found they were governed, as regards their action, to a very considerable degree by the homœopathic law. Where very large doses were given they might act in a different line, according to the law of opposites or according to the allopathic law, but a great number of them really did come under the homœopathic law. He could not but consider that the use of the baths at Nauheim and the exercises there came under that law; he could not but conceive that the waters at Ems came very much under that law; and he was quite sure that the mild sulphur waters at Eaux-bonnes came under that law. The waters at Eaux-bonnes were given for bronchitis and phthisis; and he remembered many years ago asking Dr. Leudet as to the effect produced on healthy persons who drank the waters. Dr. Leudet replied that only in the previous summer an English gentleman was stopping at the place with his wife, who was phthisical, and who was taking the waters. The gentleman was perfectly healthy, and began to drink the waters on his own account, and in the course of ten days they produced a severe attack of hæmoptysis. One or two things which Dr. Gilbert had said appealed to him, as he had spent six seasons at Nauheim. He had never found, as Dr. Gilbert had stated, that the air of the place was bracing; secondly, the diet of the place was too awful to be conceived: it was a relief to go only to Homburg or to the Station Hotel at Frankfort and get a decent meal. The feeling of general weakness and lassitude that came over one at Nauheim was very distinct indeed, and a very curious one. While undoubtedly the heart was being contracted and strengthened, the general sensation was as if one were going to pieces, and that was still felt for two or three weeks after leaving the place. He did not understand it, but such was the case; and any genial, bracing air occurring in that benighted valley he had yet to meet with. He had never met with it, and had never seen anybody who had, until Dr. Gilbert had given his experience that evening.

Dr. MADDEN congratulated both the writers of the papers on the excellent representatives they were of the various Spas they had brought before the notice of the Society: nothing could exceed their appearance of good health and strength. At the same time, he confessed he was surprised, with the President, at Dr. Gilbert saying that he felt himself getting better while he was at Nauheim;

that, certainly, was not the general experience. He, Dr. Madden, had sent a good many patients there, and without exception they all said they felt themselves getting weak and very much reduced at the end of the treatment; and if they had not been able, as happened in some cases, to get an after-cure in a bracing place, they felt the previous ill-effects for some time afterwards. Nevertheless, he could not recollect a single case that had not received permanent benefit from the treatment. Some of the patients had had rheumatic endocarditis; some had fatty heart to a slight degree; others, strained heart through weak muscles and over-exertion; those latter were the cases in which he had seen the best result. He would very much like to know whether the presence of barium in the water of Nauheim had anything to do with its virtues. Salts of barium had been found most beneficial, not only in the treatment of heart cases, but in degeneration of the arteries that had gone to the extent of aneurism. At the present moment he had among the out-patients of the Bromley Hospital a case of aneurism in the carotid, which had been markedly benefited and reduced to half its size with nothing but internal homœopathic medicines, chiefly in the form of chloride of barium. He would very much like to know whether the authors believed that the presence of barium in the waters of Nauheim was an essential part of its efficacy. With regard to Harrogate he confessed he thought better results would probably be obtained if patients were not given the full doses that the practitioners resident in the place had been accustomed to give. He believed that the very best results were obtained where the waters were homœopathic to the condition to be cured, and that by reducing the dose better results would be obtained and which would be less liable to reaction in the opposite direction, especially in the form of obstinate constipation, of which he had seen one or two examples. He was very glad to hear Dr. Ramsbotham say that he considered homœopaths occupied the unique position of being free to use every known means of alleviating and curing their patients. That was the position he had always maintained.

Dr. GILBERT, in reply, said he imagined it made a great difference in regard to the bracing, or otherwise, character of the air at Nauheim if one went there in the month of July, when it was hot, or if one went there in the month of September, when he did. He could not agree with the suggestion that the place was relaxing at that time of the year. He did not possess the President's experience of the place; but while undergoing the treatment, especially when he got on to the strong sprudel, he felt himself completely set up again, and did not feel debilitated. With regard

to the food, he was going to ask the President "Where did you stay?" He could not complain of the food at the Kaiserhof Hotel at which he (Dr. Gilbert) stayed; there was an eight or nine course dinner, and the residents were not stinted in any shape or form. People sometimes played with the baths; they went and bathed when they were not ordered to, or took the baths in the strengths not ordered, which it was possible to do. He himself took a bath when he should not have done so, and paid the penalty. He had expressed the opinion in his paper that advanced cases of arterial sclerosis should not be sent to Nauheim. He did not consider the place was suitable for a heart that had been much weakened by previous rheumatic attacks; wherever the muscular structure of the heart had become soft and flabby it was questionable whether the baths were useful. He did not think the barium element was the remedial agent in the bath; he thought it consisted more in the free carbonic acid gas and the common salt.

Dr. RAMSBOTHAM, in reply, said he did not believe cases of osteo-arthritis benefited at Harrogate; it was one of the forms of rheumatism which he had in his mind when he said that some forms were not benefited. He was inclined to think that, notwithstanding its low situation, such cases obtained more relief at Bath, if they obtained any relief at all.

Dr. BYERS MOIR said they were not benefited at Bath.

Dr. RAMSBOTHAM had had one or two experiences of cases which had benefited at Bath. He could not say that the benefit was permanent, but there was considerable relief of suffering from the treatment. With regard to constipation, that was not always reaction from the purgative effects of the waters; often it started from the very first. The waters seemed in some cases to have a constipating effect; he could not define the cases in which it occurred, because it occurred in such different classes of cases; but it was undoubtedly a serious trouble. He certainly should not advise the mixing with the waters of Epsom salts, thus adding the sulphates which a beneficent providence had kept out; but one frequently had to use something to try and help the patient to get over the constipation. He had found the most useful means to be a very weak infusion in cold water of senna pods, or a tumbler of thin oatmeal gruel taken hot at bedtime. One or other of those remedies generally got over the constipation and prevented its continuance afterwards. He had not said anything about this reaction in his paper because the after-treatment of the cases did not fall to his lot.

The PRESIDENT thought the members had had a very pleasant evening, and he trusted a profitable one, too, in discussing the question of mineral waters. There had been one or two questions raised on which he would say a word or two, as he knew something about the waters. In the first place, a moderate amount of arterial sclerosis, and even a considerable amount of arterial sclerosis, was no real indication against the use of Nauheim waters. Care must be taken, of course, that the heart was not toned up too much in such cases; but a great deal of heart weakness might be corrected by a judicious course of waters. He remembered Dr. Schott telling him that in many cases the sclerotic changes themselves seemed to be improved by the course of waters at Nauheim. The treatment of fatty heart was a very difficult one. It was almost impossible to say beforehand whether there were a sufficient number of unaffected muscular fibres left in the heart to react to the baths. If there were not, the patients would get steadily worse, bath after bath. The only means of testing that he knew in such cases was to give a patient three or four carefully-arranged artificial Nauheim baths at home, and see if the heart responded to them. If the pulse got slower, if the area of the heart contracted, and if the general health was fairly good, the physician might venture to send the patient to Nauheim. If there was any doubt about the case, he strongly advised the home treatment first, in preference to sending the patient to the worry and excitement of Nauheim, with the journey to and from the bath house, dressing, going to bed again, and the alteration of the habits which ensued. Very often at Kissingen there was no great amount of purgation, but a very slight action of the bowels indeed. He thought the great point in such cases was that the course should not be followed right up to the far end of the three weeks—that it should be begun gently, the dose perhaps increased slowly for the first ten days, and then after the centre of the course had been passed the dose should be slightly decreased until, as the patient was going away, he took only a trifling amount of the water. He thought in that way the system adapted itself better to altered conditions than if the course was followed right on to the end of the limit of the three weeks' treatment. In regard to the use of chloride of barium in aneurism, which Dr. Madden mentioned, he had a case of an octogenarian lady who, certainly for the last ten years, had an aneurismal enlargement of the innominate, marked by pulsation above and dulness below the clavicle, in fact all the signs of an aneurismal dilatation of a fusiform character. Whenever that artery began to throb he

always put her on chloride of barium, and in the course of two or three weeks she recovered ; and her condition now, so far as regarded that artery, was certainly much better than it was seven years ago.

PERSONALITY IN MEDICINE.¹

BY THOMAS SIMPSON, M.D.ST.AND., M.R.C.S.ENG.

Honorary Medical Officer to the Hahnemann Hospital, Liverpool.

AT the instance of your estimable Secretary, I have endeavoured to fill a place in the long array of papers which (through many sessions) have contributed to the enlightenment, and often to the delight, of your members.

The sense of duty may well overcome any misgivings I entertain of my ability to bring you any thought worthy of your attention.

Of the many infirmities which steal over us in the decline of life is the impression that the former days were better than these ; we look back wistfully upon the experiences of past years when new truths dawned upon us with a *freshness* and *fascination* which were an inspiration as well as an incentive to ever-increasing study and research.

Our veteran leaders seem to have left us so much to ponder over and to elaborate that we naturally quail before the task when life's shadows are lengthening, if we are desirous to "move from well to better, daily self surpassed," and in the hours that remain to do the work of many days.

Comparative isolation in a suburban township has deprived me of many privileges I might otherwise have shared. The pleasures of the intellect (not creative, but only recipient) have never been fully appreciated by many of us. Now, while there is scarcely any delusion which has a better claim to be indulgently treated than *that*, under the influence of which a man ascribes every noble trait to those who have left imperishable monuments of their genius, we are inclined to judge of others as we find them.

¹ Presented to the Liverpool Branch, November 12, 1903.

Our estimate of a character always depends much on the manner in which that character affects our own interests and passions. This is, we believe, one of those pleasant illusions to which the whole human race is subject, and which experience and reflection can only partially remove; hence it is that the foibles and vagaries of a man eminent in science or literature are always to be treated, even by his *contemporaries* (oft-times), but always by *posterity*, with extraordinary tenderness. The world derives pleasure and advantage from the performances of such a man. The number of those who *suffer* by his personal vices is small (even in his own time) when compared with the number of those to whom his talents are a source of inspiration. I can do that by another which I cannot accomplish alone.

Other men are lenses through which we read our own mind, for he who calls in the aid of an equal understanding doubles his own, and he who profits by a superior understanding raises his power to a level with the superior intelligence he unites with. Now, gentlemen, we are magnanimous enough to own the gratitude we owe to those noble and indefatigable men, whose labours and researches filled the storehouses of the *Materia Medica*, from whence we daily derive the ever-recurring demands of material on which our very existence, as a special class of physicians, depends.

We, at least, have reason to revere and to honour the courage and resource, the energy and patience, the genius and knowledge which characterised such men as Hahnemann and his faithful disciples, who counted nothing too dear to spend in the pursuit of knowledge, if haply they might bequeath to the generations following a system of therapeutics which should afford a real basis on which to select a medicine. This doctrine, then, applies solely to that part of the treatment of disease which relates to the use of medicines. The earliest mention of the doctrine of the law of similars occurs in books of Hippocrates, to whom we owe this suggestion; reference is also made to it by several medical authors of the eighteenth century, E. G. Stahl, and von Stoerck, but though impressed with the importance of the

doctrine they took no pains to render it of any real advantage in medical practice. This honour was reserved to our illustrious Master, whose unwearied labours included translations into seven foreign languages of his own books, and those of other authors, the provings of medicines on himself, and preserving the records of drug-provings on others. He commenced a research into the records of medicine, examined reports of drug-poisonings; he then studied all the cases of cure by these same drugs that he could find. In *Hufeland's Journal*, 1786, he inserted an essay, entitled, "A New Principle for Ascertaining the Curative Properties of Drugs"; this thesis met with vehement and malignant opposition, because it avowed the contention *similia similibus curentur*. He defended his position before the faculty when a candidate for the post of extra academical lecturer. He attracted an ever-increasing band of enthusiastic disciples, and practised his profession regardless of the scorn and contumely which assailed him from professional neighbours until he was finally expelled from Leipsic. The sojourn in Köthen secured a truce to his persecutions, and he became very popular. On the death of his first wife he married a French lady, who induced him to move to Paris, where he practised until his death in 1843.

He was an early advocate of hygiene, and far in advance of his time in what is now known as preventive medicine. Equally so was he in the treatment of the insane; he was also the author of valuable papers on chemistry. We have, therefore, abundant evidence of his versatile talents. Of his immense industry we have ample proof, and we may not overlook his marvellous self-sacrifice, perseverance, and energy; how he executed his task of proving drugs upon his own person (which he considered a sacred duty), but from which any ordinary mind would recoil in dismay; when he says we have to do with an art whose *end* is the saving of human life—any neglect to make ourselves thoroughly masters of it becomes a crime.

Since the death of Hahnemann no one has occupied such a prominent place in the homœopathic world as Constantine Hering, a man of original genius, an acquisition

to any sphere in which he elected to move. His career was one long succession of brilliant services in the method of Hahnemann. In 1827 he testified to the value of *cocculus* in *mal-de-mer*, and of *merc. cor.* in spongy states of the gums in his own personal experience. His life was a ceaseless enthusiastic devotion to duty, consistently working out the plans of treatment initiated by Hahnemann. He was a diligent author and compiler of manuals, an exhaustive prover of drugs, and at his death was preparing the proof-sheets of a third volume of "Guiding Symptoms." His influence was immense, a man of many parts, combining learning, simplicity, consistency. The most important of Hahnemann's earliest disciples was Stapf, whose *Archives* are among our earliest studies—a man of brilliant talents, great erudition, and marked amiability; a great prover of drugs. Then we have Gross, who became a critic of the system he had espoused; and then Hartmann, of whose literary activity we have abundant evidence, and whose provings are familiar to us; and what shall we say of the indefatigable Jahr and his *opus magnum*, to which we still refer as a mine of valued revelation; and Rückert (a diligent prover of drugs), who along with Lux became the originator of veterinary homœopathy?

Such were Hahnemann's earlier followers, fired with such zeal as can only be found in young men highly-gifted, untainted, and untrammelled by effeminate and enervating luxuries; unfettered by the chains of orthodoxy, unable to squander their time and resources in frivolous pursuits; they were, like the first disciples of Christianity, prepared to endure hardness; to labour and to wait; and their very ostracism bound them the closer to one another; undeterred by obloquy and scorn, privation or poverty, they pursued their course with zeal and steadfastness. Emerson has said: "Genius is like diamonds, best set in poverty, set in lead," and so the conjoint labours of these young men constitutes the foundation stone of homœopathy—"the *materia medica*"—which succeeding generations have built up. Their conviction of the truth and value of homœopathy was a talisman against all the opposition

which they encountered. They induced many older and maturer members of the profession to study homœopathy, among whom were many distinguished men.

Since that day what a long array of mighty names could be enumerated whose labours and contributions to the literature of our art we so highly prize, and have furnished a storehouse of facts from which we gather immortal palms! The time would fail me to tell of Boënninhausen, Lutze, Lilianthal, Ludlam and Carrol Dunham (of immortal memory), of Jousset and Clotar-Muller, Neidhart and Meyhoffer, "who live in minds made better by their presence." It has been our privilege to associate with some of the foremost writers on medicine and *sciences* collateral thereto, Drysdale, Stokes, Dudgeon, Black, Yeldham, Gibbs-Blake, Bayes, Hayward, Moore and Richard Hughes, for whom we gladly tender this panegyric: "that their works will follow them." This, then, is the heritage of all who come under the benign influence of homœopathic teaching.

Peculiar privileges bring with them peculiar responsibilities, among which we recognise fidelity to principle (in matters of expediency, second thoughts are often dangerous—on points of duty, they are fatal). What a solemn thing it is to live this life of glorious opportunity, heirs to the thoughts of the wise, enriched with such fruits of experience and research as have been handed down to us.

Let us consider what it is we expect with a new truth introduced to a body of men whose earliest and highest aim (after graduating) is, in most cases, to secure a position of influence and even of affluence, only a tithe of them being men of science, and all more or less dependent on the suffrages of the wage-earning classes. The majority of the medical profession have deemed it expedient to assume a hostile attitude to this new doctrine, and diligently to foster and inculcate derision and incredulity on all who come within the range of their influence; such moral degradation would be discredited in any other relation of life. No policy is too astute or subtle to attribute to masterful, self-willed persons. It is not evidence they seek, but the quiet enjoyment of their own opinions, unheard and unexamined. There is an

indolent element in all of us, which tempts us, if possible, to ignore new doctrines and to elbow out their apostles—no doubt it is humiliating after one has been accustomed to teach anything to be called upon suddenly to profess something quite different. Society everywhere is in conspiracy against the manhood of each of its members; the virtue most in request is conformity; its *bête noir* is honest enquiry.

The process of snapping the chains of useless and irritating customs should be short and sharp. What reverence can be due to methods of treatment consecrated solely by long-prevailing usage, whose existence can be justified only by use and wont, in the face of obvious inutility? Incurable superciliousness, which condemns all things and all men (beyond the range of one's intimates), may or may not lead to the attainment of supreme wisdom in the atmosphere of superfine academic coteries, but in the region of medicine it is the creed of the sciolist, and leads to disaster. Our opponents are fully aware of the advantages which arise from the administration of many specifics, which act upon the organism by virtue of their homœopathicity, *e.g.*, mercuric-chloride in dysentery, aconite in fever, rhus-tox in rheumatism, &c., and now that these drugs have superseded the formerly prescribed polypharmacy, leading men keep silent, or explain away their action on eclectic or antipathic theories, revile as quacks those who have the honesty to confess the sources from whence their knowledge is derived, while they can plagiarise without the risk of exposure to censure. Thousands of medical students are distributed over this country from year to year, whose mission appears to include uncompromising hostility to homœopathic principles and towards the men who honestly practise them. Our recruits include a few high-minded men whose docility permits them to seek the Truth, come whence it will, cost what it may. We cannot marvel that so few men are willing to undertake a post-graduate course in order to obtain knowledge which will entail a life-long martyrdom. Now, while it is highly desirable that we should be recognised as honest and earnest aspirants after

a more perfect method of therapeutics than has obtained hitherto, we shall never attain this satisfaction by any other argument than is enforced by the testimony of personal experience, and surely the crowds who flock to our hospital and dispensaries afford eloquent proof of popular appreciation. But the reluctance of the statesmen, merchants, solicitors, and tradesmen to trust a system which is misunderstood, misrepresented, and unpopular, can only be explained by the epigram: "Many people refuse to look into a truth because they despise it," and the reason they despise it is because they have not examined into its merits. Bigotry and intolerance have done more to retard progress, in every avenue of human effort, for the increase of knowledge and the betterment of the human race, than all other causes combined. It is, indeed, a happy thought and a glorious inspiration to contemplate the slow, but sure, process of mental emancipation that has been in progress for more than three centuries. As members of a noble and humane system of medicine, we should encourage in every way the spirit of research and investigation, but never lose sight of the fundamental principles of our belief. The early triumphs of Hahnemann's contemporaries were secured by strict individualisation, finding out the totality of the symptoms in each case, clear, full, exact, and characteristic. If our school (in the language of Hering) ever gives up the strict inductive method of Hahnemann we are lost, and deserve to be mentioned only as a caricature in the history of medicine. The law of similars is, in homœopathy, what the vital spark is to the human frame. To preserve this law inviolate should be the earnest desire of all true men and every honest physician.

Experience has proved to us the vast advantage which attaches to the observance of so simple a plan of treatment. In wonder our knowledge began, in wonder it ends, and admiration fills up the interspace. How vividly first impressions imprint themselves on the memory! I recollect my earliest interview with Dr. Drysdale was at the bedside of a girl who was suffering from gastric ulcer. Nothing could be retained. She had all the symptoms indicating

arsenicum. After several doses of the 30th potency, improvement began, the intervals between the doses were prolonged, and shortly all her sufferings ended in recovery. In like manner, at the suggestion of Dr. Hayward in 1867, I found kali bichromicum the remedy for a syphilitic angina. The "Cypher Repertory" described it under "varieties, ulcer on soft palate the size of a barley-corn, suspected by the surgeon to be syphilitic." The promptness of the healing deeply impressed me, and I have always tried to compare my cases with the corresponding symptoms, so easily found in this repertory. It has been my wont to carry about with me an interleaved copy which is filled with copious notes, and while driving to work up my cases. The greater the care bestowed on the individual case when first seen, the more satisfactory the result will be. I can never be too grateful to the authors of that concise and accurate and workable guide, the "Cypher Repertory" which has been bequeathed to us by the industry and patience of its authors. I trust when their names are blotted out, and their places shall know them no more, the energy of their services will remain to embalm their memories on the hearts of the future representatives of homœopathy. What facilities are *now* within our reach compared with the literature available thirty years ago. We seem to be fully equipped with text-books on almost every disease. "Kent's Repertory" and "Buhlmann's Manual" are the latest additions to our resources. By the completion of the "Cyclopædia of Drug Pathogenesis" with its perfect index (the last great work of Richard Hughes), what more can we desire but to exhibit our profound gratitude for the humble, constant, voluntary self-sacrifice of our authors, who spent their lives I fear, in some instances, in labouring for the good of posterity.

I have oft-times wondered how it was that our predecessors worked out such excellent results with such scant material, and felt grateful to them for such a legacy as their works of faith and labours of love have proved to be. We remember always that infallibility is not a human attribute, it is only an indication of weakness and intolerance to decry

and denounce our neighbour because his opinions are not in harmony with own own. There is ample scope in the domain of medicine for the exercise of all the talents, whether they be those of the author, the prover, the specialist, the surgeon, savant or the theorist. High and low dilutions have their sphere of practical utility according to individual demands. I have seen nux. v. in pure tincture cure a chronic diarrhoea, recurring each morning, and sulphur 30 remove another case very similar in its nature. Sabina 3 is the drug which is recommended in cases where warts on the fingers are concomitants of menorrhagia at the menopause, and most effectual it has proved. Gelsemin is invaluable in post-diphtheritic paralysis, when given in the dilutions, while the pure tincture seems best in the cerebral erethism, which occurs in delirium tremens, and who among us has not been delighted with the action of merc. cyanide 12 and 30 in the gravest forms of diphtheria, when it is indicated, in perhaps the majority of cases we meet with, or in the rare instances in which you find the triune group of indications for arum triph., "ichorous fluid" *from nostrils*, putrid sore throat, enlarged submaxillary-glands? We find dioscorea subdues the colicky pains which are *aggravated* by bending forward, herein differing from colocynth, which cures cases which are *ameliorated* by stooping. Again, who has not long ago decided to treat primary syphilis with *material* doses of mercury and gumma by the use of the potassium iod., or the alopecia sequela by lycopodium, or ulcerations of buccal mucous membrane with the red precipitate?

What more reliable specific for strangury can be found than cantharis 30, or for infant's colic than chamomilla high? For all these inestimable hints we are *indebted* to the patient, steady, plodding investigations of men who seemed to live for the sake of those who should hereafter embrace the rule of practice we are glad to pursue, of which we are proud. We cannot allow the impeachment "what their care bequeathed to us we recklessly reject."

Perhaps we may have laid ourselves open to the harsh criticism of our opponents by our inconsistency in isolated

cases, emergencies *will* arise in which *our* anxiety and the *importunity* of *pseudo-friends* impel us to seek some one who will share with us the solemn responsibility of being in charge of a hopeless case; for my own part I have never been willing to allow an ordinary practitioner to wrest a patient from my charge if I could avoid such a rebuff, but generally it is safe to explain that palliation is all that can be looked for, and that we are not averse to the relief of suffering, whatever the course may involve which secures that object, consistent with ultimate recovery, or even an easier passage to the grave. The possibility of postponing an operation for typhlitis, or strangulation, until it is past hope, prompts us to crave the surgeon's intervention early enough to save the life. Duty demands immediate decision, and we earn the approval of all interested by being equal to the emergency and loyally standing aside while the sharp remedy is rescuing the patient. Several instances could be cited by any of us, in which disaster has followed hesitation after a clear realisation of the gravity of the situation. One illustration shall suffice: An intelligent merchant, aged 70, sent in one night for me to go immediately to his house. I found him suffering from a large abscess at the root of the penis. I offered to relieve him at once; when he saw my lancet he violently abused me. "You a homœopath, and want to cut me; no sir, I'll never submit to that." I left him without any further altercation. Next day a very hurried demand was made, and I obeyed, only to find that the abscess had opened into the bladder, the urine escaping through the external opening; I suggested the use of a prostatic catheter, he was obdurate, and I saw him no more till his sufferings compelled him to seek help. Then there was a mass of fungous granulations surrounding the urinary fistula in the perineum, and I warned him of his perilous position. He consented to see an eminent Liverpool surgeon, who passed a catheter every morning and night, for ten days, when he died. Cases of suspected pregnancy often baffle our diagnosis and expose our reputation to irreparable doom. The opinion of a specialist is of

incalculable value in such crises and we need not hesitate to secure it.

On the other hand we should learn to trust our remedies. We have reason for exultation in the knowledge we possess of the value of drug action in hæmorrhages (with which we often have to deal). The action of phosphorus 6 has apparently rescued a life which was threatened by copious, prolonged loss of blood from dental operations, after the failure of vaunted specifics (like iron perchloride and gallic acid). I have known serious danger to arise in the diarrhœa of drunkards, when a curious characteristic of theridion led to its use with brilliant results, and for my own part I make bold to tell my *confrères* of the old school what immunity I now enjoy from many perplexing crises through which I formerly passed. In a few cases they consent to test my expedients, and herein we realise the expediency of maintaining the most cordial relations with our neighbours. Last year I met an accoucheur who had attended a labour which was followed by exhausting diarrhœa, persistent vomiting, tumid distended abdomen, rapid feeble pulse and cold sweats, offensive lochia and urgent thirst. Temperature 104°, restlessness. Arsenicum 6 was followed by such marked improvement that my friend exclaimed:—"You had better undertake the case, you are being well paid, while my fee is 2s. 6d. a visit, and if she recovers you deserve all the credit." She did recover. I took the precaution to secure his consent before I obeyed the summons of a lady, whose servant the woman had formerly been, and I became a confirmed believer in the adage, "He who hath a thousand friends has not one friend to spare, and he who hath an enemy will meet him everywhere." Especially is this attitude of magnanimity and trust essential to the preservation of friendly relations with the little band who constitute our only hope in troublous times. One has said: "If the contributions of human spirits to one another's enlightenment are to fructify to the utmost, it will be necessary for us to recognise the merits, rather than to signalise the defects of our companions and friends." I have presumed to express my opinions on this point in

the confidence that you will extend to me the indulgence which grey hairs and long knowledge so often secures.

In taking a survey of the present position of homœopathy in this country we confess to a feeling of perplexity and depression, but in Drysdale's words we must remember that we are trustees for a great medical truth which has already been of incalculable benefit to humanity, and which promises to be still more beneficent when the bulk of the men of science, who are beginning to follow our footsteps in the study of the physiological action of medicines shall pursue that study fully, completely and openly, as science demands, and not ignoring one whole department, from craven fear of personal loss. If we cannot triumph in forcing the truth of the homœopathic law on the profession by partisan tactics (in old and settled countries where new licensing bodies cannot be obtained), it is equally impossible that the homœopathic name, as a whole, in books or periodicals, or in practice, and the partisan position, can be removed by any tactics we can devise, hence it is impossible for us to put an end to the division of the ranks of medicine into allopathic and homœopathic camps.

The time has gone by when any advantage can be expected to follow any methods of conciliation, but the eloquence of reason, always more potent than the eloquence of passion, must ultimately triumph. A patient continuance in consistent adherence to our principles will overcome all the obstacles to the progress of medical science and practice, an assurance which observations and reflections force upon our minds. There is no argument which can refute the production of *facts*, naked and unadorned; *they* are still an instant and immediate force carrying conviction to any ingenuous mind. This is not a thinking age for the multitude, only a few, in the tumult and turmoil of each day and in the race after riches and honours, are inclined to forsake the beaten track of custom in search of a more excellent way; hence it is that our young practitioners and students claim our profound sympathy and help. "To destroy the poison-fangs of faith in ourselves we must subordinate it to the love of truth—the supreme worship of

what is true is the only means of purification for all sects." (Amiel.)

Emancipation from error is the condition of real knowledge. Hence it appears to be our bounden duty to endeavour on all available occasions to influence every man who comes within the range of our enticement, by explanation and illustration of the rules of practice we profess, to commend it to his careful consideration and pursuit. We sorely need recruits to fill the serried ranks which death and disaster have revealed. Our fathers were chivalrous, *industrious*, beyond all we could ever hope to attain, but perhaps each of us can influence at least one student to take up the pursuits which we must soon vacate, and so avert the decimation of our ranks, which seems threatening the very existence of homœopathy. On the other hand, we are encouraged by the marked success which has attended the efforts of the British Homœopathic Association, with its able industrious organisers. We *have* the hope, we *cherish* the belief, that by the exercise of much prudence and firm adherence to the principles we profess, that many may be induced to look into the rich treasure-house from whence we are supplied, for weapons which shall serve their purpose in combating disease, and that future generations will embrace the truth of the law of similars.

FINALE.

We cannot consider a wholly derogatory estimation of every other method than our own, as a necessary consequence of our adherence to the latter. The healing art is so far from having attained to a state of perfection, that no school has the right wholly to despise or reject the other. We recognise the old method as a grade of advancement in the healing art, but according to our conviction more imperfect than our own. The knight of old proved his deep affection to his lady by assuring her, "I could not love thee, dear, so well, loved I not honour more." Do we always speak of homœopathy as dear to us because we love medicine more; as of value, not because it is our opinion, or because it is our mode of livelihood, but because it is a

precious addition to medicine ; is it homœopathy or medicine we serve ? All we need is honest enquiry, an enquiry which will ensure the triumph of truth over error. In our contention for the superiority of our system we should be prepared at all hazards to furnish substantial proof by our consistent allegiance to the rules we profess to observe. Men will see our good results and emulate the example we put before them.

And now, gentlemen, I have endeavoured to express the views which a retrospect of the past and prospective homœopathy have formed in my mind and the lessons to be learned. Permit me to express my grateful appreciation of the unvarying courtesy, the unstinted kindness, the ungrudging indulgence you have extended to me in the past, and wherever our lot may be cast in the future may we be helpers of each other's faith and serenity. The world has a sure chemistry by which it extracts what is excellent in her children, and lets fall the infirmities and limitations of the grandest minds. So we can always feel justified in following the lead of those who have been "wiser than their time for the advancement of the race." To help forward the increase of good in the world, this modest ideal is enough for us.

I can find no more fitting words with which to close than the words of Hahnemann : "Our heart needs no political lever, no worldly badges of honour in order to become something. Amid all the rank and unsightly weeds that flourish round about it it grows gradually from a small acorn to a slender tree, already its lofty summit overtops the coarse vegetation around it. Only have patience, it strikes the more certainly, and in due time it will grow to a lofty oak, stretching its great arms, that no longer bend to the storm, far away into all the regions of the earth, and man will be refreshed under its beneficent shadows, or we may quote the peroration of a great statesman, when depressed by the spectacle of popular imbecility, he said : "You cannot fight against the future, time is on our side, and the great forces of progress which move onward in their might and majesty, and which the tumult of the masses can

neither retard nor disturb, these forces are against you, they are marshalled on our side, and the banner which we carry, though it may for a moment droop beneath our sinking head, yet it shall be borne aloft in the eye of Heaven, and be carried to a certain, if not to a speedy victory."

SOCIETY NEWS.

NEW MEMBER.

At the meeting of the Society in December, Robert Montagu Le Hunte Cooper, M.D., B.S.Dunelm, M.R.C.S., L.R.C.P.Lond., of 17, Stanley Gardens, Kensington, W., was duly elected a member of the Society.

DEATH OF DR. ROBERT T. COOPER.

Dr. Robert T. Cooper, whose death took place on September 13, and the record of whose active, useful and remarkable life has appeared in the Monthly Homœopathic Journals, was a member of the Society from 1869 until 1896, and was vice-president in 1889. Since 1896 Dr. Cooper had withdrawn his presence and influence from the Society, devoting his public therapeutic labours to the development of his theory of arborivital medicine, an account of which can be read in his published works.

LIVERPOOL BRANCH.

Report of Session 1902-1903.

The work of the Session began on October 9, 1902, when the President, Dr. Cash Reed, delivered the Inaugural Address. A most successful clinical evening held on May 21 brought it to a close. Eight meetings were held, the remaining six on following dates, with papers. November 13, 1902, "Some Diagnostic and Prognostic Methods," Dr. S. Whitaker; December 11, 1902, "Some Recent Clinical Cases," Dr. A. E. Hawkes; January 8, 1903, "Alcohol in Therapeutics," Dr. C. T. Green; February 8, 1903, "Some Aspects of Nervous Disease," Dr. Edmund Hughes; March 12, 1903, "A Clinical Evening"; April 16, 1903, "The Methods of Static Electricity," Dr. Gordon Smith.

The Society now numbers thirty-five members, as compared with thirty-four at the corresponding date last year. The Balance Sheet shows a satisfactory balance in hand.

SUMMARY OF PHARMACODYNAMICS AND THERAPEUTICS.

Extracted from Exchange Journals by the Editor in collaboration with J. Galley Blackley, M.B., D. McNish, M.A., M.D., and T. G. Stonham, M.D.

Agaracine in Chorea.—Professor H. V. Halbert relates a case of chorea in a girl which had developed while in hospital, subsequent to a mastoid operation. No other predisposing cause could be found, and there was no history of rheumatism. The movements were unusually severe, the hands being in constant motion, and some of the facial muscles were implicated. She could get little rest except in sleep, which was also disturbed. Natural functions regular and normal. Agaracine 1x was given for a few weeks without result, but on changing to the 3x potency improvement at once commenced, and was continuous to recovery. (*The Clinique*, June, 1903).—T. G. S.

Aloes.—Dr. F. F. Laird, of Los Angeles, California, in an interesting article on aloes, begins by pointing out that aloes will not act except in an alkaline medium. To establish this point he gives quotations on the physiological action of the drug from most of the principal authorities on pharmacology. These are to the effect that to man fed on meat exclusively aloin is a very active purgative, but is not so to persons living on a mixed diet. In the former case the less bulky chyme becomes neutralised more quickly by the alkaline bile and pancreatic secretions, and so there is provided in the small intestines the alkaline medium necessary for its action, while on a mixed or farinaceous diet the acid fermentation of the carbohydrates keeps the digestive fluids more or less acid till the ileo-cæcal valve is passed, and therefore the aloin is less active and not so soon absorbed. Similarly aloes has little or no purgative action when given alone in water as an enema, but is active if mixed with ox-gall or with carbonate of potassium, as in the enema aloes of the British Pharmacopœia.

In the same way if aloes is injected hypodermically into the

blood when neutral or but faintly alkaline it will have little or no effect, while the same injection following the internal administration of the alkalies will produce powerful purgation.

Proceeding to explain the mode of action of aloes, Dr. Laird adopts the theory enunciated by Sajons in his "The Internal Secretions and the Principles of Medicine," to the effect that the physiological tonus of both striped and unstriped muscular fibre is maintained by an oxidising substance secreted by the adrenal glands, whose functions are controlled by the sympathetic nervous system. Stimulation of this system increases the output by the adrenals of the oxidising substance; paralysis of the same produces the reverse. Further (1) inefficiency of the adrenals is followed by engorgement of the central vascular trunks (splanchnic area) and depletion of the peripheral capillaries as indicated by general pallor (as in *æsculus*); (2) over-activity of the adrenals causes contraction of the central vascular trunks and engorgement of their peripheral capillaries. This is effected by aloes, which illustrates adrenal overactivity in its stimulation of unstriped muscular fibre in the central vascular trunks and hyperæmia in the tissues of the splanchnic area, especially the liver, colon and rectum, supplied by the peripheral arterioles and capillaries in connection with them. Here aloes contrasts with *æsculus*, which in place of active hyperæmia causes passive congestion of the same tissues. Again aloes presents increased arterial tension, with strong full pulse, diarrhœa, and bleeding (*i.e.*, capillary and arterial) piles; *æsculus*: decreased blood pressure, constipation, and non-bleeding venous piles. The aloes' patient is always hungry and hot, and is better from cold and cold applications; the *æsculus* one has anorexia, is too cold, and has relief from heat and hot applications. Heat is pre-eminently a symptom of aloes; a feeling of great internal and external heat without fever is typical in its bilious conditions; weight and tightness and throbbing are frequent accompaniments. Heat pressure and tension in the region of liver, irritative warmth throughout abdomen, weight in rectum as if full of hot fluid, flatulent pain in splenic region relieved by passage of hot offensive flatus, diarrhœic stools are scalding, urine hot and scanty.

Increased peristalsis is always present when aloes is the remedy, hence the hurrying to stool and to pass water, and the insecure feeling from the peristalsis overcoming the sphincters, and the unnoticed passing of formed stools, which sometimes occurs in children and the debilitated. Similarly the increased rhythmic contraction of the uterus gives the feeling of insecurity

as if hæmorrhage would take place at any time. (*The Clinique*, August, 1903).—T. G. S.

Analgesia. Local production.—In a lecture delivered at University College Hospital, on July 11, 1903, Mr. A. E. S. Barker, F.R.C.S., mentioned a method for the administration of local anæsthesia. The method is based on the experience that anything which retards or diminishes the circulation of the blood in a part enhances the potency of the analgesic agent. To effect this purpose of diminishing the circulation he injects with the analgesic agent—B-eucaine—a small quantity of adrenalin, and finds that the results of the combined solutions of B-eucaine and adrenalin are far superior to those produced by B-eucaine alone. The solution is prepared as follows:—Powders, each containing 3 grains of B-eucaine and 12 grains of sodium-chloride are kept in thick, glazed paper ready for use. When needed one powder is dissolved in $3\frac{1}{2}$ fluid ounces of boiling distilled water and 1 cc. of Parke, Davis and Co.'s solution of adrenalin chloride is added when the fluid is cool. This solution warmed to blood heat is injected freely into the part to be operated on, due regard being paid to the position of the principal nerves supplying the part, so that they may be well bathed in the fluid. It is necessary to wait twenty minutes for the full effect of the injection to develop. The whole field of operation should be blanched and insensitive to pricks but not to touch. The incision may then be made with confidence that no pain will be felt. The absence of oozing of blood is noticed; only large vessels bleed at all.

Mr. Barker has used this method in thirty operations including the radical cure of hernia, orchidectomy, removal of varicose veins, psoas abscess, loose body in knee, colotomy, Thiessel skin grafting, and cystic adenoma of the thyroid. (*The Lancet*, July 25, 1903.)—T. G. S.

Causticum in Neuralgia.—Dr. G. P. Howard, of Denver, Colorado, records the following case as illustrating the value of remote symptoms in the selection of the remedy. Mrs. N., 34, three children; dark eyes and hair; stout but active. Neuralgia for three weeks, right side of face, beginning at the angle of the jaw, extending up into the ear, eye, and whole side of the head. Dry and moist heat, morphia, "hot liniment" and antikamnia had palliated only, and the stomach was beginning to give trouble. On Dr. Howard taking the case in hand the patient was discouraged and apprehensive. She suffered from a drawing pain

starting in the right side of face, along the ramus of the jaw, and extending upward to the ear and eye. The lid seemed heavy and the cheek numb. Much saliva secreted in the mouth and throat, with itching down the throat, but she must suppress a cough as it aggravates the pain in the eye and ear. Absolutely restless on account of the pain. No appetite or thirst. Inquiry elicited as a remote symptom a partial paralysis of the bladder, which at times gave trouble, sometimes causing incontinence and sometimes retention of urine. Two doses of causticum 2 gave immediate relief. Another dose next day was all the medicine given, both neuralgia and the bladder trouble vanishing, and after six months had not returned. (*Progress*, August, p. 24.) *Progress* is a new journal emanating from Denver, Colorado, under the business management of James B. Brown, M.D., and Department Editors.—Ed.

Formic Acid. *Production in Acute Rheumatism.* — The evidences regarding the infective nature of acute rheumatism have been greatly strengthened during the last few years. It is now pretty well established that the disease is due to a particular variety of coccus, whether this be described as a diplococcus, streptococcus, or not. It has given positive inoculation results, thereby fulfilling the necessary criteria of a pathogenic organism. In the course of a recent paper communicated to the *British Medical Journal* by Dr. Ainley Walker, who has been working at the subject, it is stated that the appellation of micrococcus rheumaticus appears to be more in accordance with the requirements of systematic bacteriology. In association with Mr. Ryffel, demonstrator of chemistry at Guy's Hospital, Dr. Walker has studied the pathology of rheumatism, more especially from the chemical aspect, with a view to obtaining further evidence as to the production of acid in that disease. The same observers a short time ago came to the conclusion that it was not lactic acid which was concerned in the rheumatic process, and now the interesting statement is put forward that the micrococci produce formic acid in considerable quantity, and that this substance appears in the urine in appreciable amounts in rheumatic fever. The acid is not only present in the filtered cultures, but also in the bodies of the organisms themselves. Although the subject is still being pursued further, this fresh discovery is one of great importance, especially as it opens up the possibility of the explanation of the beneficial effect of the salicylates in acute rheumatism upon chemical lines. (*Medical Press and Cir-*

cular, September 30, 1903.) This is interesting in reference to the fact that bee stings are prophylactic and curative in rheumatism. The above has been communicated by Mr. Wilkinson, of Windsor.—T. G. S.

Ichthol. *A proving.*—The students and alumni of the New York Homœopathic College, together with two female volunteers have recently proved the drug known by the name ichthol. The proving was conducted under a plan devised by Dr. W. G. Crump, and all modern precautions in the way of observation of previous history, habits, &c., and examinations were observed. It should be noted that ichthol ($C_{28}H_{36}S_3O_6(NH_4)_2$) is soluble in water and in a mixture of equal volumes of alcohol and ether, is miscible with oils and glycerine, but is insoluble in strong alcohol or concentrated ether. It contains a large percentage of sulphur in a form which is at once soluble and readily assimilable. The following summary of the general action of the drug as revealed by the provings is given by Dr. Dieffenbach, who was chiefly instrumental in conducting the proving and publishes it: The principal action of the drug is on the mucous membrane of the nose and throat; on muscle tissue, producing rheumatic pain, and markedly on the urine and the female sexual organs. Most of the provers had increased appetite and, after taking the drug for some time, a marked feeling of well being. Stool became free, and in some cases diarrhœic and offensive. A languid feeling with mental torpidity while actually taking the drug was usually followed by a feeling of improved vigorous health when the drug was left off. The skin showed changes resembling pruritus, acne and urticaria. Rheumatic pains in different parts were noted. Nausea was produced by strong doses. The urine showed important changes. Increased micturition was noted in all cases, with a change in colour from the usual straw (No. 3 Vogel) to a dark or reddish tint (No. 4, 5, 6). The solids were increased, also the sulphates ($BaCl_2$ test). In many cases uric acid was deposited in the form of brick dust or red sand, which microscopically proved to be the lozenge-plate and gravel form of uric acid crystals. Calcium oxalate crystals were found in a few cases, and in several instances the passage of the crystals produced a mild inflammation of the pelvis of the kidney (mild catarrhal pyelitis) which in the writer's case disappeared after six months, when the urine had again become normal. The drug acted as a uterine stimulant. In Miss X.'s case menstruation had previously always been accompanied by nausea. Since

the proving she had been remarkably free from this menstrual annoyance (five months later at the time of writing). Dr. Dieffenbach points out that ichthyol is likely to be a valuable remedy in the uric acid diathesis, either directly or in any of its secondary manifestations. In hay fever, whooping cough, dry bronchial coughs and gonorrhœa, it may be also indicated. The symptoms of the provers are given in schema form, initialled, and the dose of the drug under which they were produced.—(*The Chironian*, published by the alumni and students of the New York Homœopathic College, July, p. 16).—Ed.

Irrigation in Postpartum Septicæmia.—Dr. A. B. Knowlton writes:—In a case of postpartum septicæmia the first procedure should be a careful curettage, and this should not be postponed longer than the first twenty-four hours of positive involvement. After this it is my advice that *continuous irrigation* should be instituted and maintained until fever, sweats and rapid pulse disappear. . . . I recall one case which most assuredly would have died had I not resorted to continuous irrigation. I practised repeated curettage and administered an intrauterine douche every three hours. The patient grew steadily worse until I stopped both procedures and substituted continuous irrigation. In a case of broad ligament pregnancy taken to my infirmary, I found it impossible to keep temperature and pulse down by even so frequent irrigations as every hour. I substituted continuous irrigation and continued it for nearly two weeks using one hundred gallons of fluid every twenty-four hours. This was necessary as long as the hæmatoma continued to slough. Both these cases recovered. I have employed continuous irrigation in private houses by using only the fountain syringe, the tube of which was constricted sufficiently to permit only a slow flow. I have on one occasion where it was impossible to obtain sterile water, instructed the family to keep the flow on even if they had to use lukewarm non-sterilized water—in this case, however, bichloride was used by me twice each day. The patient recovered.—(*Hom. Journal of Obstetrics*, September, 1903, p. 461.)—Ed.

Petroleum and Sea-sickness.—F. Kopp, of Greenwich, N.S.W., gives an account of his experience with the use of petroleum in sea-sickness. He swallowed a 2-grain powder of the 2x trituration directly the feeling of nausea began to steal over him. In ten minutes the dose was repeated, and the nausea disappeared. It came on again later, but soon vanished after

taking the powders. Several children under observation were treated in the same way with success, also a lady and gentleman who had been supplied with the powders. (*Homœopathic World*, October, p. 451.)

Petroleum has often been used in sea-sickness, but attention might be directed to its employment in the form of trituration, thus avoiding an introduction into the stomach of fluid in any bulk.—ED.

Smallpox. *Immunisation by Variolinum.*—Dr. A. M. Linn gives an account of the use of variolinum in place of vaccination for the prevention of smallpox. Variolinum is the clear serum of the smallpox vesicle just prior to its becoming pustular. It is used in any potency from the 3x upwards. From three to four doses of a 2-grain powder daily is the usual method of exhibition until the characteristic effects have been produced. Its effect is especially manifest in non-immunised persons in from three to ten days by the development of a majority of the following symptoms, viz., chilliness, backache, headache, fever, nausea, prostration, diarrhœa, and dizziness. The writer has record of several scores of cases thus immunised by the 3x, 6x, 12, and 2c potencies. The question arises as to efficacy, in reference to which the following evidence is offered: During the past two years smallpox prevailed in many districts of Iowa, including Des Moines, the residence of the writer. In one house a fatal case of smallpox occurred. Four other members of the family took variolinum, and remained all the time in the house. No other case occurred. A few months afterwards another member of the family who had been absent and not immunised contracted the disease. The variolinum was taken again by the others. No other cases.

In a family of seven three children were severely ill with smallpox. None had been vaccinated. All the others had variolinum, and although they mingled freely with the sick members no other case occurred. Numbers of persons immunised by this method have been employed as nurses. No authenticated instance has been noticed by the writer where this method has failed. No immunised person can be successfully vaccinated. Neither will a recently vaccinated person be affected by variolinum. When characteristic symptoms have been provoked and ceased, which takes from three to seven days, certificates of immunisation have been given. (*North American Journal of Homœopathy*, November, p. 681.)—ED.

Solanum Nigrum in Congestive Headache.—F. Kopp reports the case of a young man suffering from severe headache of a throbbing character in the forehead. It was aggravated by movement and stooping. A misstep sent violent pains through both temples, and a feeling as if the brain would burst from the forehead. The face was red and bloated, and there was throbbing of the carotid arteries. A pulse of 95, hot skin, and excessive thirst. *Solanum nigrum* 1x m ii. every two hours was given. The next day the headache was much relieved, and gone the day after, a bruised feeling in the forehead only remaining. (*Homœopathic World*, Oct., p. 451.)—ED.

Urinary Organs. Symptomatic Indications.—Dr. Cushing, of Springfield, Mass., records a case of hæmorrhage from the prostate diagnosed from the symptom of bleeding on the beginning of urination stayed by *Saw palmetto* in the 3x dilution. In the painful urination of old people, also in hæmorrhage from bladder inflammation *polytricum juniperum* is recommended in the mother tincture. For relief of pain in urinary calculus *chamomilla* is valuable, and for the prevention of attacks of colic *apocynum androsemifolium* in the 3x dilution continued over some weeks with gradual diminution in frequency of dose. Dr. Cushing reports some cases of albuminuria cured by *phaseolus nana* given in the 25th dilution prepared by himself. Albumen over 2 per cent. with evidences of disorganisation of kidney structure were entirely cured. The remedy seemed to increase or cause headache at first, but on its cessation this symptom disappeared, and the cases went on well. (*North American Journal of Homœopathy*, November, p. 693.)—ED.

Xerophyllum.—Dr. H. R. Arndt draws attention to a recent proving of *xerophyllum* by the students of the Hahnemann College of the Pacific, commending it and summarising the results. *Xerophyllum* bears a considerable similarity to the action of *rhus*. The dermatitis set up in one prover was very marked, and a repetition of the proving several weeks after the last dose of the previous one reproduced the same symptoms, with the addition of nervous symptoms of great severity. The prover had some years previously been poisoned with *rhus*, and it was suggested that the *xerophyllum* had aroused a latent tendency to the skin inflammation, but Dr. William Boericke, who had had considerable experience of *rhus* poisoning, gave it as his opinion that the condition of the prover was not due to *rhus* poisoning. Blisters with much itching and yellowish-

looking contents appeared on the body of another prover. There was dulness and depression in the mental sphere, headache, in many cases frontal, but also involving other regions, in character dull, heavy, or sharp and severe, and sometimes with nervousness and irritability. In two provers each repetition of the dose brought on recurrence of severe headache, each of distinct type. Severe backache and various pains in the extremities with trembling and muscular weakness were noticed in some cases. Sleep in the main was disturbed, troubled and unrefreshing. Some provers described a difficulty of remembering names and terms, of sustaining any mental effort, even conversation, and had the tendency to misspell words. The mucous membranes were affected. Soreness of eyes, itching of the lids, smarting and blurring of vision. Oral, nasal, pharyngeal and respiratory catarrh were produced. The stomach was deranged with a sense of fulness, weight and indigestion. Intestinal flatulency is marked with uneasiness and colicky pains in the bowels, and tending to soft, even watery, stools. Constipation was a secondary symptom, and several provers found mucus present in the stools. The urine showed an absolute increase of solids under the action of the drug. The provings were made with the 1x, 3x, 6x and 12x attenuations. (*Pacific Coast Journal of Homœopathy*, June, p. 141.)—Ed.

X-Rays in Malignant Disease.—W. S. Newcomb, M.D., gives an account of thirty-one cases of malignant disease treated by the X-rays. He does not think this mode of treatment is sufficiently beyond the experimental stage to warrant the drawing up of rules for its use, but the following is his summary of results. Small surface carcinomas, epitheliomas, if not too far advanced, will heal easily, with the production of little or no scarring. When the disease has involved the deeper structures, healing is less likely to occur, although a fair proportion recover. Recurrences are very common, but if not allowed to advance too far will easily yield to treatment. Deep carcinomas and sarcomas will yield to treatment in a certain proportion of cases, but complications and metastases are to be expected. In nearly all, pain will be relieved and surface ulceration healed. (*Therapeutic Gazette*, September, 1903, p. 582.)—Ed.

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**RÖNTGEN RAY THERAPEUSIS IN GENERAL
PRACTICE, WITH SOME DESCRIPTION OF
TECHNIQUE, WITH CASES.¹**

BY ALEX. H. CROUCHER, M.D. EDIN., F.R.C.S. EDIN.

MR. PRESIDENT, LADIES AND GENTLEMEN,—As all know, the treatment of diseases by X-rays is in its infancy. My experience is not of any length; still, we must all be beginners at one time in whatever treatment we undertake, whether it be by the pilule, the knife, or X-rays. Living in a provincial town, and at some distance from the centres of learning, one has not the educational opportunities of those medical men more favoured by living in large towns or cities, where there are large hospitals and electrical installations for treatment by Röntgen rays.

I trust you will therefore excuse me if there is a want of accurate detail in dealing with the minutiae of the subject under consideration.

¹ Presented to the Section of Materia Medica and Therapeutics, December 3, 1903.

The exacting nature of general practice also precludes one from spending a great deal of time in using a means of treatment which involves the use of a complicated apparatus. In my student days the subject of electricity was scarcely touched upon; now all is changed, and we have Finsen's light cure, Apostoli's treatment of uterine fibroids, electrolysis, the thermo-cautery, galvanic ecraseur, high frequency currents, X-rays, and many other electrical applications.

In 1900 I procured a 10-inch spark coil from Messrs. Watson, of High Holborn, with a Vril contact breaker, and worked the apparatus from accumulators, and much trouble and worry were experienced from failure of the apparatus to work on important occasions.

For about twelve months I have used the same coil, but the electrical power is obtained from the main; the current in Eastbourne is the alternating system, and that has to be made unidirectional before it can be used to work a coil. To accomplish this I use a Chaplin's rectifier made by Cox; briefly described, it consists of four cells filled with a saturated solution of Rochelle salts, in which are immersed carbon and aluminium plates. The voltage from the main is 200, so a transformer is used, bringing it down to 50; by means of attachments to the transformer I can use 50 or 25 volts, and by a rheostat also regulate the strength of the current. The break I use now is a Mackenzie-Davidson; this I now also work from the house supply, thus doing away with the charging of accumulators at the electric light works.

The tubes I used at the commencement were Watson's penetrator focus tubes, later Cox's record tube, and now Cox's record regulating tube.

After a good deal of trouble in the past, I am now, without difficulty, able to use the apparatus at a moment's notice, and it is always in working order. I find the apparatus of much use in the finding of needles and other foreign bodies in various parts of the body, and by means of the fluoroscope it is of considerable help in the diagnosis of some diseases of the thoracic contents. In the diagnosis of fractured bones I have not had much experience, as not many of such cases come my way.

As a medical equipment I should be sorry to be without a Röntgen ray apparatus.

Before proceeding to relate the few cases that I have treated by X-rays it will be well to make a few remarks as to the nature of X-rays, the mode of its production, the methods of its application, and the effects produced on the tissues in health and disease.

I shall not enter into the subject of radiography.

THE NATURE OF X-RAYS.

It is probable that X-rays were first produced by Crookes in his experiments on electrical discharges through vacuum tubes in 1875; he failed to recognise the X-rays, and for twenty years following these experiments they remained undiscovered. It was in November, 1895, that Professor Wm. Röntgen, who was Professor of Physics at the University of Würzburg, noticed that paper covered with crystals of platino-cyanide of barium fluoresced brightly in the neighbourhood of a Crookes' tube.

On further enquiry he determined that this fluorescence was caused by a radiation which emanated from the point of impact of the cathode rays against the glass walls of the vacuum tube. He found that the rays passed through the cardboard, which was opaque to ordinary light. He also found that different substances varied in their transparency to this radiation, that the radiation was rectilinear, and that it could not be refracted.

Professor Röntgen then experimented with photographic plates wrapped in black paper to protect them from ordinary light, and he obtained with the X-rays shadows of pictures of metallic objects in a wooden box, and of the bones of the hand.

The use of the X-rays in diagnosis of fractures and localisation of foreign bodies at once became general.

It is theoretically considered that X-rays consist of a disturbance of the ether somewhat of the nature of ordinary light, differing, however, from it, in being a series of isolated impulses instead of a regular wave phenomenon. Although

it is not known exactly what X-rays are, for the practical uses to the medical man it is sufficient to know how to produce and control the rays; but we may note that they occur within a Crookes' tube when the cathode stream strikes against a solid body in the tube called the anti-cathode or anode, that they travel in straight lines, and that they cannot be refracted as in ordinary light, so we only get shadow pictures from them.

We may now say something of the apparatus used: first, as regards the Crookes' tube, they are of various forms. The essence of construction is a sealed tube containing two or three electrodes, and exhausted to a very high vacuum. One of the electrodes is made of aluminium, shaped like a concave mirror, and is called the cathode; it is connected with the negative terminal of the exciting apparatus. The other electrode consists of a flat disc of platinum joined with a terminal wire extending through the glass bulb in connection with the positive wire of the exciting apparatus, and is called the anode, or anti-cathode. On this anode impinges the stream from the cathode, and the X-rays are produced at this anode, which is also called the anti-cathode or target.

For exciting the Crookes' tube a high potential discharge is required, which will vary with the resistance of the tube; in practice it will be 100,000 volts, or more. The electro-motive force of an ordinary accumulator cell is about two volts. The unit of electro-motive force is the strength of current derived from a Daniell's cell. The current from the main varies from 110 to 200 volts. The current used for electric tramways is 500 volts. For producing X-rays in a Crookes' tube one may use a high frequency apparatus, a static or Wimshurst machine, or an induction coil. As regards descriptions of construction of these different apparatus, are they not written in the works on electricity? The induction coil is most frequently used for radiographic and therapeutical work.

Given an induction coil and a tube, electrical energy must be provided to excite the tube. We may get it from batteries; they are inconvenient. Accumulators are good where there are facilities for getting them charged.

The energy derived from the ordinary electric light mains is most convenient.

The electricity in the mains is of two kinds.

In some towns the supply is alternating, in which the current reverses its direction about sixty times a second. This cannot be used for the coil, unless one uses a rectifier, such as I have mentioned, or other contrivance. Other towns are supplied with an unidirectional current; this can be used for a coil direct from the main after reducing the current by means of a transformer.

EFFECTS OF X-RAYS ON THE TISSUES.

In using X-rays for therapeutical purposes effects have to be produced on the tissues, but these effects must be regulated so that serious damage to the parts diseased or sound may not occur.

When the *surface* of the body is exposed to X-rays to such an extent as to produce a reaction, as it is called, certain changes come about. We notice slight erythema, or pigmentation, or whitening and loosening of the hairs.

The pigmentation is the same as that produced by exposure to the sun's rays; it is a superficial deposit, and the amount varies according to the susceptibility of the individual and degree of exposure to the X-rays. It varies from slight tanning to a dark brown colour; sometimes freckling occurs.

The inflammatory effects may be classified in much the same way as burns.

In the first degree we have erythema without destruction of tissue; in the second degree a dermatitis occurs, with formation of blisters; in the third degree there is destruction of the epidermis; and in the fourth the whole epidermis and underlying tissue is destroyed. Patients may simply suffer from an itching or burning sensation in the slighter degrees, but with deep destruction there is much pain as a rule. Recovery occurs quickly or slowly according to the depth of the tissue involved. When the parts heal, the surface is

smooth and, should the parts be hairy, the scar is conspicuous by the absence of hairs. The thin atrophic appearance disappears in time, the skin becoming normal, and the growth of hair may return, unless the effects have been too deep in their action.

In one case reported by Dr. Cassidy the tissues of the thigh were destroyed to the depth of $1\frac{1}{2}$ ins., surrounding, but not affecting, the femoral artery. Many other cases have been reported where very serious injury has resulted from the prolonged use of X-rays. It behoves the operator to act, therefore, with extreme caution.

Dr. Codman, in the *Philadelphia Medical Journal*, thus describes a form of injury seen in X-ray workers: "In the less pronounced forms the skin appears chapped and roughened, and the normal markings are destroyed; at the knuckles the folds of skin are swollen and stiff, while between, there is a peculiar dotting resembling small capillary hæmorrhages. The nutrition of the nails is affected, so that the longitudinal striations become marked and the substance becomes brittle. If the process is more severe there is formation of blebs and exfoliation of the epidermis and loss of the nails. In the worst form, the skin is entirely destroyed in places, the nails do not reappear, and the tendons and joints are damaged."

In regard to the *deep-seated* action of X-rays, Dr. David Walsh reports a case "where the patient suffered from cerebral symptoms, suggestive of sunstroke. For a long time the patient had been in the habit of demonstrating X-rays, and often had one side of his head within a few inches of a focus tube, with only a wooden screen between. From time to time he suffered from a slight dermatitis. At length more serious symptoms developed, of which the chief were headache, vertigo, vomiting, dimness of sight, and great prostration. He placed himself under the care of a medical man at a seaside town. That gentleman said at the time his symptoms were practically those of sunstroke."

Dr. David Walsh also mentions a case where a practical worker with X-rays, a healthy, middle-aged man, was experimenting with exposures in the region of the stomach for a

period of two hours daily; after some weeks he complained of abdominal symptoms, *e.g.*, pain, tenderness, flatulence, and diarrhoea; he went away into the country for a fortnight and got well. On his return he resumed his experiments. After a fortnight he had a second attack. He then shielded his stomach with a thin sheet of lead, and his symptoms finally disappeared. (It is not necessary for me to go into the subject of the interrupter used in working a coil; they are many and various. Personally I have used a Vril vibrating interrupter, a Cox's, and a Mackenzie-Davidson; the last is the one I prefer.)

It would be well, perhaps, to describe shortly what a fluorescent screen is. It consists of a sheet of cardboard coated on one side with an even layer of platino-cyanide of barium; by its means we can see the shadows of bones or other substances not transmitting the X-rays.

The *screen* is placed between the observer and the subject to be observed, the X-rays being directed to the distant side of the object to be examined.

The *fluoroscope* is a screen mounted in the end of a box or hood, the other end fitting to the eyes of the observer. This may be used in daylight; the screen alone must be used in darkness.

Now let us consider shortly how we may be guided as regards the *application of the X-rays* for therapeutic purposes.

When a coil is used, the size of the coil, the way it is wound, the amount of primary current that is employed to energise, are all particulars of importance concerning the character of the X-rays which are evolved.

We must also consider the distance of the tube from the exposed surface, the frequency and length of the exposures, the quality of the tube—if it is hard, medium, or soft. With all these particulars before us it is almost impossible to formulate definite rules; most workers vary their methods in one or more particulars.

We will mention the technique followed by Drs. Schiff and Freund—Germans. It is narrated by Dr. Caldwell in his work on "Röntgen Rays in Therapeutics and Diagnosis."

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I will quote his remarks almost verbatim: "The original suggestions of Drs. Schiff and Freund as to technique were as follows: that a coil be used of 12-inch spark length, a mechanical interrupter giving from 600 to 1,000 interruptions per minute, and a primary current of 12 volts and $1\frac{1}{2}$ ampères; that the length of exposure begins at five minutes, and be increased carefully to fifteen minutes; that at the beginning the tube be placed at a distance of 6 ins. from the surface, and gradually brought to a minimum of 2 ins. They advised three preliminary exposures of five minutes each at a distance of 6 ins., and then a wait of three weeks in order to see if any reaction developed. In case any reaction showed itself from three such exposures, it was evidence that the patient had marked susceptibility to X-rays."

Dr. Caldwell thinks that Schiff and Freund's technique is the most satisfactory attempt to furnish a definite plan of treatment. It was founded upon a consideration of the various factors which affect the intensity of X-rays and their influence upon the tissues.

As is well known, these factors have chiefly to do with the ampérage and voltage of the primary current, the capacity of the coil, the quality of the tube, the rapidity of the interruptions of current, distance of target from exposed surface, and the length of exposure.

The intensity of the light in the tube, all other factors being equal, varies, according to Röntgen, directly with the strength of the primary current. The character of the secondary current varies greatly according to the winding of the coil. The rapidity of the interruptions of the current is a matter of minor but appreciable importance; other factors being the same, the more slowly the current is interrupted the longer are the periods during which the current flows, and the greater is the amount of current which reaches the primary.

The *effect upon the tissues* varies directly with the length of the exposure. X-rays diverge in the same way as light rays, so that their effect upon any given surface varies inversely as the square of the distance.

The time of the first appearance of X-ray effects upon the tissues varies; it may come on after a first exposure, or a few hours later, or even not till after several weeks.

The evidence as to *relief of pain* by use of X-rays is generally admitted. Patients under treatment, suffering from painful diseases as a rule, after a few exposures, state that the pain is greatly relieved or even altogether removed.

It is common, according to reliable observers, that after two or three exposures pain is entirely relieved, and this relief may continue for weeks after the cessation of the exposures.

There are many theories as to what is the particular agent in causing tissue changes, but as no one of these has been definitely proved it is hardly worth while to enter into the different arguments.

In giving repeated exposures we must remember that the effects of X-ray exposures are cumulative. For, as there is an incubative period lasting sometimes several days, and the effects themselves last for several days, it follows that exposures repeated during these periods must increase the effect upon the tissues.

THE METHOD OF USING X-RAYS FOR THERAPEUTIC PURPOSES.

In using X-rays for therapeutical purposes we must so work as to get a sufficient effect without running the risk of producing X-ray tissue burns of serious nature.

It is difficult to be exact, for there are many factors at work in determining the intensity and quality of the rays.

The factor over all others which is hardest to standardise and to express accurately is the resistance of the tube.

The quality of the rays and their intensity vary greatly according to the state of vacuum in the tube, and this is an unstable factor. Following the suggestions of Schiff and Freund, Dr. Caldwell uses as his *standard* a light produced in a fairly soft tube by a coil of 12-inch spark length, with double winding of the primary, with a primary current of 12 volts and $1\frac{1}{2}$ ampères, interrupted a thousand times a

minute. This current through such a coil produces a thin spark about $3\frac{1}{2}$ ins. in length, and this secondary current through a fairly soft, new tube produces a light that will give clearly the outlines of the bones of the hand on a platino-cyanide of barium screen at a distance not exceeding 20 ins. from the tube. This combination of factors does not by any means give under all circumstances the same amount of X-rays, but it never under any circumstances gives more than a moderate quantity of X-rays, even under maximum conditions, and it therefore gives a light which for therapeutic purposes is under almost all circumstances well within the limit of safety. This mode of treatment is based upon the repeated dose of a small quantity of light rather than the use of more powerful exposures less frequently, and Dr. Caldwell recommends this method in the interests of safety.

As regards the *duration of the séance*, one may vary it according to the part to be affected: if the part to be acted upon is the face, five to ten minutes' duration is sufficient, but if on the body longer exposures may be given, as it is not of so much importance if a dermatitis does occur on an unexposed portion of the body. The distance of the tube from the part may be varied between 3 and 6 ins.

Frequency of application varies according to circumstances; if a quick reaction is desired there may be a daily exposure for about five days, and then alternate days for a week, unless reaction is marked, then one would wait a week, or even until the redness disappears; pigmentation, of course, would last for a much longer time. But this would be modified according to the pathology of the case and the portion of the body treated. More care is required for treatment of superficial skin affections than for that of malignant affections, such as epitheliomata. It is of importance to say a few words about tubes.

Tubes are designated soft, hard and medium, according to their vacuum and resistance to the electrical current. A tube is soft when of low vacuum and low resistance; it is hard when the vacuum is high and resistance proportionately increased. The properties of X-rays vary according to

whether the tube is soft or hard. The therapeutic properties vary according to the degree of vacuum.

X-rays from a soft tube are of low penetration, and the penetrative power increases with the degree of hardness of the tube, and the amount of X-rays produced varies with the degree of hardness.

A soft tube produces a larger quantity of X-rays than a hard tube. The quality and quantity of rays vary with the age of the tube. A new tube produces a larger quantity of X-rays than can be produced in the same tube under the same conditions after it has been used for a long time, regardless of its vacuum. A tube becomes harder from use, therefore a larger quantity of energy is required in an old tube than in a new one.

Old tubes become softer by rest from use; they may be made softer by passing the current from the primary in a reverse direction by reversing the commutator, or by heating the tube with a spirit lamp, or baking it in a hot oven.

Some tubes have regulating devices attached.

The resistance of a tube can be determined by the distance between the ends of the pointers in the spark gap; if there is much resistance in the tube there will be sparks going across at a much greater distance if the tube is hard and of great resistance than if the tube is soft and of low resistance.

I show diagrams as made by Kienboch :—

Fig. 1.—The tube is so hard and of such high resistance that the current cannot be forced through it, but passes around it through the air; gives no Röntgen rays.

Fig. 2.—Hard tube of high resistance giving Röntgen rays of high penetrative quality; the soft parts of the bones are about equally well penetrated by the rays, and very little light is absorbed. The shadow of a hand given by such a tube is shown in Fig. 3.

Fig. 4.—Medium soft tube. Almost the entire electrical current passes through the tube and is transformed into Röntgen rays. Gives an intense radiance of moderate penetration. Shadow of the hand from such a tube is shown in Fig. 5.

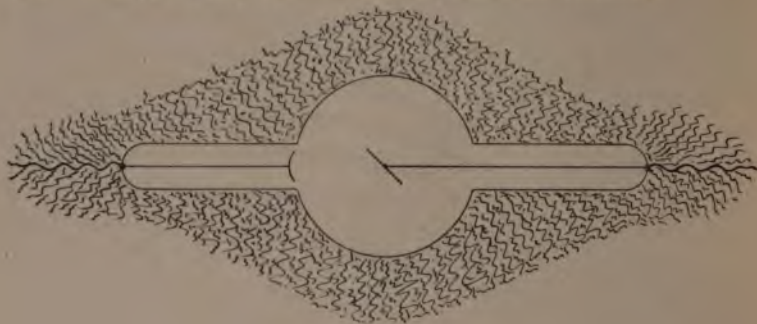


FIG. 1.

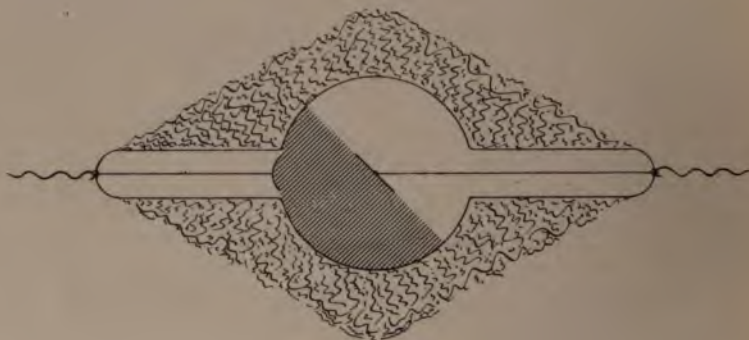


FIG. 2.



FIG. 3.

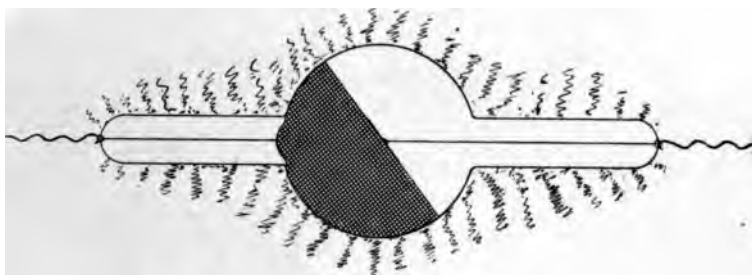


FIG. 4.



FIG. 5.

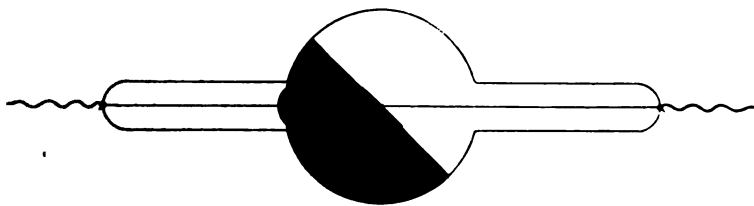


FIG. 6.

Fig. 6.—Very soft tube. Gives intense X-rays with a current of low power. Its light has only a slight penetrating power. In the shadow picture, Fig. 7., both the soft tissues and the bones are dark.



FIG. 7.

Fig. 8.—Tube which is so soft that no X-rays are produced.



FIG. 8.

In the *treatment of pathological conditions* tubes must be selected with a view as to the depth of tissue desired to be affected. Soft tubes produce a greater effect on superficial tissues than hard tubes, therefore the rays from a soft tube are absorbed by the most superficial tissues, while those from hard tubes pass through the superficial tissues with little absorption from them.

In the treatment of superficial conditions, therefore, soft tubes are most suitable, while for deep-seated conditions harder tubes of penetration must be used. A soft tube is preferred for treating affections of the mucous membrane.

The tube I now use is a Cox's record regulating tube ; it has a device on it for lowering the vacuum, and therefore rendering it soft should it become hard from use.

In using X-rays therapeutically it is necessary to protect the parts surrounding the site to be acted upon ; sometimes the tube is covered with an opaque covering, only allowing the rays to be projected through an aperture in the covering. A "Williams" box is used thus.

Otherwise the part operated on is protected with lead foil, an aperture being made in the lead foil over the region to be treated ; the lead shield is generally covered with lint, except at the aperture.

An ointment of bismuth and vaseline, or of lead plaster, is sometimes employed to protect the surrounding parts.

A layer of a paste of bismuth and diachylon ointment laid on $\frac{1}{4}$ in. in thickness is equal in protective power to lead $\frac{1}{32}$ in. thick. Aluminium is said to absorb the soft rays, while allowing the hard rays to pass.

For X-rays dermatitis and burns, various applications may be used ; as a soothing application I find an ointment of chloretone, boracic acid and vaseline good.

Workers with X-rays sometimes unnecessarily expose themselves to the rays and thereby suffer. A common cause is the habit of testing tubes by the use of the hand with the screen in order to determine the softness of the tube.

INDICATIONS FOR THE APPLICATION OF X-RAYS THERAPEUTICALLY.

X-rays are indicated from the following actions of the rays :—

- (1) They can cause atrophy of the epidermal appendages, *e.g.*, the hairs.
- (2) They can cause destruction of organisms in living tissues, *e.g.*, tubercle bacilli in lupus vulgaris.
- (3) They stimulate the tissue metabolism, *e.g.*, in psoriasis.
- (4) They are able to destroy some pathological tissues, *e.g.*, carcinoma.

(5) They can annul pain, *e.g.*, painful, malignant, and inflammatory conditions and neuralgia.

It may be interesting to give a list of the diseases that have been benefited by X-rays.

It covers a wide area; I have not quoted the authorities.

Hypertrichosis, alopecia — perhaps, tinea tonsurans, favus, sycosis, acne vulgaris and rosacea, eczema, psoriasis, lichen planus, lupus vulgaris and erythematosis, prurigo, tuberculous ulcers, tuberculous adenitis, tuberculosis of the larynx and of joints, tubercular peritonitis, tabes mesenterica, leprosy, carcinoma, epithelioma, sarcoma, Hodgkin's disease, neuralgia, chronic rheumatism, pruritus, keloid, sinuses, chronic ulcers, hairy nævi, vascular nævi, warts, clavus, senile keratosis.

Time will prove if the X-rays show a superiority in treatment of these affections above the ordinary methods.

In the treatment of malignant affections it does not appear that the danger of metastasis is increased. It has been suggested that X-rays should be used prophylactically at intervals, after operations for the removal of malignant growths.

I will now proceed to relate the few cases that I have personally treated.

Case 1.—Mr. W. B., aged 46, first came to me on May 10, 1902. He was a man of florid complexion and healthy aspect: by occupation a farmer. Nine months ago he noticed a pimple in the left temporal region about half an inch above the zygomatic process. The top came off about three months ago, since then it has been increasing rapidly; a scab formed; it loosened by suppuration; the scab came away; it reformed; each time this process repeated itself the sore place became larger.

When I saw the patient the scab was away, and there was a raw, ulcerated surface, with indurated and raised margins; there was no enlargement of adjacent glands; the sore was about the size of a sixpenny piece. The patient's previous health had been good, and, following the occupation of farming, he was out in the open air a great deal.

His medical attendant in the country advised excision, and diagnosed rodent ulcer, and I saw no reason to differ from that diagnosis. Excision had been advised, but the patient, after

consultation, preferred that the X-rays should be tried. X-rays were commenced on May 18, and repeated on May 19, 20, 22, 23, 24, 26, 27, 29, 31, June 2, 5, and then about twice weekly; the first change was a levelling of the surface from absorption of the thickened marginal deposit.

On July 17 I have a note that the sore place is flat, the floor is on a level with the surrounding skin, reaction around is marked for about an area of three-quarters of an inch, the appearance of the ulcer is healthy. The patient now became somewhat impatient and irritable, and came very casually for treatment; however, by the end of August, 1902, the ulcer had cicatrised over.

In August, 1903, I wrote to W. B. to enquire how he was, and in his reply on August 15, 1903, he said: "I am glad to say the ulcer has remained healed, and shows no sign of reappearing."

Case 2.—Mrs. F., aged 32, a thin, spare woman, came to me on May 22, 1903, complaining of a small, tender swelling in the left breast below the nipple, of about the size of an almond; it had been present about one month, and was larger than when first noticed. The nipple was somewhat retracted. Mother died of cancer. This patient had pleurisy with effusion during the winter of 1901-2, which appeared to be of tubercular nature. However, a good recovery occurred. Tuberculinum 30, with open windows, contributed to the cure.

X-ray treatment was commenced May 22 with an exposure of ten minutes; this was repeated May 28 for seven minutes, June 8, June 10; on this date some reactionary redness was present, and without further treatment the swelling disappeared by the end of June. The nipple was quite normal. I think this was probably a localised mastitis; the patient feared it was cancer, and was afraid the swelling was the commencement of a malignant neoplasm; it was, therefore, a relief to the patient when the tumour dispersed, and with the dispersal the pain also went.

At the present time the breast is quite normal.

Case 3.—Miss S. H. H., aged 77, stout and plethoric, has been under my care for about ten years; she is subject to gouty bronchitis, and attacks of tachycardia and renal congestion.

Twelve years ago this patient first noticed a warty growth in the skin over the upper and outer quadrant of the right breast. It broke down and ulcerated, and gradually got larger and larger, and two years ago presented the appearance of an ulcer with irregular, raised, and indurated edges about 4 by 3 ins. in area, the long axis transversely extending towards the axilla, the ulcer extended by portions of the indurated margins sloughing.

There was also a distinctly fœtid odour of decaying animal tissue, and at times copious hæmorrhage, which had to be checked by pressure, solid nitrate of silver applications, and also a dry preparation of cotton wool impregnated with perchloride of iron.

Pain was insignificant.

Above the right clavicle was a mass of glands of stony hardness extending deeply into the supraclavicular space, and also adherent to the clavicle itself; the mass in parts appeared as if about to ulcerate, and the covering was of thin epithelium, with dilated venules ramifying in it.

Formalin in various strengths was a help in procuring a more healthy condition of the ulcer, but the pain consequent on these applications was more than the patient could bear.

X-ray treatment was commenced on February 2, 1902, and continued till August 6, 1902; in all there were fifty-seven applications. The ulcer was then completely healed over, the surrounding induration was much less marked and less raised, the floor of the ulcer had become raised up, so that, after healing, the scar, which became white and smooth, was not much depressed, but almost on a level with the surrounding tissues.

Three small secondary deposits in the skin area surrounding the diseased part also became smaller and the indurated glands became smaller.

Treatment was recommenced on January 12, 1903, because a portion of the diseased area towards the axilla which, from its appearance we named the "gutter," showed signs of breaking down.

It was hoped to still further reduce the remaining induration. The glands were also more particularly attacked.

There were made in this second course forty-seven applications. In August, this year, the glandular mass was much smaller—reduced to about half of the original size, and was less adherent. The secondary deposits almost disappeared, and the floor of the "gutter" almost healed.

The general health was much improved, and the patient was highly gratified by the result.

One may imagine that the change from an evil-smelling, bleeding ulcer under one's nose to an unbroken skin surface was a great boon, and I venture to think such a result could not be obtained painlessly by any other means.

I recommenced treatment on October 30 this year, and the patient is still under treatment, with further improvement.

Case 4.—Kate D., aged 27, by occupation a cook, was under treatment for her eyes, but also suffered from enlarged glands; which, however, caused no pain or discomfort. They were plainly visible, spoiling the contour of the right side of her face. The patient had had these enlarged glands as long as she could remember; at times they varied somewhat in size.

One gland was about the size of an almond over the right mastoid process; another, about the size of an almond in its shell, in the right parotid region, and another the size of a small walnut behind and below the angle of the jaw on the right side. The patient did not ask for treatment, having given up any idea that they might be cured.

At my suggestion the X-rays were tried.

Treatment was commenced on July 25, 1902, and applied for ten minutes; the next treatment was on August 1, and again on August 8, when some diminution in size was noticed. The next treatment was on August 27, and between that date and September 25 she had six applications; then there was redness of the skin of the side of the face and peeling of the skin behind the ear; the glands were much smaller. On November 2 glands still smaller, X-rays applied. On November 20 there was a bad scorch and superficial destruction of the skin, also much bronzing of the surrounding area; this (November 20) was the last date of application of X-rays. December 3, sore place healed, but some scarring and bronzing remained.

January 14, 1903.—Only traces of glandular swelling to be felt.

March 12.—Still further improvement; the skin has resumed its normal appearance.

In August last I saw the patient, and the improvement was maintained.

The patient was much gratified at the disappearance of the swellings, and the restoration of the normal appearance of the right side of her face.

Case 5.—This is a case where treatment was successful at first, even to complete disappearance of an epitheliomatous growth on the lower lip, but a return of the growth occurred later.

Mr. B., aged 57, but looking ten years older, by occupation a carpenter, came to me on March 19, 1902. Seven years ago the patient, who was then living at Hastings, had a sore place on his lower lip; it got better and worse, but increased in size. Two years ago the growth was removed at the East Sussex Infirmary by the ordinary V-shaped excision. The patient says it never

completely healed. At this date there was an indurated warty growth on the lower lip in the middle line at the region of the scar at the muco-cutaneous junction; it was covered by an easily removable scab; the growth was about the size of a pea.

The glands in the submaxillary region were not felt to be enlarged.

On March 19, 1902, he had X-rays for ten minutes, and the same on the 20th to 25th inclusive. There was then a good deal of reaction and swelling of the chin, but the growth was smaller and softer. X-rays again applied on March 28, 29, 30, and 31; by this date all induration was gone, the part was quite soft and normal to palpation, and the disease apparently removed. On July 13, 1902, Mr. B. came to see me again; the growth had returned, and was about the size of a small Barcelona nut. I applied the X-rays about four times, but, as the patient was anxious for something to be done quickly, it was not continued, and I removed the growth in the Leaf Homœopathic Cottage Hospital with the knife and the wound healed quickly. The Clinical Research Association confirmed diagnosis of epithelioma.

In connection with this case there is a point of interest.

In the *Journal of Medical Electrology and Radiology*, July, 1903, I came across the following, which was extracted from the *Medical Record*, and headed "Gangrene following Operation in Ray Cases":—

"Lloyd reports that he had seen two cases of epithelioma in which the proliferation had gone on very much more rapidly since beginning the X-ray treatment, although the latter had been carried out by experts. Recently he had operated upon two cases that had been subjected to X-ray treatment for a considerable time. In one there had been no X-ray treatment for some weeks prior to operation; in the other case the X-ray treatment had been continued up to the time of operation. In the latter case, although the parts were brought together without tension, a gangrenous patch developed, and nearly covered the whole area that had been exposed to the X-rays. At the time he attached no importance to this, believing that it was due to some fault in the technique, but a second case led him to consider as to the significance of his observations. The case was one of carcinoma of the breast, and, while an abundant flap was easily

obtained, there developed subsequently a gangrenous patch covering the whole side of the chest.

"In both instances Lloyd believed that the X-ray had produced an unfavourable change in the nutrition of the tissues. If further experience proved this to be true, it would suggest the advisability of avoiding X-ray treatment until after operation."

Case 6.—Mrs. B., aged 57, highly nervous, came under my care in February, 1902. The diagnosis of a large scirrhus tumour of the right breast was confirmed by Mr. Dudley Wright, and on March 1 Mr. Wright removed the right breast, with portions of the pectorals, and cleared out the axilla. A portion of the growth was submitted to the Clinical Research Association, who reported as follows: "This growth is a typical scirrhus carcinoma of the breast, invading the adjacent fat. The cells are undergoing degeneration in places."

In August, 1902, at the situation of one of the stitch holes towards the axilla a round nodule made its appearance; it was hard and movable and painless; for some time it did not enlarge, but remained about the size of a small pea. In March, 1903, however, it became larger, and reached the dimensions of a Barcelona nut. Suspicions were aroused that it might be malignant; the patient refused to have it excised, and it was decided to use the X-rays. The first application was made on March 10, and others on March 12, 14, 18, 20, 23, 27, and April 1. Marked redness occurred and treatment of that deposit was stopped; from that time it rapidly melted away and has not been felt since.

Mrs. B. had much neuralgic pain in the right side of the thorax, and on close examination another focus of deposit was found about one inch above the portion of the scar near the sternum; it was painful to the touch, and about the size of an almond in its shell; the edges were not defined, and rays were applied on April 22, 24, 27, 29, and 30, May 2, 4, 5, 6, 7, 8, 9, 10, 14, 19, 22, 25. The deposit had then disappeared. During this period another focus of recurrence appeared, this time about two inches below the original swelling at the axillary end of the scar. This was treated as well and also melted away.

X-ray applications were applied over the whole of the right side of the chest on July 14, 17, 22, as prophylaxis. A gouty eczema over the chest disappeared during the treatment. Another effect of the applications was a reduction in the scar of the operation, which was very hypertrophic and cheloid-like.

During the treatment Mr. Wright saw the patient and confirmed the diagnosis of recurrence, and advised continuance of treatment. At the end of July Mrs. B. complained of great pain in the loins, which were aggravated by movement. Thinking that the pains were rheumatic, I advised the patient to go to Woodhall Spa. She went, but returned after staying one week, worse.

The pain was very severe, and almost confined her to bed; one night she got out of bed and collapsed on to the floor in the doorway of her bedroom. I was summoned at 4 a.m.; she had been on the floor for two hours afraid to move because the pain was so aggravated when she moved. We got her to bed as soon as we could.

The pain then seemed to be located most intensely on the left side at an area between the last rib and the iliac bone, and pressure there was very painful. The patient retained her full habit, but was slightly anæmic; there was also slight œdema of both feet.

On August 14 the leading medical man in Eastbourne met me in consultation, and as a result of the consultation we were of opinion that the pain was neuralgic, the cause, however, being uncertain, though the probability was that there was a growth somewhere in the region of the bodies of the lumbar vertebræ.

After some days the pain became better, and the patient was able to get up and go into another room, but the pain increased again, and now was most intense at night.

Patient got better and worse, and more and more unable to leave her bed. I was able to detect dulness in the flanks, which I considered was due to fluid, but even this varied.

In the middle of September the same medical man was called in again in consultation, this time for a severe attack of gastritis; he thought the general condition better. The gastritis soon yielded, and, curiously, the dulness in the flanks disappeared as well. A fortnight later another vomiting attack occurred, with abdominal distension and temperature of 100° F. After the attack was over the dulness in the flanks recurred, but it varied from day to day.

I had been applying X-rays to the abdomen on the right side and the right lumbar region, and have wondered since if the peritonitis the patient suffered from during this last attack was due to the effects of the X-rays.

In the middle of October Mrs. B. developed symptoms of intestinal obstruction, and died, no doubt, from extensive secondary deposits in the abdomen.

Case 7.—I bring this case to your notice as a failure of any benefit from this particular treatment of the main trouble from which this patient suffered.

W. A., aged 8, schoolboy, came to me on January 3, 1903. He was born at Umballa, in India. His father was a Sergeant-Major in the Militia, and healthy. He denied any history of syphilis. W. A. was a delicate baby, and the first born; he has two sisters and one brother in good health; he has been home from India four years; there is no family history of phthisis, and his mother is well.

There was a large V-shaped gap in the soft palate; the edges were ulcerated and covered with granulations, and this was more noticeable on the right side. There was much mucopurulent discharge in the pharynx and also from the anterior nares.

There was a painful gland about the size of a walnut near the angle of the lower jaw on the right side.

Patient had had much treatment in other towns and in Eastbourne. I applied the X-rays through a vaginal speculum, shielding the face with some sheet lead.

He had treatment for ten minutes on January 3, 4, 5, 6, 7, 8. A fresh perforation of the palate occurred now near the hard palate. Treatment was continued on January 10, 11, 12, 13, 14, 15, 16, and 17. The only improvements were by this time decrease of discharge and disappearance of the enlarged gland.

I was under the impression that this patient was suffering from lupus of the palate and pharynx, but Mr. Dudley Wright, who kindly saw the patient at the London Homœopathic Hospital, considered its origin specific.

I mention this case for two reasons: firstly, the failure of beneficial effect on the ulcerative process; secondly, the disappearance of the enlarged gland.

I met the father in August this year, and he stated that the disease was still progressing.

Case 8.—Miss A. C., aged 14, was a healthy girl, with good family history. About five years ago patient had a dental abscess in the lower jaw in connection with the second left bicuspid tooth. It was opened externally, but removal of the diseased tooth was refused. There remained, therefore, a stump in the jaw. A year later an enlargement—apparently a gland—appeared in the left side below the angle of the jaw; it remained about the size of a small nut until a year ago, when it became larger, and on

October 30, 1902, when I saw it again, it was about the size of a walnut, movable, and rather soft on palpation, no fluctuation felt, and the skin over it was quite sound. Patient still refused to have the stump out.

Many internal remedies were exhibited—iodine, hepar. sulph., calcar. phos., baryta. iod., &c.

Its size remained almost the same till March, 1903, when it became larger and was about the size of a bantam's egg. There was no fluctuation.

On April 28, 1903, it was rather larger and softer, but no fluctuation was detected. On this date X-rays were applied, and about a dozen applications were given, intervals of a few days intervening between each.

In the middle of June the stump was extracted. There was no reduction in the size of the swelling, which rather grew worse, and by July 3 the skin over it was reddened and fluctuation well marked. On that date I opened the swelling, and a considerable quantity of clear fluid escaped; the interior was lined by a smooth membrane; the cavity was stuffed with iodoform gauze daily and syringed with iodine; it very soon quite closed up, and now there is only a small scar remaining. Perhaps our surgical friends will give us their opinion as to whether it was originally cystic or became so during its later stages.

It is interesting to note that no benefit accrued from X-ray treatment.

Case 9.—Arthur N., aged 16, was treated by me in 1900 for extensive tubercular ulceration of the right lower extremity, extending from above the popliteal space to a short distance above the os calcis. The treatment was by scraping with a sharp spoon. It healed well, but in the autumn of 1902 ulceration recommenced in the popliteal space.

X-rays were applied a dozen times at weekly intervals. At the end of the series of applications the ulceration had healed, and at present remains so.

In August, 1903, this patient had hæmoptysis and purulent expectoration. The trouble was at the base of the left lung. He has not recovered and is at present in a sanatorium at Ventnor.

One examination of the sputum did not reveal any tubercle bacilli.

Case 10.—Louisa G., domestic servant, aged 19, was brought to me by a lady on April 15, 1903. Six weeks previously patient had a cyst removed from her left breast at a hospital at Red Hill.

There were two scars, one in the upper and outer, and the other in the lower and outer quadrant. The scars were swollen and hyperæmic, and she suffered from a great deal of pain in the breast. The scars were very tender to the touch. Patient had missed one period.

Pulsatilla ϕ was given night and morning, and phosphorus three times a day after meals. The arm on the affected side was put in a sling.

On April 22 patient reported she had quite as much pain. The period appeared three days ago.

April 25, X-rays five minutes to the region of the left breast; 28, X-rays; May 2, X-rays; much less pain, and cicatrices less swollen and less hyperæmic.

Patient then left Eastbourne and went into a situation at Red Hill.

I have heard several times from the lady who brought her to me, who informed me that the pain had not returned.

I may mention that I have far more success in amenorrhœa from Parke, Davis & Co.'s pulsatilla ϕ trituration tablets than the ordinary tincture of pulsatilla.

Case 11.—Miss V. H., aged 15, was under my care on and off for about fifteen months for a large gland, probably tubercular in nature, on the right side of the neck; it was of about the size of a moderate-sized hen's egg. No medicines or outward applications seemed to do it much good. It was hard in consistence, and the skin overlying it was sound; the swelling projecting externally caused considerable deformity. As there was no improvement from ordinary treatment, X-ray treatment was commenced on August 3, 1903, and she had treatments on August 10, 17, 24, September 3, 5, 8, 16, 23, October 10, 17, 24, November 5, 12, 21, 28. By this time the gland was reduced to about the size of an almond in its shell and no longer was noticeable externally. During the treatment only a very slight erythema was produced at times. The patient will continue the treatment and I hope for further improvement.

Case 12.—Mrs. B., aged 72, healthy, came to me on September 1, 1903, complaining of her left breast. Three months ago she noticed a hard swelling in the upper half of the organ about the size of a marble; it had increased and at this date there was a hard indurated area of deep-seated induration, with undefined edges, measuring about 3 by 4 ins., with a projecting portion on the upper part. On comparison, the left breast was

seen to be larger than the right and the projection mentioned was distinctly visible.

No glands were to be felt in the axilla. General health good, except for bronchitis attacks which I had treated on several occasions.

Patient nursed a friend suffering from carcinoma of the liver in the early part of the year; this friend succumbed in February.

The diagnosis was scirrhus mammæ, and the advice, removal; this, however, Mrs. B. declined, so X-ray treatment was substituted and given on September 1, 3, 4, 5, 7; there was now slight erythema; 12th, erythema much more marked, X-rays; 16th, X-rays; 22nd, X-rays. Seen on September 30: the skin surface was still very red and inflamed, with some weeping of the surface. October 7, decided ulceration of skin over an area of about 2 ins. square, but the tumour was smaller. On October 29 the ulceration of the skin had almost healed, and the tumour reduced approximately to one-third of its original size. Treatment will be resumed shortly.

OUR DRUGS IN EPILEPSY AND TABES.¹

BY EDMUND HUGHES, M.R.C.S.ENG., L.R.C.P.LOND.

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SIR LAUDER BRUNTON the other day, before a learned society, was led to a fanciful speculation. He asked what would have been the result to the world if Mahomet—who owed his original vogue to the *morbis sacer*—had undergone a course of treatment by bromides. The answer, of course, was implied—that Mahomedanism would hardly have come into being; yet probably, as I think, the world would have suffered more from it than has been the case. The Koran would have been more extravagant than before. And to the natural melancholy, fanaticism and *sémi-insanity* of the prophet would have been added a profounder aberration, a more savage gloom, and a dangerous blunting of the sensibilities.

¹ Presented to the Liverpool Branch, December 10, 1908.

The use of strong depressants, though reducing the number of fits, only lowers the psychological condition, already unsound, and hastens the progress towards dementia. There are few diseases where the mind has more to be considered and helped, and there are few drugs which, in medicinal doses, do more to impair the mind. One wonders how, with that knowledge, conscientious physicians of the other school seek no further than the drastic medication of the present day. The evil effects sometimes induced by bromine poisoning are emphasised by Weir Mitchell. He speaks of irritability of temper, failure of memory, delusions and suicidal tendencies; and the possible induction of a paretic state, which may even involve the bladder and rectum, but is usually a weakness of the lower limbs or of one side of the body.

While the orthodox school is mostly content with the bromides of the alkalies, which are sometimes combined, we find Gowers prescribing a mixture of bromide of potash, belladonna, and a salt of zinc. Here he invades our territory with his usual happy unconsciousness. Dr. Eustace Smith gives belladonna, and strychnine for epilepsy in the child. The use of strychnine, without explanation or acknowledgment, is not less than outrageous. The same authority suggests ergot and salts of silver, zinc, and arsenic, as useful alternatives.

Examples like these show well the modern tendency to silently appropriate what is ours and so promote our reunion to orthodoxy in a way which older homœopaths could have little expected. We need more every year a potent organisation and an adequate theory which shall answer to the results of practice in a simple, intelligible way, and so become a fact as obvious as, for example, that of organic evolution.

Borax is a good deal employed—chiefly now, I think, as an intercurrent remedy—when bromide treatment has clouded the mind or set up an intractable constipation. It is not a convulsant under any circumstances. I do not know the *rationale* of its use. If we are using it, I may be allowed to point out again the list of its poisonous effects. They are—anorexia, burning epigastric pain, vomiting, dry-

ness of mouth and skin, eruptions (notably psoriasis) and alopecia. Owing to its action on the kidney it is contra-indicated in Bright's disease, and it is well to test even healthy urine for albumen during its use.

Before leaving the consideration of old school practice I should like to say a word on a new feature in bromide treatment. I mean the "desalination" method. A good many years ago Dr. Hughlings Jackson recommended on some physiological ground that the diet of epileptics should be made to exclude salt. This was carried into later practice by Toulouse, of Paris. Toulouse speaks highly of the benefit derived, both the number of fits decreasing as the body becomes unsalted, and the patient being made so susceptible to the action of bromide that 60 grains daily of this salt have produced symptoms of intoxication. He allows an ordinary mixed diet, but without table salt, giving at the same time small daily doses of sodium bromide.

Presumably the bromide of sodium is absorbed more eagerly by tissues deprived of the natural chloride. And it might be questioned *à priori* whether the depressing effect of bromides be thereby avoided, because if smaller doses are taken, more is assimilated, the amount necessary to check the fits being, one would suppose, the same in both cases. This presumption is negated by the experiments of Dr. Balint, a Berlin specialist, who gave this diet to a number of "idiopathic" epileptics at the institution with which he is connected.

His diet was: 2 to 5 quarts of milk; 40 to 50 grammes (about $1\frac{1}{2}$ to 2 ounces) of butter; 3 eggs; 300 to 400 grammes of bread and fruit (daily). Milk, butter, eggs, and fruit, exclude chlorides to a large extent; while the bread used was made with as little salt as possible. Into each loaf was worked a definite amount of sodium bromide. He found that by this plan, when only 3 grammes of chloride were being taken in the daily food, 3 grammes (45 grains) of bromide were necessary to minimise the fits. While, then, 15 grains three times daily were being taken, a trial of several months showed that not only was no bromism induced, but the mental condition improved, the bodily

health rose, and the fits were reduced greatly both in frequency and severity.

This dietetic plan has unfortunately the drawback that it is difficult to follow except in an institution adapted for the purpose. There is a further objection in that epileptics are so often weak-minded and unreasonable, and will either disobey rules or become fractious and excitable under their privations. In a case where I attempted this treatment it had to be abandoned for that very reason.

I hope that this cursory glance at the methods of the other school will not be thought irrelevant. On our side the difficulty and range of the subject is shown by the great number of applicable drugs. Dr. Baertl, in an article written thirty-five years ago, details the uses of over fifty. Since this time several important additions have been made to our list of convulsants, as prussic acid and cenanthe; while others of his day have been more exhaustively tested and proved—as artemisia and cicuta. Still, the number of drugs we use for the disease is becoming more limited, for there is a falling off, I suspect, in that careful individualisation which, by greatly increasing the number of possible drugs, made treatment far more arduous, but, for aught we can tell, also more successful.

There is a formidable difficulty, of course, in relying on past provings, caused by their frequent ambiguity and contradictoriness. One hesitates to credit the train of violent symptoms which seem to follow grain doses of a thirtieth trituration, repeated once a day. It needs a most exhaustive scrutiny of the sum total of symptoms to pick out those which often recur and may be considered as "key notes." Still no drug which has done service in epilepsy should go unexplored. One is reminded that the aura may be definite and peculiar; that the fit is of variable nature, length and sequence in different cases; and that its approach may at times be realised for many hours before it occurs. Not only have the number and character of the fits to be considered, but their accompaniments prodromal and sequent, and the constitution of the patient. When we have all these, there is an array of facts before us which should help greatly in the choice of a remedy.

This method may be fruitful, even though it does not always lead to the selection of one of the convulsants. Calcareæ is credited with a number of striking cures. Sulphur and calcium sulphide are well spoken of, the former when the fits are nocturnal and the aura a creeping sensation spreading *down* the body, the latter when the aura is a perversion of smell. Opium in nightly fits following a fright, phosphorus when the aura is of yawning, with dryness of mouth and sensations spreading upwards from the feet, have been given with apparently good results. There would seem to be none of our host of medicines which do not deserve trial if well indicated.

Calc. carb. seems a remedy of high value. It has been said to act well in alternation with belladonna, in cases suitable for belladonna. Its frequent success (as that of silicea) shows how often epilepsy is dependent on defective nutrition.

The list of convulsants is a long one. *Œnanthe* and *absinthium* set up fits closely simulating *grand mal*, the latter also *petit mal*. The convulsions of *œnanthe* principally affect the face and upper limbs. The legs are sometimes convulsed, sometimes paretic. Insensibility is complete, and in a few of the poisonings there was no aura, the victims suddenly falling back unconscious. *Post mortem* the viscera are found much congested, just as in epileptics who have died during a fit.

Absinthium has been a good deal tried latterly in place of *Artemisia vulgaris*. It should be useful chiefly when the fits are several in the day and in *petit mal* cases. Disappointing results are probably due to indiscriminate use. It will as certainly fail in some cases as in others it will do good.

Taking a further class—as *cicuta* and *tanacetum*—the poisonings show that consciousness is retained, the action stopping at the medulla. They thus resemble strychnine, whose anti-epileptic virtues are most decided, and show that to influence the disease the cortex need not be affected at all. *Cicuta* ought to be indicated where the preceding mental state is of depression, where the fit is ushered in by much giddiness and obscured sight, and where the clonic stage is

violent and prolonged. It has caused a succession of fits like the *status epilepticus*. Dr. Halbert speaks of success with it when there was a prodromal state of great melancholy, the patient weeping and moaning, when the vertigo was extreme, and the subsequent convulsions entirely of the limbs, especially the arms. Stupor was long continued, and the after-exhaustion pronounced. He instances a case for which *cicuta* ϕ was given six times daily for three months, and the 3rd dilution for a further six months. The fits by that time were rarely experienced.

Tanacetum has a reference to epilepsy, hystero-epilepsy, tetanus and hydrophobia. It should, I think, correspond with an aura of dizziness and confusion of mind. Even large doses—2 ozs. or more of the oil—do not always produce convulsions. Apart from these, there is a marked urinary symptom—scanty, followed by abundant, micturition—possibly, however, of no value. Severe headaches are experienced and loss of appetite. Some true epilepsies are said to have been much lessened by drop doses of a fluid extract.

In a number of cases indigo has been very successful. Its characters are congestive headaches, with or without epistaxis, flatulence, loose bowels and eruptions of acne or urticaria. A symptom developed by one prover was that he must urinate every hour of the day, but not at night. Mucus is often passed from the bladder.

Dr. Colby, of Boston, reports more success with indigo than with bromides.

Strychnia has a striking palliative action. Given specially to ward off the paroxysms it is most effective. If discontinued the fits return, and the dose must be increased by a minim every week or fortnight, or the action fails. In this way quite large doses may be gradually reached without danger. I have no definite notion of how it acts. In the doses employed (the B.P. liquor) it must exert a tonic action on the cord and medulla by inducing a moderate congestion. Is its effect properly homœopathic or merely gained by a better regulation of nervous energy?

For belladonna, besides the congestion of the upper part

of the body, Baertl says that its characteristic convulsions are rather tonic than clonic; the patient's mental state is that of alarm at merest trifles, the temper being very excitable and sleep broken, with much dreaming.

Hydrocyanic acid should be remembered in recent cases, in which alone it appears at all remedial. Given in the 1st dilution, or lower, it has gained much success, especially where the characteristic cry is present. It may very well be tested in the B.P. 2 per cent. solution, increasing the dose up to the limit of 8 minims.

Of the metals, arsenic has done good only when clearly indicated. Plumbum presents a history of colic and headache, followed by occasional epileptic fits, in the intervals of which headache is constant, the patient is costive, sometimes vomits, and has bouts of epigastric or umbilical pain. During the fit its signs are much protrusion of the tongue, which is naturally bitten and swells, and long-continued post-epileptic stupor.

Stannum is credited with success where the face is very pale. In one fortunate case the fits took place towards night. Hahnemann reported a cure where they occurred only in the morning. The debility of stannum should, of course, be remembered.

The character of cuprum is said to be that consciousness is not at once lost, the patient watching the spread of the convulsion. Some of the cases adduced by Baertl as relieved by cuprum are pretty clearly hystero-epileptic. It is advised for cases of long chronicity.

Lastly, there is the not infrequent exciting cause in shock or strong emotion, as sorrow, great jealousy, or disappointed love. This is met either by ignatia or hyoscyamus. Ignatia has done good in fits of neurotic children, and lachesis in the epilepsy (which is surely very uncommon) of young people set up by onanism. Epilepsy due to alcoholism, as in later life, should be combated with nux in substantial doses.

By a short summary such as this I merely wish to emphasise the wide range of choice which our method affords. A few of our anti-epileptics have been touched upon, and so

sarily retrodden. Those drugs I have mentioned, if chosen from with great care and in varied dosage, combination or alternation, should give us much power over this baffling and troublesome disease. I speak of cases not of very long continuance, without profound mental alterations, and which are probably unaccompanied by vacuolation of the cortical cells. Still, even in epileptic insanity, where these and other changes are present, something may be done with medicines. Talcot speaks among others of solanum and silicea 30, the former to check fits, the latter as inducing "a wholesome change throughout the general physical system of the patient."

TABES DORSALIS.

This disease has been said to be curable when taken very early. Presumably such signs of its incipience as shooting pains, inactive pupils, and loss of knee- or ankle-jerk, are enough when co-existing for accurate diagnosis in most cases. Still, there is the possibility of imitative functional disorder, and so many true examples remain for years in the pre-ataxic stage, and the symptoms are so apt to regress spontaneously for a time, perhaps disappearing altogether for a brief period, that one questions any assertion of cure.

But there is no doubt of the benefit derived from carefully chosen drugs. Dr. Villers, of Dresden, in a paper read before the World's Congress of 1893, speaks with much confidence of his temporary triumphs over the disease. He actually gives "the highest possible potency"—the 200x at long intervals—with the assertion that if wisely selected this method of prescribing will succeed.

Knowing nothing of these attenuations, I shall not criticise their use. I shall merely give a few of his experiences.

For the early bladder weakness, where the orthodox school often gives tincture of belladonna, he advises clematis and sulphur. For the impotence, caladium, causticum, sulphur and graphites. For the lightning pains he gives belladonna, lycopodium, colchicum, sulphur, stannum and graphites, preferring the last three, especially graphites. Plumbum is advised where the pains come from the abdomen.

The well-known paræsthesiæ of formication he finds quickly amenable to secale; if this fails, in nux, especially when the bowels are slow to act. The girdle sensation may diminish under graphites, or nux, or stannum. Gastric crises, he says, are not to be overcome. Retention of urine is uninfluenced by any drug, unless it be arsenic. He refers favourably to alumina and rhus as general remedies.

Dr. Martin, an American physician, is in the habit of giving ammonium mur. for the pains. For incoördination he finds argentum nitricum the most useful. Guaiacum (3x) has also been successfully given for the pains, and in Dr. Clarence Bartlett's hands methyl blue has done well. Dr. Bartlett's plan is to rely on antifebrin in 5 to 10-grain doses, and if this fails he prescribes methyl blue in 3-grain doses daily. Its effect is said to be not as quick but more permanent. For the pains one might add mag. phosph., 3x to 6x, given in hot water, agaricus when there are shootings round the body or in the lumbar region, also kali carb., and the iodides of lead and arsenic.

As general drugs, Dr. Bartlett relies chiefly on rhus and silicea.

Dr. Roberson Day has given beneficially, according to indication—arsenicum 3x, zincum mur. 3x, nux 1x, hydrocyanic and phosphoric acids. Dr. Dudgeon uses argentum and digitalis for the lightning pains.

Aurum. mur. has been commended as a general remedy for scleroses of the cord.

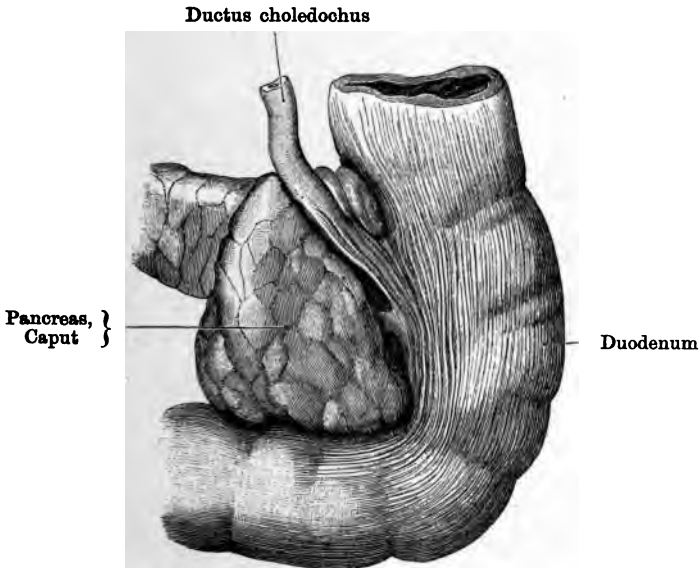
Finally, I should like to draw attention to the record of poisoning by sulphonal. In over-doses it brings about vomiting and severe pains in stomach and abdomen, sweating, rapid pulse and respiration, reeling gait and ataxia, and suppression (? retention) of urine. It might be useful in acute exacerbations of tabes, due to some excess or error in regimen.

ABSTRACT OF A PAPER ON THE PANCREAS:
ITS STRUCTURE, RELATIONS, AND PHYSIOLOGY.¹

BY D. MACNISH, M.A., M.B., C.M.EDIN.

Assistant Physician to the London Homœopathic Hospital.

THE anatomy and physiology of the pancreas were described, a full account of which can be found in recent text-books. A detailed description is unnecessary in this abstract.



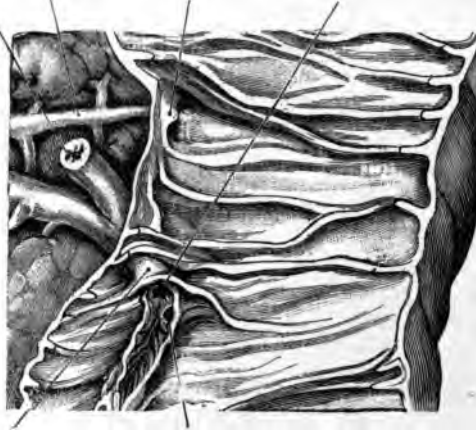
AN ANATOMICAL POINT OF IMPORTANCE.

An anatomical point of great importance is the position of the ductus choledochus and the ductus pancreaticus where they enter the duodenum. This is well shown in the accompanying diagrams, which were exhibited at the reading of

¹ Presented to the Section of Surgery and Gynæcology, January 7, 1904.

the paper. Both these ducts unite at their point of entrance into the duodenum, so that bile and pancreatic secretion mingle in their flow towards mixture with chyme from the stomach.

Ductus pancreaticus access Papilla duodeni minor Ductus choledochus
 Ductus }
 choledochus }



Plica longitudinalis

Ductus pancreaticus

PHYSIOLOGICAL POINTS OF IMPORTANCE.

The pancreas of vertebrates is essential to carbohydrate metabolism. Removal or destruction of the pancreas is followed by accumulation of sugar in the blood and its excretion by the kidneys.

The pancreatic secretion is a fluid, clear, odourless, colourless, very alkaline, rich in albumen, solidifies on boiling. The most important constituents are three ferments or enzymes: (1) amylolytic, (2) proteolytic, (3) adipolytic.

The fat-splitting or adipolytic ferment—steapsin—breaks up neutral fats into fatty acids and glycerine. The fatty acids combine with alkalies in the bowel to form soaps, which, by emulsion of other fats, assist their absorption. Where there is disease of the pancreas the fæces become rich in fats.

The proteolytic action occurs best in an alkaline or neutral medium. It is still active in a faintly acid medium.

Where animals have been deprived of the pancreas by operation it has been found by experiment that only 44 per cent. of proteids were absorbed, 57 to 70 per cent. of carbohydrates were absorbed, fat absorption *nil*. Still, four-fifths of the fats were split up into fatty acids and glycerine.

The gastric chyme, on account of its hydrochloric acid, stimulates the pancreatic secretion reflexly by acting on the duodenal mucosa. Starch does not excite the pancreatic secretion, but it increases the amyllopsin. Fat greatly stimulates the pancreatic secretion. Acids, fats, and even water, are the physiological excitants of the pancreatic secretion.

Pawlow states that a dog secretes in twenty-four hours as much pancreatic juice as will neutralise the gastric juice. Pancreatic juice contains 0.43 to 0.46 per cent. of sod. carbonate.

Pawlow also states that fat inhibits the secretion of hydrochloric acid in the stomach and diminishes the digestive power of the gastric secretion. So fats should not be prohibited in hyperacidity.

The alkali of the pancreatic juice acts indirectly by neutralising the acids from the stomach and splitting up other portions of fats and forming soaps which favour emulsification.

CASES ILLUSTRATING PANCREATIC DISEASE CALLING FOR SURGICAL TREATMENT.¹

BY DUDLEY D'A. WRIGHT, F.R.C.S.ENG.

Surgeon to the London Homœopathic Hospital.

GENTLEMEN.—Some time ago Dr. Neatby, the secretary of the surgical section of this society, asked me to read a paper on some cases of disease of the pancreas and I promised to do so.

I cannot say that I have any information to convey, and I will give the cases for what they are worth, trusting that

¹ Presented to the Section of Surgery and Gynæcology, January 7, 1904.

they will serve to excite a good discussion on the aspects of pancreatic disease in general, a subject about which we have heard very little indeed until within the last few years.

PANCREATIC CYST.

G. R., aged 39, carpenter. Admitted into hospital February 25, 1903. The following is an abstract from very full notes made by Dr. Granville Hey.

Nothing of note in family history. About five years ago patient noticed that his abdomen was swelling, especially in the lower part. By September, 1901, the swelling caused inconvenience, and œdema of legs occurred, but disappeared after a few days' rest in bed. He was under a physician at the time who diagnosed dropsy and said that tapping of the abdomen was necessary. This was done and 460 ozs. of dark fluid were drawn off. This fluid was found to contain blood *débris* and cholesterine crystals. After this the patient was much relieved and was able, after a rest, to work for fourteen weeks, then the swelling began to return and incapacitated him. At this stage he sought admission to the hospital.

On admission the patient appeared thin and pinched, with a dusky tint of skin. Tongue fairly clean, appetite poor, bowels rather constipated, temperature 98° F. He complained of much breathlessness on exertion and inability to do any work because of the great distension of the abdomen, which bulged out the ribs on both sides up to the level of the ensiform cartilage, which also was pushed forward somewhat.

There was a fluid impulse everywhere over abdomen and in both hypochondria, and the percussion note was dull all over, except slight resonance in the posterior part of left flank, which area of resonance did not move with a change of position of the body. The fœces were examined and no excess of fat was discovered.

A consultation was held, and it was decided that exploration of the abdomen should be carried out; this was done under gas and ether anæsthesia on March 13. A 7-in. incision was made above and below umbilicus. On dissecting through abdominal wall a cyst was come down on. The wall of this cyst was adherent to the abdominal wall so firmly that after a brief attempt to separate it the effort was abandoned. The cyst was then opened and 450 ozs. (22½ pints) of dark brown and

somewhat iridescent fluid, containing dark, putty-like masses of apparently necrotic tissue, were removed.

The cavity of the cyst was washed out with saline solution and explored manually. The hand passed freely down into the pelvis and up under the diaphragm and ribs, but no viscera could be felt, neither could any trace of them be seen.

As the cyst did not collapse to any great extent after it was emptied it was thought advisable to drain posteriorly, which was accomplished by pressing the cyst against the muscular wall of the right loin and dissecting down upon it here. A large tube was then put in at this spot and secured by means of a stitch, a portion of the cyst wall having been sutured to the muscles around. The anterior opening of the cyst was closed by a continuous silk suture and the abdominal walls united over this.

The after-history was mostly uneventful. The cyst drained well posteriorly for some time and a small localised suppuration occurred in the abdominal wound, and some brownish fluid came away from this. The patient left the hospital six weeks after operation with the posterior wound nearly closed and a slight brownish discharge from the abdominal wound. Six months later I saw the patient again. He was looking very well and had gained much flesh, and the cyst had not refilled. The posterior wound had been closed for some months, but there was an occasional slight brownish discharge from a small sinus in the front of the abdomen.

The following interesting report of the chemical examination of the fluid removed was subsequently made by Dr. Watkins, the hospital pathologist :—

“Specimen of fluid removed gives an alkaline reaction. Microscopic examination shows the presence of great quantities of red and a few white blood cells and also a great amount of cholesterine crystals, no cells resembling salivary cells, and no hooklets were found.

“When treated with nitric acid no bile reaction was obtained.

“When mixed with an equal amount of olive oil and shaken, an emulsion was formed and the oil only partially separated after twelve hours.

“When mixed with a solution of boiled starch and placed in an incubator at 38° C. it ceased to give the iodine

reaction of starch after half an hour, but no reaction for dextrose or maltose was obtained.

"When mixed in the solution of egg albumen and 1 per cent. of sod. carb. and kept at a temperature of 38° C. for half an hour the reaction for albumose was obtained, and on treating the coagulated white of egg in the same way for twelve hours it was found partially digested."

CANCER OF THE PANCREAS.

The next case was one apparently of cancer of the pancreas invading the omentum. The notes were taken by Mr. Neathy, the house surgeon, and, like all his notes, are so sprinkled with the proverbial "Attic salt" that I will not attempt to transcribe them into more prosaic language, but will give them in his own words.

The patient, Mrs. B., aged 55 years, has for the last four years suffered from indigestion. She had gall-stone colic at 20. It lasted a fortnight, but she was not jaundiced, nor does she remember passing a stone. She had pleurisy with effusion at 35 years of age. About Christmas last, patient thought something was forming and went to see a doctor, who whispered "peace, peace." The patient was not satisfied and went to Dr. MacNish, who sent her to the hospital. She had attacks of vomiting and great pain in both hypochondria, chiefly in the right.

Examination showed a hard, resisting tumour in the gall-bladder region reaching down to a finger's breadth below the umbilicus. It was very tender on pressure. The abdomen was very resistant.

On July 26 a consultation was held and it was agreed by all that patient was suffering from enlarged gall-bladder, although opinions differed as to the enlargement, one believing that the gall-bladder was inflamed and contained stones, and another hinting darkly at malignant disease.

July 31.—One more of those lessons in humility which are vouchsafed so prodigally to surgeons (especially *abdominal* surgeons) to profit withal! When Mrs. B. came on to the table and was fairly under the anæsthetic, it was plain almost to the eye that the tumour was not connected with the gall-bladder.

To the hand the tumour was about the size and of the

consistency of the foetal head, and could be pushed from one side of the belly to the other with ease. It was at once conjectured to be a malignant growth. An incision was made in the middle line, and the dismal conjecture was confirmed. The stomach, pylorus and duodenum were free, but the posterior layer of the mesentery was involved in a cancerous mass which, so far as the deeply exploring finger could trace it, originated with the pancreas. Nothing, of course, could be done, and the wound was sewn up and the patient put back to bed.

CANCER OF PANCREAS.

Case 2.—Annie L., aged 22 years, a pale, anæmic and much wasted young woman, with a very bad family history of cancer, her mother and father having both died of it, was in the hospital in 1896, under Dr. Clarke's care for constant gastric discomfort and vomiting of food.

There was much flatulence and distension of the stomach in which wind and water could be heard gurgling. A tender spot was present in the epigastrium, and dulness to percussion over the gall-bladder region for 2 ins. below the costal margin. There was fairly constant diarrhoea, the motions being usually watery and green; the temperature would often rise without apparent cause to 101° F.

The patient gave a history of occasional transient attacks of jaundice during the past year. At this period of the case Dr. Clarke was away from the hospital and the patient was put under the care of Dr. MacNish who, finding that the symptoms grew worse, asked me to see the case with a view to surgical interference. The result of this was that it was decided to explore the abdomen.

The operation was carried out under rather unfavourable circumstances. The patient was in a very weak state and the pulse was very feeble. The abdomen was opened and the pylorus reached, and it was found fixed deeply to the underlying structures. The stomach was brought into the wound and incised, and the fingers introduced and the pylorus explored.

This opening was found much constricted and infiltrated by a nodular growth which nearly encircled the gut, but was most marked posteriorly. The pylorus only admitted the top of the finger which was used to dilate it until the whole of the middle and the top of the index fingers could be introduced into the strictured canal. Further dilatation appeared likely to lead to

laceration, so the opening in the stomach was closed. No attempt was made to deal further with the disease as the patient's state would not permit of a more prolonged operation.

The patient lived ten weeks after the operation and never vomited once during that time, except twice moderately after the operation. She gradually sank from exhaustion owing to profuse diarrhoea and hectic temperature, which the *post mortem* showed was due to a nodule of secondary new growth in the liver which had broken down and suppurated.

The primary growth was evidently in the pancreas, which gland was nearly entirely replaced by new growths.

ACUTE SUPPURATIVE PANCREATITIS.

Eliza A., a widow, aged 39 years, had undergone the operation for radical cure of a large umbilical hernia two months previous to coming under treatment. On August 16, 1896, complained of severe pain at the "pit of the stomach," accompanied by vomiting. She was seen by Dr. Neatby, who sent her into the hospital and she was admitted on August 18. The bowels had not acted for two days.

It was found on her admission that there was a slight return of the umbilical hernia, but it was easily reducible, and its reduction in no way ameliorated the symptoms. The whole abdomen was distended and tender over the epigastrium. Vomiting of a brown non-stercoraceous fluid frequently occurred.

The same evening, assisted by Dr. Neatby, I performed abdominal section. The abdominal cavity contained some brownish, inodorous fluid, which was evacuated, and a portion of the small intestine lying about the umbilical region was congested, but nothing else was found. The abdomen was accordingly closed up.

The vomiting ceased after the operation, and all appeared to be doing well for some days, the bowels acting naturally, but the temperature showed a nightly rise to 101° or 102° F.

On the twelfth day after the operation pain occurred in the left loin, worse on taking a deep breath. On the fourteenth day a rigor occurred, the temperature going to 105°, and this was followed by attacks of vomiting. Meanwhile the lumbar pain increased in severity and extent, passing to the left hypochondrium and then to the epigastrium, and there was great tenderness of these parts. The urine was very dark in colour, but

contained neither bile, blood, nor albumen. The quantity was below normal, only 14 ozs. in twenty-four hours, containing 25 grammes of urea.

Six days after the rigor, *i.e.*, twenty days after the operation and twenty-two from the onset of the symptoms, a round swelling could be felt in the left kidney region, which was excessively tender. This was cut down upon under an anæsthetic and a quantity of peculiar putty-like material was evacuated, leaving behind a large cavity containing several loculi similar to the dilated calices of a tuberculous kidney. This cavity was drained.

The operation caused no improvement in the patient's condition and she died exhausted on the following day.

The following notes are from the *post-mortem* register made by Dr. Hervey Bodman :—

“Subcutaneous fat excessively developed. Much fatty overgrowth of heart. Hypostatic congestion of both lung bases. Abdomen somewhat distended. In the fat of the mesentery and in the retroperitoneal fat, especially in the lumbar region, are numerous opaque, yellowish-white masses from the size of a millet seed to that of a bean, which when cut into were found to be soft and caseous (so-called ‘fat necrosis’).

“Behind stomach and transverse colon a resistant swelling which on exposure proved to be the pancreas converted in great part into an abscess cavity containing a quantity of yellowish fluid pus and masses of caseous and sloughing material. This had a large retroperitoneal extension behind the upper part of the left kidney and splenic flexure of the colon, which was the part encountered when the abscess in the loin was opened.

“The stomach presented a well-marked petechial condition of the mucous membrane over a considerable area of the posterior part of the fundus, the central part of this area forming a part of the anterior boundary of the abscess cavity. The liver was fatty and the gall-bladder contained some small gall-stones.”

The latter point is of interest, for it is now recognised that in a very large number of cases pancreatitis is secondary to inflammatory affections of the biliary channels which

are in their turn so favourable to the formation of gall-stones.

CHRONIC PANCREATITIS.

I have not knowingly operated upon any case of chronic pancreatitis, but recalling those cases of chronic recurring pain in the pyloric and upper abdominal region in which I have performed exploratory operations and have found but little to account for the symptoms, or only an adhesion of the gall-bladder, I feel certain that at least two, and probably three, of these were cases of this disease.

This trouble is usually secondary to disease in some neighbouring organ. Thus it may arise from infection extending from the bile passages, or intestinal canal, and from the irritation of pancreatic stones. It manifests itself often by a series of attacks closely simulating gall-stone colic. The pain and tenderness, however, are usually more in the middle line and the pain does not radiate into the shoulder but passes round the costal margin to the left. It is often attended by loss of flesh, and jaundice may be present and may exist for a period of years.

The pancreas in such cases may be so swollen and thickened as to resemble malignant disease, the head of the gland being particularly affected. The disease is best treated by prolonged drainage of the gall-bladder or bile ducts by performing cholecystotomy.

It must be remembered that chronic pancreatitis may, and indeed does, often exist with biliary lithiasis. In each attack some damage is inflicted on the pancreatic duct, or, long after the gall-stones have ceased to pass, there may be a repetition of all the symptoms noted in the early attacks. Under these circumstances the cause of the attacks is the chronic pancreatitis which had not subsided with the cholangitis.

In conclusion, I should like to say a few words regarding certain conditions associated with pancreatic lesions. *First* as regards fat necrosis. This is not really what the name implies, as no necrosis takes place. It is caused by a splitting of the fat into glycerine and fatty acid. The glycerine

is absorbed and the fatty acid unites with calcium salts to form a white, soapy patch, which is characteristic of the diseased areas. It is supposed to be brought about by the escape of the fat-splitting ferment of the pancreas either directly affecting the fat in the immediate vicinity of the gland, or else being carried to the fat at a distance by the lymphatics. *Secondly*, with regard to the condition of the stools in pancreatic diseases, it has been shown that the absence of the pancreatic secretion from the intestine results in the passage of clay-coloured stools. The colouration of the fæces is not due to bile pigments, which are all absorbable, but to a pigment which is insoluble, and which results from the action of the colouring matter of the pancreatic juice upon some of the colouring matters of the bile. The absence, therefore, of either bile or pancreatic juice results in the passage of unpigmented fæces.

Two other conditions of the stools are associated with complete loss of the pancreatic secretion, viz., the presence, in excess, of undigested muscle fibre, and the appearance of fat in excess. The absence of the proteolytic and fat-splitting ferments is, of course, the cause of these two signs, which should always be sought for when the question of a pancreatic lesion is raised in any case of obscure nature.

Dr. DUDGEON said he knew nothing about the diseases of the human pancreas. He wished to direct attention to two excellent papers which had been published in the fifty-fourth volume of the *Transactions of the Pathological Society*: one upon the physiology of the pancreas, giving a *résumé* of all the most modern discoveries and theories regarding its action, and another containing an account of an operation for disease of the pancreas of a most surprising character. The subject was a young woman who presented a large tumour about the size of a cocoanut, which extended two inches below the umbilicus. On the surgeon operating he found it was a large encysted tumour of the pancreas, which he extracted, and the patient recovered.

Dr. BLACKLEY said that, like Dr. Dudgeon, he knew very little about the pancreas, which had always appeared to him a most puzzling organ. He had under his care just now a lady whom he had been seeing on and off for the past three years,

and whose case had puzzled him considerably. Two years ago, thinking that her gall-bladder was distended with gall-stones, she was put upon hot water before meals and olive oil after meals in the hope of getting the gall-stones or inspissated bile away. After this the patient went to a hydropathic establishment where she remained for two months, and was treated with liver packs. He (Dr. Blackley) was assured by the medical officer in charge of the institution that the patient passed large numbers of small gall-stones, and quantities of friable material which were evidently disintegrated gall-stones. Before she went she was distinctly cachectic looking, making one suspect malignant disease, but being a very short and very stout woman, abdominal examination was not easy. When she came home she was better, but within a few months began to complain of pain and said she was losing flesh. After the passage of the gall-stones the fæces began to be darker than they had been for some years, but she again had pain and this had remained up to the present time. There was undoubtedly a something to be felt below the level of the gall-bladder; it was a somewhat ill-defined mass, but distinctly tender on pressure, which one could not map out at all. In the meantime the stools had become very frequent (five or six in the course of the day) and almost colourless; they were putty-like in appearance and, as the patient expressed it, *spongy*; they were not quite yeasty, but they were between the consistency of yeast and of a solid stool, and almost devoid of colour. She was slowly losing flesh, but not very rapidly; she had lost about three stones during the last four or five years. He had examined the urine on many occasions and there had never been any sugar in it. Latterly he had been giving her a 5-grain tablet of pancreatin three times a day with meals, and there had been an improvement in the stools—certainly in regard to the number, and possibly a little in regard to their appearance. When he saw her in the earlier stages he had put the abilious stools down to the lack of bile; but from what had been said in the paper, it would appear that the bile was not the chief cause of the colour in the stools.

Dr. CLARKE referred to his (Dr. Clarke's) case which Mr. Wright had mentioned. The patient had been under his care for some time, and as far as he recollected there had been no doubt that the case was malignant, but it was considered that it was at the pyloric end of the stomach that the malignant disease was situated. He believed it was Dr. Alexander Villers who was going round the ward with him one day who settled the question.

of the pancreatic origin of the disease. He suggested putting two or three pillows under the patient so as to bring the spinal column well up and draw the liver and other viscera out of the way, so as to bring the pancreas as near the surface as possible. The patient owed the relief from vomiting during the last year of her life to the operation, though he did not think he would have recommended the operation if he had stayed in town. He remembered a case of Dr. Hughes in which there was a condition of milky diarrhoea, which was traced to the pancreas. The patient was very much benefited by iodine, which he believed was closely homœopathic to the case.

Dr. GOLDSBROUGH said he had a patient come that afternoon to the out-patient department which the papers read threw some light upon. It was the case of a man who complained of intense headache, which came on a good while ago from alcoholic intoxication. He was a painter who had been suffering from neuralgia. He went to a brewery and was made drunk with stout, which was given to him in considerable quantities. Ever since that time the neuralgia of the face had ceased, but he had suffered from a bursting headache, which was very continuous. Every now and then he had spells of diarrhoea, which appeared to relieve the bursting headache. The diarrhoea was not the kind which was associated with bilious conditions, but such as had been pointed out as being associated with the pancreas. The stools were of a light putty colour, containing within them a lot of flocculent material and also mucus. The man described them by saying they looked as if flour had been dredged into the stools. The point he wished to note was that the attacks of diarrhoea seemed to relieve the headache. He presumed that there had been some action of the pancreas on the secretion in the duodenum which had induced that particular stool, by an effort of Nature, to get rid of the altered secretion, which was probably due to the liver, so that the liver and pancreas were connected together in that case. At any rate, if this theory were true this was an interesting case showing that the secretion of the pancreas and the secretion of liver were intimately connected, and reacted upon each other. He wished to refer to a point with regard to the Salisbury diet. The diet stipulated that only beef should be used, not any other meat. Was it not a fact that beef contained a good deal of fat in between the bundles of muscle fibres, so that a person taking beef in any considerable quantity was sure to receive a good deal of fat in the diet?

Dr. MADDEN inquired of Mr. Wright how the surgeon who

saw the cystic case was able to come to the conclusion that it was pancreatic. It seemed to him it was almost hopeless to do that when it occupied the whole of the abdominal cavity. With regard to the Salisbury diet, in every case he had seen in which the patients had received real benefit they were fat when they began and ended thin. He would like to know how the fat of the body became eliminated. Was it in any way absorbed so as to give work to the pancreas?

Dr. ROBERSON DAY said he was reminded of one point showing the relation of the pancreas to the salivary glands, where it was occasionally found that the pancreas was involved. Probably if the pancreas was examined more often it would come into greater prominence; it was an organ which was so much out of sight that it was apt to be out of mind too. In a considerable experience with the Salisbury diet he had found that although it was perfectly true that at first the patients lost weight, after a time there was a turning point, and on the same diet they gained flesh and weight. That had repeatedly been his experience.

Dr. EDWIN A. NEATBY said that in ordinary practice one often saw cases of obscure and paroxysmal pain in the region of the epigastrium and the liver, which extended over a considerable length of time, recurring at irregular intervals, and which were finally put down very often as doubtful cases of gall-stone. It was the custom to prescribe in such cases, as well as in cases of more pronounced and definite gall-stones, *i.e.*, where actual gall-stones had been discovered, olive oil. Was it possible that many of the cases which had been put down as cases of gall-stones were really due to some interferences with the function of the pancreas, the passage, perhaps, of something that had been described that evening as pancreatic stones, and that the benefit which ensued on the use of olive oil was due to the stimulating effect on the pancreas, which they had been told the fats had?

Dr. STONHAM called attention to one consideration which arose out of the anatomical position of the pancreas. The pancreas lay across the spine, a firm, unyielding body, and therefore was in a position which was peculiarly liable to be injured by anything which squeezed it against the spine. He wished particularly to allude to vigorous massage. If a patient was thin, and had little resisting power in the abdominal walls, it would be quite possible for deep kneading so to press the pancreas against the spine as to cause considerable injury. In looking up the subject before he came to the meeting he found that Osler said a case had been recorded in which serious pancreatic disease was caused

by too vigorous abdominal massage. He thought that was a consideration which should be borne in mind when ordering massage for abdominal complaints.

Dr. WATKINS wished to refer more particularly to some points of the physiology of the pancreas, which had not been alluded to. Dr. Starling and Dr. Bayliss had done a great deal lately in clearing up the physiology of the subject by their experiments on dogs. They showed that the pouring out of the secretion into the duodenum from the pancreas was not a reflex action but a direct chemical one, and was brought about by the acid chyme coming from the stomach into the duodenum, where it came into contact with the juice from the intestine, which contained the ferment which they called secretin; and it was supposed that the mixture of the acid with the ferment was absorbed through the veins into the general system, thus getting to the pancreas, and by its direct chemical action caused the secretion then to be poured out. They were able to show that by the injection of juice from the duodenum mixed up with acid into the vein of a dog they could produce an immediate flow of pancreatic juice, and it was found that the amount of secretion depended upon the amount of the secretin injected. Another point they showed very clearly was that the amount of the relative proportion of the ferments in the pancreatic juice varied very considerably and that it depended upon the character of the food. If a meat diet was given the proteolytic ferment was much increased; if a farinaceous diet was given, amylopsin ferment; if milk was given then the fat-splitting ferment was increased. It had been suggested that the cause of acute pancreatitis might be due to the regurgitation of the intestinal juice into the pancreatic duct, thus rendering the pancreatic juice much more active. They showed that the secretion from the pancreas itself had very feeble fermentative action; but there was another ferment in the intestine (entero-kinase) which acted as a ferment on the pancreatic ferments, and thus increased their intensity very much indeed. With regard to the case of chronic pancreatitis, there had been a number of cases of hæmochromatosis which, towards the end, developed diabetes with cirrhosis of the pancreas, and generally described as diabetic bronzing. It was known that cirrhosis of the liver and hæmochromatosis could be caused by the absorption of toxins from the alimentary canal, and the cirrhosis of the pancreas appeared to be in those cases a continuation of this toxic irritation. In general practice one very frequently came across cases of jaundice

due to catarrhal obstruction, but that condition of the pancreatic duct was very seldom recognised, and yet from the anatomical relation of the two ducts one would think that the one would be as frequent as the other. He had a patient under his care for some years who every now and then developed a certain illness. It began with attacks of diarrhoea, which generally came on in the hot months when epidemic diarrhoea was prevalent, and which were attended with faintness and a sinking sensation in the epigastrium. Two days after the commencement of the diarrhoea the motions became of the peculiar slate grey-white colour, such as one found in cases of jaundice, but jaundice never supervened. As Mr. Wright showed, the peculiar colour of the motion of jaundice was not due to the absence of the bile pigments but to undigested fat. That could be proved by mixing the motion with ether, which removed the fat, and the motion then assumed the normal dark brown colour again. The normal colouring of the faeces was due to the presence of hæmatin and sulphide of iron. There were two great causes of grey-white motions, namely, the absence or deficiency of the bile and of the pancreatic juice. If the pancreatic duct were blocked no fat was absorbed; if the bile duct was blocked only half the fat was absorbed. In rabbits the bile duct entered the duodenum at a point higher up than the pancreatic duct. If fat was introduced into the stomach, then the lacteals were transparent between the two ducts, but they assumed a white colour just below the pancreatic duct, which was due to the absorption of the fat by the lacteals; and it had been shown that if the relative position of the two openings was altered that the lacteals remained transparent between the two ducts still, which indicated that the two juices were really necessary for the absorption of fat.

Dr. J. H. BODMAN thought they should be on the watch against regarding all their obscure abdominal cases as pancreatic. Whilst recognising this danger, there were two obscure cases he had had which occurred to him as having been possibly due to the pancreas. The first case he saw with his father some years ago, in which there was intense jaundice and a large, solid tumour in the upper part of the abdomen, above the umbilicus. It was difficult to form any definite opinion as to the nature of the tumour, but there was a suspicion that it was malignant. A surgeon who was called in consultation suggested that it might be a retroperitoneal sarcoma; but as he did not hold out any prospect of benefit by operation the case was left to medicinal treatment. Contrary to every expectation, in course of time the tumour

gradually went away, the jaundice disappeared, and the patient became well. It had occurred to him that this might possibly have been a case of pancreatitis, in which there was a large amount of induration about the pancreas, probably infiltration of the connective tissues surrounding it, and pressure on the common bile duct causing the jaundice. That seemed to him a possible explanation of a case which was otherwise very difficult of explanation. The second case was one in which there had been such an intense disturbance of nutrition without obvious cause that for a long time he had referred it to the pancreas. It was the case of a woman about 45 or 48 years of age, who had during the last eighteen months emaciated to a most extraordinary degree. She was a woman 5 ft. 6 ins. in height, and only weighed about $5\frac{1}{2}$ stones. The peculiar feature of the case was that the appetite alternated, and had done so during the last few months. There would be a period of perhaps three or four weeks of ravenous appetite; during such a period the patient would be eating practically day and night; she took large meals at the usual times and a great quantity of food between. During that time there might be a slight gain in weight. Then a period came on during which the appetite was absolutely lost, and the patient ate with difficulty. After such a period had lasted three or four weeks the ravenous appetite again returned in just the same way as before, succeeded by a period in which the appetite was practically absent. He had recently been giving the patient a preparation of pancreatic substance known as pankreon, which was supposed to have the advantage that it passed through the stomach without being destroyed by the gastric juices. It had the effect of moderating the ravenous appetite, which seemed to indicate that it enabled her to assimilate a larger portion of the food she took. Those two anomalous cases appeared to him to be explainable by referring them to abnormal conditions of the pancreas.

Dr. BURFORD said that in a case of chronic pancreatitis under the care of himself and Dr. Byres Moir, phosphorus 30, followed by phosphorus 6 (prescribed by Dr. Goldsbrough for nervous symptoms), proved of great advantage. He would further ask Mr. Wright if, after the operation for pancreatic cyst, there was any sign of digestion of the wound edges?

Dr. WYNNE THOMAS said it was generally believed that the pancreas was a double organ, *i.e.*, it secreted a fluid which went into the intestinal tract and assisted digestion; and there was another secretion which was poured out into the blood stream.

He wished to ask, in connection with diabetes, whether it was possible to have a disease of the pancreas affecting the side of the organ which secreted the fluid which went into the intestinal tract without affecting the other glands, and also whether in the case of diabetes due to disease of the pancreas it was possible to definitely tell by examination of the fæces whether the diabetes was due to that gland being affected, and what the prognosis was in a case of diabetes of that kind—whether it was more grave or more likely to be cured than the diabetes due to the other causes. He also enquired whether in diabetes due to the pancreas the practitioner ought to eliminate from the dietary of patients the same kind of food which was eliminated in other kinds of diabetes.

Dr. GRANVILLE HEY had watched with interest the preparation of the beef for the Salisbury treatment. The process was to scrape away from it all visible fat, then to remove all the fibrous tissue, and then to put it through the mincing machine about five times. If anyone took the trouble to rub the beef between their fingers afterwards they would find it did not leave much grease behind on the fingers.

Dr. EADIE remarked, in reference to diabetes in cases of disease of the pancreas, that he remembered one case in the out-patient department of the London Hospital under Dr. Hutchinson. Not much attention was paid to the abdominal examination, but there was a huge tumour over the pancreas, which at the time Dr. Hutchinson thought was attached to the pancreas.

Mr. DUDLEY WRIGHT, in reply to Dr. Burford's question, said there was no obvious sign of digestion of the edges of the wound in the case of the pancreatic cyst. With regard to Dr. Goldsbrough's case, he thought it much more probable that the man had some cirrhosis of the liver and also a certain amount of colitis. The symptoms pointed to that condition rather than to an affection of the pancreas. He did not know that there was any characteristic about the stools in pancreatic disease from which one could actually say it was pancreatic disease. Dr. MacNish had pointed out that fat alone in the stools was not really pathognomonic, and the colour was not necessarily diagnostic; but all the things combined together with other symptoms pointed to pancreatic disturbance. With regard to the question of fat in beef, he believed that in all animals which were fed in the way animals that were meant for eating were fed, a certain amount of fatty degeneration of the muscle took place, so that people who took the Salisbury diet when they eat the muscle tissue eat a certain

amount of fat. Nursing women invariably produced much better milk if they were fed on a proteid diet, *i.e.*, proteids would make the milk richer in fats, and the people increased in weight, so that it was quite possible for people living on a purely nitrogenous diet to put on a considerable amount of flesh. The point raised with regard to the use of olive oil in cases of gall-stone was one which he had often given thought to. He believed many of the cases of so-called gall-stone were cases of hepatic colic, in which little plugs of mucus passed down the bile channels, this mucus originating in the inflammatory condition of the bile ducts brought about indirectly by an irritation of the mucous lining of the duodenum by the excessively acid contents. Such cases were relieved by the oil treatment. Certain cases of gall-stone were not relieved by olive oil, and some cases were upset; but he certainly thought cases accompanied with excessive acidity were improved by olive oil, and that there was a distinct relationship between excessive acidity and inflammatory diseases of the gall ducts and bile passages. Chronic pancreatitis, as Robson showed, was best treated, so far as they knew at present, by cholecystotomy, but he did not know that that was always a successful treatment. He thought it was advisable to do something more for the patients by internal treatment, because cholecystotomy did not always relieve the chronic pancreatitis. One speaker mentioned the fact that the blocking up of the duct of the pancreas led to fatty stools and other symptoms, but it must be remembered that the pancreas had two ducts, and it was very rare indeed when there was a pancreatic calculus blocking one duct for the whole of the pancreatic secretion to be stopped; a certain amount found its way up by the auxiliary duct, and in that way the secretion of the pancreas got into the bowel, and the fats were consequently digested and did not appear in the stools.

PHYSIOLOGICAL THERAPEUTICS.¹

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MR. PRESIDENT AND GENTLEMEN,—Physiological therapeutics are so called because by their agency we aid the physiological processes which are deranged or defective in disease such as anabolism, katabolism, leucocytosis, peristalsis, glandular secretion. They are also aptly called physical therapeutics because the agents used are the natural physical ones of light, heat, cold, movements, food, water, electricity, mental force, &c. Within the limits of one paper I cannot do more than briefly touch upon this vast subject, mainly omitting technique and laying stress upon the changes in the organism which these agents cause.

DIETOTHERAPY

is a part of the treatment of every disease. We are, however, consulted in two different classes of cases—in the first class the patient is either too ill to follow his ordinary work, or he is suffering from a well-marked type of disease such as diabetes, which requires a definite dietotherapy. In these cases we are all agreed upon the most suitable diet. In the second class of cases the patient has an ailment not severe enough to prevent his working, and since he often does not improve he consults one physician after another, getting a different dietary from each.

To prevent this we should remember the following principles: (1) Ask of each article of food, "Do you like it, and does it agree with you?" If the answer is "yes" do not discontinue it without a very good reason, for the sight of

¹ Presented to the Liverpool Branch, January 14, 1904.

the food that is liked causes a flow of gastric juice, and without this stimulus there is no flow.

(2) Do not, however, be led by this to indulge the whims of a neurotic or hysterical patient, who, after vomiting peptonised milk, will retain roast mutton and potatoes if insisted on—the two cases are not parallel.

(3) Do not exclude any article from the diet unless there is good reason for so doing.

(4) Each food calls forth a supply of those ingredients of the gastric juice suitable for its own digestion, *e.g.*, meat is easily dissolved and calls forth much juice poor in ferments, while bread is difficult of solution and so calls forth a scanty juice rich in ferments, and the stomach acquires the habit of manufacturing the particular kind of juice suitable to the accustomed article, and if you suddenly substitute another article for this then some time may elapse before the required new variety of juice is secreted—meanwhile dyspepsia and vomiting may result. Hence all changes of diet should be gradual.

(5) Slight changes of diet are often very beneficial, *e.g.*, the substitution of coffee or cocoa for tea, one kind of bread for another, or changing the order of meals, *e.g.*, in the case of a big midday meal and a light evening meal it is often useful to let them change places in certain cases of insomnia.

(6) Diet requires readjusting as the patient travels from youth to age or gradually changes from an active to a sedentary life, for the palate and appetite may continue active while metabolism is waning. You may have a palate and appetite of 30 with a liver and kidneys of 60. Gout, obesity, &c., are due to this want of adjustment.

(7) We ought to avoid a few fallacies, of which humanised milk and concentrated foods, such as beef lozenges, are examples. For the most concentrated proteid is lean meat minus its water, the most concentrated carbohydrate is sugar, and the most concentrated fat is olive oil. A humanised milk is a chemical impossibility, for although we may modify cow's milk till it is of the same percentage composition as human milk yet the constituents of the two milks differ in kind, for the casein of cow's milk forms dense flocculi, while the

casein of human milk forms fine, easily-dissolved flocculi and contains more sulphur. The fat, too, of human milk has a lower melting point and is in a finer state of division than that of cow's milk. Nearly all the phosphorus of human milk is organically combined, while in cow's milk very little of the phosphorus is organically combined.

In reference to feeding by the skin, I wish to point out that the subcutaneous injection of olive oil is a better way than by merely rubbing fats into the skin.

Regarding the Salisbury diet. This is so called after Dr. Salisbury, who, being dissatisfied with our ignorance of the true causes of disease, made during many years microscopical and chemical examinations of blood, fæces, urinary deposits, secretions from skin and mucous membranes, and of fat and hair follicles, to determine these causes, and he hired healthy men and tested the results of exclusive diets on them by means of the above examinations. He found from this work that any one class of food too long continued may result in such diseased states as consumption, catarrh of stomach and intestines, rheumatism, gout, diabetes, &c., but he found, too, that man can subsist upon meats, and especially upon beef and mutton exclusively, and retain his health for a much longer time than he can upon the best vegetable products. He then elucidated his very simple dietary which consists of specially prepared beef, followed as the patient improves by other meats, and bread baked in a special way; but please remember that there is no routine Salisbury diet, each physician must learn how to make the necessary chemical and microscopical examinations, and these must guide him to the exact diet for each patient. While taking this diet Dr. Salisbury directs his patients to drink water at a temperature of 110° at certain times, and this has several results, viz. :—

It helps the absorption of solid and liquid exudates, because the blood being impoverished in water in the intervals is in the best condition to take up fluid from the tissues, and if food is diminished it must also regenerate itself from the tissues.

Less uric acid is eliminated, more oxygen is absorbed,

more carbon dioxide eliminated, and saliva and bile are increased. It stimulates the heart and causes an evanescent rise of blood pressure, and improves the circulation in the capillaries and is diuretic.

During the first four days of its administration it washes out waste nitrogenous materials from areolar tissues.

It is an excellent quencher of thirst, and in catarrh and dilatation of the stomach it washes away mucus and fermenting food and stimulates the blood-vessels and nerves of the walls.

It excites downward peristalsis of the intestine, dilutes ropy secretions and dissolves abnormal crystals in the blood and urine.

The Salisbury diet gives excellent results in disorders of digestion and metabolism.

HYDROTHERAPY.

Water acts by means of its effect on skin and subcutaneous tissue. The model exhibited shows how the skin consists roughly of two layers: epidermis, which contains neither vessels nor nerves; and cutis vera, which contains both. Below this is the subcutaneous tissue. These capillaries in the cutis vera are arranged in loops, elastic fibres and non-striated muscle fibres being placed obliquely round these loops, and these fibres by their contraction and relaxation regulate the circulation in them. The nerves form a plexus just beneath the epidermis, and the subcutaneous tissue contains a great meshwork of arterioles. Now all these blood-vessels of skin and subcutaneous tissue can accommodate one-half of the entire blood of the body, and further, there are many facts in comparative anatomy and physiology which render it almost certain that these and other blood-vessels at the periphery of the circulation do perform a kind of rythmical peristaltic movement which drives the blood onwards, and they have been aptly called the "skin heart" or "the peripheral heart." The skin is, as you know, the great regulator of temperature by means of its sense of temperature and of the power inherent in these blood-vessels of contraction and

dilatation. It acts, too, as we have seen, as an extra heart, it is an organ of excretion, and by means of its numerous nerve fibres it opens to hydrotherapy a free gateway to the central nervous system.

In applying water to the skin we use its capacity for gathering, absorbing and transmitting heat or cold at any required temperature, we direct it to any one, or to all portions of the body, and we apply it at any required degree of pressure to produce mechanical effects on the nerves and blood-vessels of the skin.

The heat or cold conveyed by water causes, first, contraction and then dilatation of cutaneous vessels, but with this difference, that after heat there is a passive dilatation with diminished peripheral resistance, while after cold there is an active dilatation with increased peripheral resistance, the dilatation here being due to contraction of the longitudinal fibres.

Now one of the chief dangers in infectious fevers is heart failure with a rapidly-beating heart. This, however, is not due to any damage to the heart, but to paralysis, from toxæmia of the vaso-motor centre and consequent passive dilatation of the vessels of the skin, and hence want of resistance to the heart. This state of things has been aptly compared to a railway engine trying to start on slippery rails, the result being that the wheels simply fly round, while the engine working at an excessive speed would soon be damaged. This is precisely what happens to the heart when the peripheral resistance is diminished; and in the case of the engine you produce steady working by putting sand on the rails, while in the case of the heart you slow and steady it by means of cool water applications, with hand friction, which put in peripheral resistance by giving tone to the skin vessels.

In the early stages of these fevers the rise of temperature is due partly to heightened metabolism, and partly to contraction of the cutaneous vessels, which cool water applications actively dilate.

In many diseases a large number of the blood corpuscles lodge in various organs—chiefly liver and spleen—instead of

circulating, and hence their use as O and CO₂ carriers is lost to the organism. Now cool water applications to the skin by reflexly acting on the heart, produce an effect like digitalis, i.e., slowing the heart, prolonging diastole and increasing the force. The resulting improved circulation sweeps these corpuscles again into the blood stream, and by methodical repetition this effect is rendered permanent. The advantage of this in conditions like anæmia is obvious, and hydrotherapy has always benefited my anæmic patients more than drugs.

We know, too, that one of the chief chemical defences of the organism against pathogenic bacteria is the power of killing them which the blood possesses, that this power is closely connected with its normal alkalinity and that alkalinity is much lessened in infectious fevers. It has been proved, however, that cool water applications markedly increase this alkalinity and hence increase also the bactericidal action of the blood.

In infectious fevers, too, the skin, kidneys and lungs do not eliminate properly. But cool water applications improve matters here, for they cause more O consumption, and more CO₂ elimination from skin and lungs, and more urea elimination from kidneys and skin, and more elimination of uric acid, phosphoric acid, and toxins from the kidneys. So that elimination of waste products is rendered in every way more active. Both cold and hot water impinging upon the nerves of the skin reflexly stimulate the respiratory centre. Hence its value in conditions like broncho-pneumonia and phthisis.

Muscles are made to contract longer and more vigorously by cold water applications.

Water is applied chiefly by packs, ablutions, douches, local and general baths.

The milder methods are used chiefly in chronic disease, and the general bath chiefly in infectious fevers. In all applications the patient's head is wrapped in a cold, wet towel; his skin should approach a pink colour, any cold sensation should disappear after he has been dried. This reaction is the test of the efficiency of each application, for if the cold sensation persists after drying, then it proves

that there was improper selection either of temperature, duration, or mechanical impact.

We now see how benefit occurs in conditions in which there is a chronic defect of nutrition, as anæmia and chlorosis, or in which metabolism is perverted, or in which the nervous system is working wrongly, or in diseases of internal organs. I should in nearly all cases begin with ablutions and gradually work up to affusions and douches, which markedly increase metabolism, for by this treatment we are subjecting our patient to a kind of neuro-vascular gymnastics, if I may so term it. If, however, a hypersensitive nervous system be a marked feature of the case I should use more sedative measures, such as the wet pack and continuous current bath, for by studying the patient and the effect of treatment on him one is guided to the best method. A short time ago I treated a patient who, though she had no organic heart disease, had a wretched circulation—cold hands and feet, attacks of faintness, and often a distressing feeling of rushing of blood to the head. Nothing seemed to improve these symptoms till I began with ablutions, which I applied myself daily, and I was astonished at the improvement of the circulation which set in as early as the fourth day—the hands and feet and body being decidedly warmer, and there was no longer any faintness or rushing of blood to the head.

I regret that want of space prevents my referring to the Brand bath in typhoid fever.

I show you on the patient exhibited the Winternitz combination compress.

A piece of linen wrung out of water at 65° F., extending from the ensiform cartilage to the pubes, is wrapped twice round the body. A rubber coil is placed in the folds of this linen on the epigastrium, and through this coil hot water, at the desired temperature, flows. The whole is covered by a flannel bandage. This compress has given good results in obstinate vomiting, hyperacidity, catarrh, but in these cases it should be applied for only three minutes. It has also been placed on the chest or præcordium with iced water circulating through it in cases of pleurisy and peri- and endo-carditis, with great benefit.

I have no time to deal with mineral water bathing and drinking, but as a type of mineral water bath, I will briefly deal with the artificial Nauheim bath, because I am constantly giving it in my own house. This fairly good imitation of the baths at Nauheim is made by adding to measured quantities of water, measured quantities of salts and of effervescing powders to produce CO_2 . These quantities vary with the different baths, and minute attention must be given to this as well as to duration and temperature, and I always personally attend to these points myself.

The CO_2 powerfully increases the peristaltic action of any unstriped muscular fibre with which it comes in contact, which in this case is the unstriped muscle of the skin heart, which now comes into action to aid the central heart and gives it a chance of regaining its normal size. Similarly the lymphatics are stimulated and absorption promoted. The affected organs are also stimulated reflexly, and so is the pneumogastric nerve, so that the heart's action becomes consequently slower and stronger. The kind of heart cases that are chiefly benefited are dilated, enfeebled hearts—either a sequela of influenza or present with raised blood pressure in gouty and rheumatic patients—also valve lesions due to rheumatism and gout. In advanced forms of valvular affections, when the general recuperative powers are poor, the chance of improvement is doubtful.

Aortic regurgitation is, as a rule, not benefited. In old age, in alcoholism, syphilis, arterial degeneration, accompanying valvular disease, there is no improvement. Gout, muscular rheumatism, infiltration of nerves, and indurations in and about the uterus are all benefited by the increased activity of the lymphatics and by reflex stimulation from the skin.

MECHANOTHERAPY AND EXERCISE.

As regards movements, we must remember that the muscle fibre and the peripheral neurone connected with it are physiologically a single machine, a functional unit, and that if anything goes wrong with one part of this machine the whole is thrown into disorder. Even this single machine

is in contact with a central neurone, and after a short time this suffers also. Conversely, increased use and consequent greater efficiency of muscle fibre and peripheral neurone lead to increased size and efficiency of the central neurone.

Massage and passive movements improve the condition of muscle and peripheral neurones, but have very little effect on central neurones, and hence favour inactivity of attention; but active volitional movements, such as drill and games, have their greater effect on the central neurones, as they require the use of attention, and improve coördination. Moreover, their effect is not limited to the central neurones, but it extends to other neurones and cells of the cortex which are especially related to mental processes, and this partially explains why the gymnastic training of criminals has such an excellent moral effect.

Now the voluntary and involuntary muscles together make up about one-half the total body weight, and when a muscle is exercised certain well-known effects follow, such as increased flow of blood to and better nutrition of the muscle, better drainage of waste products from it. Metabolism is enormously increased, increased respiratory changes, better oxygenation of and carrying off of waste matters by the blood, increase of digestive juices and peristalsis of alimentary canal. The lymph flow is increased.

Massage has a similar effect to exercise, but a more pronounced effect in some respects, for blood flows three times faster through a muscle undergoing massage than when at rest, and the circulation is greatly aided, because the two contracting hands of the masseuse act like two propelling hearts at the periphery of the circulation. Exudations are absorbed, nerves better nourished, and a masséed gland secretes both the fluid and solid parts of its secretion better. Of the four main kinds of massage manipulations—Effleurage acts chiefly on the peripheral ends of nerves in a sedative manner.

Friction acts chiefly on blood-vessels and lymphatics, greatly increasing the flow of blood and lymph through them.

Petrissage acts chiefly on the skin, fat, and areolar tissue,

on the trunks and extremities of blood-vessels and lymphatics, increasing the circulation and metabolism and causing absorption of exudates.

Tapotement acts chiefly on the trunks of nerves and stimulates the nervous system.

As regards respiratory gymnastics, let me explain that there are three ways of enlarging the thorax, viz. :—

The pancostal, in which all the ribs, including the clavicles, are raised; this causes acceleration of the flow of blood from the legs and abdominal organs and from the inferior vena cava.

The lower costal, in which the ribs are raised without elevation of the clavicles.

The abdominal, in which the diaphragm acts, the ribs being fixed. This expands the bases of the lungs, compresses the abdominal and pelvic viscera, and pumps lymph from the peritoneum into the pleura. By closing the glottis and alternately retracting and protruding the abdomen you have an excellent developing drill for the diaphragm and abdominal wall. To influence one lung only you do unilateral breathing.

By a long, deep inspiration, followed by a short, deep expiration, you immensely facilitate the transit of blood from the vena cava to the aorta, and of lymph into the thoracic ducts.

These examples will give you an idea of the value of these gymnastics in phthisis, emphysema, asthma, organic heart disease, and congestions of viscera with dyspepsia and constipation.

The Nauheim movements are a graduated set of gymnastic exercises for the heart muscle. They rest the heart muscle by prolonging diastole. I have obtained excellent results from them without baths in a case of mitral regurgitation. The hill-climbing treatment of Oertel resembles in its effects these movements; it is suitable only for cases in which there is no degeneration of the heart muscle.

The *rationale* of *Fränkel's* exercises to improve coördination in *tabes dorsalis* is that here the impression received

from the periphery is faulty through degeneration of incoming nerves, and therefore the outgoing motor impulse is also faulty in misdirection of movement, false speed of movement, and in increased intensity of movement. They consist mainly of tracing on the part of the patient with a pencil attached to his boot over the lines of patterns on the floor, for example, circles, semicircles, triangles, squares, diagonals. The tracing is for correction of misdirection. To correct speed the patient traces these lines in a given time; to correct intensity he traces them against resistance.

Mechanical vibration, produced by an apparatus called a vibrator, includes both vibration and stimulation.

Vibration is produced by a heavy stroke and heavy pressure, and is applied directly over an engorged or congested organ, such as liver, spleen, joints, and over the lymphatic glands which drain them, thereby relieving the congestion.

Stimulation is produced by a medium stroke and light pressure, and is applied over the vertebræ from which the nerves issue, which, through the sympathetic, control the organ on which it is desired to act—it is indicated where increased nutrition and a larger blood supply are desired.

The Ling or Swedish Gymnastics consist of positions, movements, and massage movements, which are given by the gymnast with the aid of benches, poles, stools, &c.

Supposing that I am being treated for a curvature of the dorsal region of the spine, with the convexity to the right, one of the positions which would be given to me is spring-sitting. One of the movements would be high-ride-sitting-side-flexion, the gymnast's hand in my right axilla resisting my side flexion, his other hand merely guiding my left elbow.

The massage movements are somewhat similar to ordinary massage, in this case the erector spinæ muscles would chiefly be massaged.

This excellent and complete system of gymnastics is chiefly used for diseases of muscles and joints, defects of metabolism, and diseases of nervous and digestive systems.

There are two branches of Swedish gymnastics, viz., the method taught by Wide and that taught by Kellgren.

The Zander treatment consists of a number of exercises given with the aid of elaborate apparatus.

THERMOTHERAPY.

Generally speaking, brief applications at a high temperature stimulate the nervous system and muscles, while prolonged applications depress and relax. Heat makes the skin perspire and increases metabolism and the gaseous exchange in the lungs.

Local application of heat to the surface acts in the following ways :—

By local elevation of temperature.

By changes induced in more or less remote parts through reflex nervous action.

By means of vascular relations existing between different organs and regions.

The effects which depend on reflex nervous action are the result of the connection, *vid* the nerve trunks and centres, between each internal viscus and a clearly defined cutaneous area ; the viscus has, of course, nerve connections with other parts of the surface, but not so closely as with its own particular area. The two diagrams exhibited show each cutaneous area and the viscus connected with it.

The vascular connections are very close between certain cutaneous areas and the viscera, which they overlie. The reflex cutaneous area and the vascular area of any one viscus are usually identical. When they are not and we wish to reduce congestion of a viscus, we apply the coil with iced water flowing through it to the reflex cutaneous area and a hot compress over the cutaneous vascular area. When they are identical we apply the same coil to the area and hot applications to the legs and lower part of the body. As you know, heat locally relieves pain and may be applied by this coil with hot water flowing through it, and by bottles, sand or bran bags, or the flat iron.

The most important application of heat, however, is by dry hot air, which may be applied either locally by means of metal cylinders to enclose the hand, shoulder, or any

part, or generally by a cylinder to enclose the whole body except the head, a thermometer being placed in each apparatus, temperatures of from 300° to 500° F. being used.

The sphere of action is practically confined to the part treated, the temperature of which is raised several degrees. This high temperature inhibits the growth of organisms, which are also attacked by the leucocytosis and increased cell metabolism, which are also induced. The copious perspiration induced carries off toxins, the local circulatory stasis is relieved, and after the first treatment there is reduction of swelling and great relief of pain. This local treatment lasts about one hour.

In the body treatment the effect is not due to direct heating, but is reflex through the spinal sympathetic. The physiological effect is that white and red blood corpuscles are increased, the alkalinity of the blood is increased, there is great increase in the quantity of urine and urea, there is a rise of temperature of from 1° to 2° F., an increase of volume and acceleration of pulse, increased excretion of carbon dioxide, profuse perspiration, the functional activity of every organ and tissue is augmented, which augmentation is followed by reactionary debility. You will therefore see what a profound influence this treatment has in those diseases in which there is retention by the organism of the products of suboxidation.

The part treated is covered by towelling, and the air of the cylinder is changed several times to maintain dryness, since the skin perspires so freely.

Each individual exhibits a different degree of susceptibility to the body treatment, which is expressed by the rise of temperature and acceleration of pulse. When the pulse reaches 120 per minute and the temperature 2° above normal, then the deep reflex response which will produce the best result has been obtained and it is time to stop.

Excellent results are obtained by the body treatment in rheumatoid arthritis, the gouty diathesis, nephritis, neurasthenia, neuritis, angina pectoris, dysmenorrhœa, and by the local treatment in acute and chronic rheumatism, sciatica, pneumonia, peritonitis, phthisis, septic infection, hepatic colic, &c.

PHOTHERAPY AND RAYTHERAPY.

The diagram exhibited represents the familiar spectrum of white light, which, having passed through the prism, the various waves are thrown on different parts of a screen, the shortest waves being at this violet end and the longest at this red end, and the eye recognises these different wave lengths as so many different colours. The part shown is called the visible spectrum—being the part which the eye can see. But stretching away beyond these two ends is light which the retina is not cognisant of, though it also behaves according to the laws of light and produces definite physiological effects. If, using the language of music, we call this visible spectrum one octave, then some longer waves which are called the infra-red or heat waves extend to more than five octaves beyond the red end, and some very short waves which are called the ultra-red or chemical waves, extend to about two octaves beyond the violet. Each of these rays has its own special therapeutic action, though this has not been fully worked out, but experiments tend to show that red is stimulating to the circulation and nervous system, yellow especially stimulates nerves, green is somewhat soothing, blue and violet have a calming effect and promote sleep, and if concentrated on a part produce such a degree of local anæsthesia that wounds have been stitched and superficial tumours removed painlessly. The chemical rays irritate the skin and produce an erythema, and are probably the cause of the suppuration of the smallpox vesicle—which may be prevented by putting the patient in a red light and thus excluding them. The blue, violet and chemical rays kill bacteria. The physiological effect of all these rays combined in white light is that metabolism is increased, leucocytosis produced, the nervous system is stimulated, the skin perpires freely and bacteria are killed.

Light is employed therapeutically in three forms, viz., sunlight, the arc light, and the incandescent light, either locally to the affected parts or generally as light baths, in which every part of the body except the head is exposed, each electric light filament being enclosed in glass of the

colour required. The two forms used in England are the arc light bath and the incandescent light bath, sunlight not being available. The arc light is almost identical with sunlight—its chief feature being that it contains many chemical rays and but few heat rays and ozone is produced, while the incandescent light contains many heat rays and but few chemical rays. I need not describe these baths, which can be seen at any hydro or sanatorium. The arc light bath gives good results in conditions of defective metabolism, especially where oxidation is deficient—such as diabetes, uric acid diathesis, cirrhosis of liver, tuberculosis, in which it greatly relieves intercostal neuralgia.

In the incandescent light bath the patient receives the effect of both light and heat, but the heat here is given by direct heat rays, whereas in thermotherapy proper the air conducts the heat. This bath stimulates the skin heart and flushes the skin with blood and produces profuse perspiration, promotes the absorption of exudates formed by injuries and sprains, and has a general tonic effect and benefits the same conditions as does the arc-light bath, but by having the heat rays also it gives excellent results in sciatica, neuralgia, myalgia, chronic bronchitis, and bronchial asthma.

The arc light is applied locally by means of a lamp, with devices which cut off the heat rays, and is used chiefly for lupus, acne, alopecia, boils, &c.

The incandescent light is applied locally by small cabinets to the hands, feet, spine and joints, for the same conditions as the bath.

X-ray Therapy.

The X-rays are either light of a very short wave length, and thus resembling ultra-violet light, or they are a disturbance of the ether, very similar to light. On normal subjects they produce pigmentation, an inflammation of the skin, which may be of any degree, from a slight erythema to destruction of skin and underlying tissue, atrophy of hair, glands and nails; they penetrate deeper than light and so affect deep tissues, but never so much so as the skin, which

always absorbs part of them *en route*. They cause a degeneration of the epithelial cells of the skin, which is preceded by an inflammatory reaction and leucocytosis, with endarteritis of blood-vessels.

On lupus, rodent ulcer and carcinoma the effect is similar, but the effect on the cells of the morbid growth is greater than the effect on the adjacent normal cells, because the former have less resistance than the latter, therefore you expose the part to the rays just long enough to destroy the pathological tissue but not long enough to seriously damage the adjacent normal tissue.

The X-rays also markedly relieve pain and itching in superficial and deep tissue. These rays cause the disappearance of bacteria by producing a leucocytosis. They have a marked effect in causing the disappearance of psoriasis, chronic eczema, and superficial epithelioma. In lupus the arc-light is preferable. They have also been used for removing hairs from the face, tinea tonsurans, sycosis, acne, comedo, Hodgkin's disease, sarcoma, tuberculosis, chronic ulcers. They act best on a malignant growth when it is superficial and involves a considerable area.

Treatment by the Rays given off by the Metals Radium, Polonium, Uranium, Actinium, Thorium, and their Salts.

Radium has never been found in a metallic form, but is obtained as the chloride or bromide, this being the salt usually employed, and it usually acts better when it has been kept for a long time. It gives three kinds of rays of different penetrative power. These rays kill bacteria and destroy tissue just as the X-rays do, and act on the same morbid growths in the same way; they have also relieved orbital neuralgia, psoriasis and acute iritis.

Small glass tubes containing radium bromide are placed within accessible mucous cavities, *i.e.*, mouth, vagina.

Radium and thorium continually emit gases, which gases themselves give out on their own account rays exactly similar to the rays from radium and thorium themselves. Hence a thorium inhaler is now used, by which these gases are inhaled.

ELECTROTHERAPY.

I must first explain the difference between the pressure and the rate of flow of an electric current.

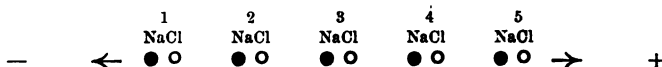
If, taking an ordinary Higginson's bulb syringe, I squeeze the bulb, the more I squeeze it the greater the force which the issuing water exerts against any obstacle in its path. Now, electricity flowing through a wire or other conductor exerts a similar force against any obstacle in its path, and this pressure is called electro-motive force, or, briefly, E.M.F., and the unit of measurement of this E.M.F. is the volt, and please remember that the volt does not represent any particular quantity of electricity, but only its pressure.

If I now take another syringe with a tube and nozzle of greater diameter, and squeeze the bulb with the same force as before, a larger quantity of water will issue from the nozzle than in the case of the former syringe; in other words, there is now a greater rate of flow past any given point. Exactly the same conditions occur with an electric current and the unit of measurement of rate of flow is the ampère.

I have mentioned these points, not only because they are the A B C of electricity, but also because various rates of flow and pressure give various physiological and therapeutic effects—the high frequency current, for instance, being a current of minute rate of flow but of a terrific E.M.F.

All electricity applied to the skin penetrates it only at the sweat and sebaceous glands, and it traverses the body by means of electrolysis or the chemical decomposition of a compound body by electricity.

Suppose that each pair of these beans represents a molecule of NaCl dissolved in water, the black bean being the Na atom and the white bean the Cl atom, and the sign + a wire connected with the positive pole of a battery, and the sign — one connected with the negative pole, both wires being dipped into the solution.



On passing an electric current through the solution the Cl atom will leave molecule No. 5 and will travel in the direction of the arrow near it towards the positive wire to which it will adhere, and at the same time the Cl atom of molecule No. 4 will travel in the same direction, but meeting *en route* the dissociated atom of Na it will temporarily combine with it, replacing the Cl atom which has just left it.

Similarly the Na atom of molecule No. 1 will leave its molecule, and will travel in the direction of the arrow near it towards the negative pole, the Na atom of molecule No. 2 will travel in the same direction, combining *en route* with the Cl atom of molecule No. 1. All the Na atoms travel towards the negative pole, and all the Cl atoms towards the positive pole, causing cleavage of the molecules of which they formed part and recombining to form new molecules. This is the way in which an electric current traverses our bodies, *i.e.*, by decomposing and recombining the inorganic salts which are dissolved in the various fluids of the body, and acting only secondarily and to a less extent on the protoplasm.

Electricity, generally speaking, produces, both directly and reflexly, certain definite effects on the organism, viz.:—

The blood-vessels are dilated, and the blood flow through the part treated is increased. Leucocytes are increased. The absorptive power of the lymphatics is increased. The secretion from glands and mucous membranes is increased. There is a transitory stimulating effect, and a marked nutrient and analgesic effect, and often the first effect noticed during treatment is that the patient sleeps better. The nutrient and analgesic effects persist long after treatment has been discontinued.

Therefore in considering whether to apply electricity to a case or not we should ask ourselves: (1) Is there any pain to be relieved? (2) Is there any need of, or possibility of, improvement in the local or general nutrition?

Several distinct currents are used in electrotherapy, and are distinguished by the kind of E.M.F. which produces them. They can be represented graphically thus:—

In fig. 1 let the vertical line *A O C* represent the amount

of E.M.F., and the point *O* the point at which there is no E.M.F., the part of the line above the point *O* being positive, and that below it being negative. Let the horizontal line *O B* represent duration of time.

A continuous current is represented by the line *D E*, *i.e.*, the E.M.F. producing it is constantly uniform, and constantly in the same direction.

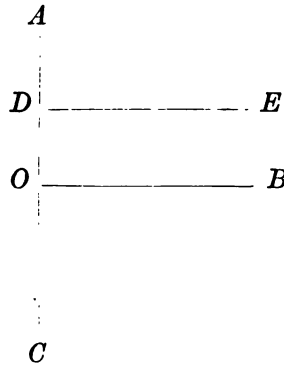


FIG. 1.

This current relieves pain and spasm, and stimulates muscles and nerves. It has no nutrient action.

The magnetic induced current from the secondary of an induction coil is represented by the curved line *a b c d*, fig. 2, *i.e.*, it is an asymmetrical curve, the E.M.F. being greater in one direction than in the other.

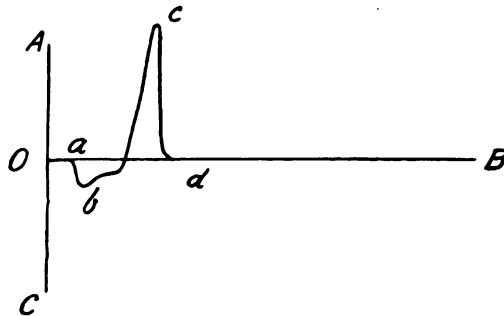


FIG. 2.

This current stimulates by the sudden rise and fall of E.M.F. represented by the line *b c d* which by its frequent repetition acts like tapotement does in massage. This, if strong enough, makes voluntary muscles and nerves contract. The patient's muscles grow bigger and he gains weight.

The combined magnetic induced and continuous currents (galvano-faradism) are represented by the line *a b c*, fig. 3.

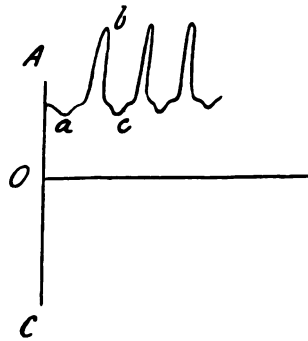


FIG. 3.

It greatly relieves pain and muscular spasm and promotes nutrition, and I have obtained striking results from this current in painful and spasmodic conditions.

The sinusoidal current is represented by the line *a b c d e f* in fig. 4.

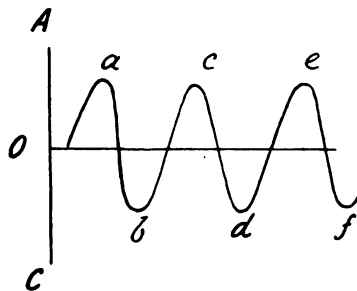


FIG. 4.

It has a marked nutrient action. There is increase both in the absorption of O and in the elimination of CO₂. The gaseous exchange in the lungs is increased by one fourth. Hence its value in conditions of perverted nutrition.

The triphase current is represented by the lines *a b c*, *d e f*, *g h i*, fig. 5.

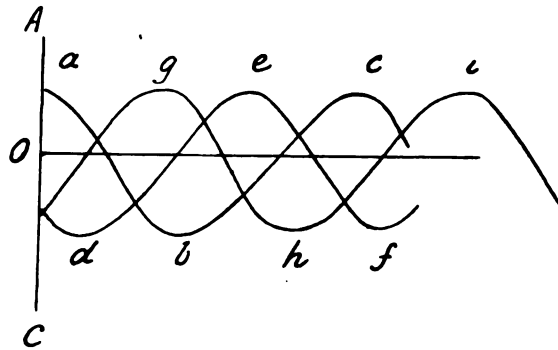


FIG. 5.

It causes unstripped muscular fibre to contract. When applied to the stomach the organ contracts, and when applied to the intestines their peristalsis is increased. The blood pressure is raised and there is increased excretion of urea.

Its benefit, therefore, is obvious in atony of the stomach, in chronic constipation and in neurasthenia when accompanied by diminished blood pressure.

The above forms of current are obtained by fairly simple apparatus, and I regret that I am compelled to omit all reference to static and high frequency electricity.

Electricity may be applied either locally or generally—generally by the hydro-electric shunt bath in which the current is sent through the water of a bath in which the patient is immersed, he receiving part of the current, or by small tubs in which the patient's limbs are immersed, or locally it is carried by wires to appliances called electrodes, which are of various shapes suitable for application

to any part of the surface or to the interior of the uterus, rectum, throat, or nose.

One excellent use of electricity is in phoresis, by which is meant the introduction of drugs in solution through skin and mucous membranes by the electric current with or without electrolysis, *i.e.*, the drugs may or may not be decomposed but they are driven into the tissues by the electric current, the greater the rate of flow of the current, the greater being the amount driven in.

To this patient's back I apply a large electrode connected with the negative pole of a battery, and to her cheek I apply a small piece of sponge connected with the positive pole, the sponge having been soaked in a mixture of equal parts of liquid chloral and camphor. I now gradually turn on 2 milliampères of current, with the result that, as you see, the patient, within one and half minutes, distinctly tastes the camphor and chloral in her mouth, and had she been suffering from facial neuralgia this method would immediately have given partial or total relief, as it has always done in my hands.

I regret that I cannot go into the subjects of climatology, personal hygiene and hygiene of the dwelling. Of *aërotherapy*, *i.e.*, treatment by inhalation of air, either rarified, compressed, or medicated by various drugs in the form of vapour, minute liquid or solid particles. *Aërotherapy* is used with good effect on the Continent, but the open-air treatment of phthisis seems to be the only part of this treatment practised in England.

Other therapeutic methods omitted are psychotherapy and neurotherapy, *i.e.*, treatment directed to the patient's mind and nervous system, serumtherapy, organotherapy, transfusion of blood and blood-letting, the treatment of chronic ulcers and middle ear suppuration by a mixture of equal parts of air and oxygen, which inhibits the harmful organisms and stimulates those favourable to healing. Also the method of inoculating ulcers with these favourable organisms, which, in accordance with the law of survival of the fittest, then crowd out those which aid the ulcerative process.

GENERALITIES.

If we wish to be good therapists in the use of these agents we must know six things.

(1) We must be clear as to the physical properties of each agent and the laws of its action; for we should obviously fail in electrotherapy, for instance, if we did not know how the currents differ from each other, the laws of conduction, induction and current diffusion.

(2) The method of manipulation. This is the most important and, at the same time, the most neglected part of the work. For instance, to take hydrotherapy, we might know everything about it, but we should utterly fail in our results if we did not apply it in a precise and accurate way. For if technique is defective then so is the result, and defective technique is the chief cause of the failure of physiological therapeutics. I have written the following prescriptions as an example of the points which must be accurately carried out.

Miss Smith.

January 14, 1904.

Diet.

- 7 a.m. Distilled hot water, $\frac{3}{4}$ pint.
- 8.30 a.m. Steamed plaice, 6 ozs.; baked bread (Salisbury), 2 ozs.; butter, $\frac{1}{4}$ oz.
- 11.30 a.m. Repeat hot water.
- 1 p.m. Beef cake (Salisbury), 5 ozs.; baked bread (Salisbury), 2 ozs.; rice cakes (Salisbury), 2 ozs.; butter, $\frac{1}{4}$ oz.
- 4 p.m. Cup of Plasmon, 5 ozs.
- 5.30 p.m. Repeat hot water.
- 7 p.m. Beef cake (Salisbury), 4 ozs.; baked bread (Salisbury), 2 ozs.; the whites of two eggs prepared *à la* Salisbury; butter, $\frac{1}{4}$ oz.
- 9 p.m. Cup of Plasmon, 5 ozs.
- 10 p.m. Repeat hot water.

S. W.

Miss Lawrence.

January 14, 1904.

Artificial Nauheim Bath.

Water, 44 gallons. Temperature, 96° F.

Composition.—Four alkaline packets; 8 acid tablets; sodium chloride, 10 lbs.; calcium chloride, 11 ozs.

Duration.—Nine minutes.

S. W.

Mrs. White.

January 14, 1904.

Massage.

General massage, including head massage.

Abdomen not to be masséed.

Effleurage, petrissage and friction to be given.

No tapotement to be given.

The last seven minutes of the massage to be devoted to resistance movements (*i.e.*, the masseuse resisting the patient's movements of limbs and head).

Total duration.—Half an hour.

S. W.

Mr. Edwards.

January 14, 1904.

The Winternitz Combination Compress.

Temperature of compress, 70° F.

Temperature of water for flowing through coil, 180° F.

Duration.—Five minutes.

S. W.

Mr. Jackson.

January 14, 1904.

The Drip Sheet.

Temperature of room, 70° F.

Temperature of foot-bath, 100° F.

Temperature of water for sheet, 75° F.

Temperature of douche water, 60° F.

Duration.—Three minutes.

Before drip sheet patient must lie in dry pack till skin is warm but not perspiring.

After drying he must be rubbed briskly with a warm towel, and then promenade in the open air.

S. W.

Mrs. Brown.

January 14, 1904.

Faradic Bath.

Water, 44 gallons. Temperature, 99° F.

Fine coil to be used, quickest possible interruptions.

Duration.—Fifteen minutes.

S. W.

Miss Wilkinson.

January 14, 1904.

Galvano-faradisation of the Sympathetic.

Galvanism, 5 milliamperes.

Faradism, up to No. 2 on the rod.

Duration.—Twenty minutes.

S. W.

Mrs. Benson.

January 14, 1904.

Incandescent Light Bath.

General bath. Temperature, 300° F.

Duration.—Twenty minutes.

If the pulse rises above 80 or the temperature above 99° the bath must be immediately discontinued.

S. W.

(3) The manner in which the organism reacts to the particular agent employed, which is commonly called its physiological effect. For we might be excellent and practical masseurs, but unless we know what effects will occur in the organism as the result of our massage we should be hopelessly at sea in our use of it. We must remember, too, that each of these agents is a form of force, which in the organism is transformed into other forms of force, *e.g.*, heat, electricity, nerve-force, muscular movement; and it is the manifestation of these forces by the organism which we term "the reaction." Knowing accurately the physiological effect we can deduce therefrom the kind of case which each agent will benefit, for nearly all the changes in the organism which I have described have

been ascertained by analyses of blood, count of corpuscles, observations of blood pressure, pulse tracings, quantitative analyses of fæces, urine, and of inhaled and exhaled air from the lungs, estimation of the motor power of stomach and intestines, &c. ; and these analyses give a more accurate and scientific groundwork for our therapeutics than any amount of empiricism and clinical experience.

(4) The pathological condition to be treated. For we might be well up in everything pertaining to the agent employed—say hot dry air—but unless we knew the morbid condition to be treated there would be much guess-work about our therapy.

(5) The particular way in which we wish to influence the morbid condition. For instance, if we have a patient who has a chronic effusion into his knee-joint, with atrophy of the thigh muscles from disuse, we wish, of course, to promote absorption of the effusion and to develop the thigh muscles ; we know, too, that nothing brings about these results so well as massage. Without knowing precisely what change we wished to bring about we could not select massage as the remedy, and even supposing that we could we might not apply it properly.

(6) The dose. Knowledge of the foregoing points, combined with experience and accurate observation of the effect of treatment on each patient, soon gives us a fairly accurate idea of the dose that will probably be best for each patient. Faulty dosage is the cause of much failure. I have seen a feeble patient started on a course of massage and given one hour of it the first day (the duration being left to the judgment of the masseuse). This so exhausted her that it was discontinued. Had one quarter of an hour been given the first day and gradually increased to one hour it would probably have done good.

Knowledge of the above six points enables us to select the one, two, or more agents required, for a patient often benefits most by two or three agents combined.

I have lately treated a single lady, suffering from early symptoms of exophthalmic goitre, with hysterical manifestations. She had been treated by drugs for a year or two

and steadily became worse. I then treated her for some months with every drug that was at all likely to benefit her in every conceivable dose but she steadily became worse. I then discontinued all drugs and treated her solely by physiological therapeutics, with the result that she returned home three months later in better health than she had known for two or three years, to break down slightly, however, some months later, which a shorter treatment again put right. One case, of course, proves nothing, and I would cite others did time permit.

I regard drugs simply as a branch of therapeutics just as hydrotherapy is one branch and electrotherapy another; but the drug branch has been much more developed than the others, hence drugs, chiefly in the shape of that medical fetish the bottle of medicine, have hitherto usurped nearly the whole field of therapeutics. I have merely outlined the therapeutics of some of the foregoing agents, my object being more to call attention to the matter than to attempt to deal exhaustively with them. Some agents, such as mechanotherapy and electricity, are now receiving a half-hearted recognition, while others, such as hydrotherapy and psychotherapy, are ignored and their employment often opposed. The therapeutics of these agents are, in my opinion, the therapeutics of the future.

COLICA MUCOSA, OR PSEUDO-MEMBRANOUS ENTERO-COLITIS.¹

BY A. SPEIRS-ALEXANDER, M.D., C.M.

Consulting Physician to the Devon and Cornwall Homœopathic Hospital.

IN introducing this subject for your consideration and discussion, I must disclaim any attempt to present you with much that is original, my object being rather to place before you a brief but up-to-date *résumé* of our knowledge

¹ Presented to the Section of General Medicine and Pathology, February 4, 1904.

of its natural history, and the bearing of this on the all-important question of its therapeutics.

The disease indicated by the title at the head of this paper has various synonyms, such as membranous colitis, muco-membranous entero-colitis, or membranous catarrh of the bowels; but I have chosen the alternatives, colica mucosa, or pseudo-membranous entero-colitis, the former as indicating most accurately what is known of its pathology, and the latter as generally descriptive of its most salient features.

The congeries of symptoms included under this nomenclature constitutes an ailment that has been attracting a good deal of attention during recent years. The reason assigned by some for such attention is that the disease is on the increase; but it is probable that closer methods of observation on the part of the modern practitioner, resulting in more accurate diagnosis, have led to its more frequent recognition than in former times. Opportunities for its systematic study are less favourable in this country than at the various Continental watering places, such as Vichy, Carlsbad, Plombières in the Vosges, &c., where patients suffering from it flock in great numbers for treatment. Thus, de Langenhagen, one of the best known writers on the subject, founds his monograph on a series of 1,200 cases which came under his observation at Plombières. Other papers by various authors are to be met with scattered here and there through periodical medical literature, even so far back as 1865, so that the condition, though, perhaps, not familiar to the majority, has not been without a fair amount of recognition. Among such papers, I may refer you to an interesting and useful one by a member of our own school, Dr. Lambrechts, which appeared in the March and April number of the *Journal Belge d'Homœopathie* for last year. He there gives a list, with indications, of the remedies most likely, from our standpoint, to be useful in the treatment of the disease.

The latter aspect of the subject is that which will naturally prove of paramount interest to us, both as a body and as individual practitioners, for I conceive that one of the chief

raisons d'être of this Society is the elucidation of therapeutic questions, while every medical man will do well to keep always before him the first axiom of our great leader, "The physician's highest and only calling is to restore health to the sick, which is called Healing."¹

With these introductory remarks, I will now give you a short epitome of the subject under consideration.

ETIOLOGY.

The female sex is more prone to the invasion of mucous colitis than the male, in the proportion, according to Froussard,² of three women to one man, while Langenhagen puts it at 27 to 28 per cent. of men.³

The age at which patients are most liable to be affected is from 25 to 45, though young children are sometimes met with as the subjects of the ailment.

Certain well-marked circumstances are recognised as predisposing causes, and are also symptoms of the disease itself. These are habitual constipation and neurasthenia, or neurotic tendencies.

It has also been noted by some observers that various arthritic manifestations often precede or accompany this form of colitis, and they therefore incline to regard it as a concomitant of the rheumatic diathesis. While it is undoubtedly the case that rheumatic symptoms do occur in some cases, yet it is difficult to trace a definite relationship in cause and effect between arthritism and entero-colitis, and it is also true that the latter may present itself in patients who have never had any form of rheumatism.

The neurotic factor in the causation seems a practically constant one, and if it be the case, as some allege, that the malady is on the increase, we can readily find, in the high tension characterising many phases of modern life, an explanation of this circumstance.

¹ "Organon of the Art of Healing," p. 56.

² "Muco-membranous Colitis," by Dr. Froussard, 1903.

³ "Muco-membranous Entero-colitis," by de Langenhagen, 1903.

SYMPTOMATOLOGY.

The main features that attract attention are (1) irregular action of the bowels and, as a rule, constipation; (2) the discharge, *per rectum*, of quantities of mucus, either amorphous, or in the form of cylinders or flattened tubes; (3) abdominal pain, more or less constant, and in crises.

It has been already mentioned that long-lasting, habitual, obstinate constipation is a marked predisposing cause, and it likewise characterises the course of the ailment itself. In most cases the patient never has a natural motion, and were not artificial means resorted to, might go for days or weeks without relief. The motions thus induced are in the form of scybala, or hard balls of varying size, more or less matted together, or covered with quantities of glairy mucus. Various undigested articles of food appear in the motions, such as portions of green vegetables of all kinds, which pass through the alimentary canal in a practically unaltered form.

In some patients, however, an opposite condition obtains, these being subject to a constantly relaxed state of the bowels, or diarrhoea may alternate with constipation. Froussard states that the former is of a peculiar character, being largely composed of mucus secreted by the intestine, and mixed with fragments of dried faecal matter. "It has very appropriately been called 'pluie intestinale' by Lesèque."¹

As indicated by the nomenclature, one leading feature of the disease before us is the frequent evacuation of large quantities of mucus. It has been already stated that the motions are accompanied and covered by glairy mucus, and where the bowels are relaxed the dejections are chiefly composed of the same secretion. In addition to this, in the most typical cases it assumes the form of long tubes and cylinders, which in some instances are flattened in shape, so that they have not infrequently been mistaken for the segments of tapeworm. These cylinders vary greatly in diameter, from that of an ordinary pipe-stem to an inch or more, the larger forms appearing to be accurate casts of the

¹ *Loc. cit.*, p 8

bowel. In one case, which I saw some years ago in a man of about 65 years of age, a tube of this kind was evacuated, and measured not less than 2 ft. in length by about $1\frac{1}{2}$ in. in diameter. To the naked eye these tubes have the appearance of genuine mucous membrane, and as if shed from the intestinal wall. Microscopical examination, however, shows them to be composed of mucus partially solidified and moulded to the shape of the bowel, epithelial cells being found entangled in it. It seems probable that these peculiar forms are produced as follows: In the first place a vasomotor disturbance leads to irritation of the intestinal mucous glands, with consequent hyper-secretion of mucus. The more watery portion of the secretion is quickly discharged, leaving mucin in excess behind, and this, pressed between the intestinal wall and the descending column of fæces, is gradually moulded to the shape of the former, and finally expelled in this condition. The dejections may in some cases be attended by a slight amount of hæmorrhage, but this probably results from the presence of hæmorrhoids, which are occasionally observed.

It is true that Hale White, in his article on "Membranous Colitis" in Clifford Allbutt's "System of Medicine," does refer to two cases in which much blood was passed, and to one autopsy where the colon was found thin and atrophied, with here and there patches of congestion. It is possible, however, that these were cases of true enteritis, and at all events, from his description of them, they give one the impression of being different from what is usually seen in this country, and also to the condition known to Continental writers.

Bacteria of many varieties, including the *communis coli*, may be found in the discharges, but none peculiar to the disease itself.

The third characteristic symptom is pain. This varies greatly in kind and severity in different individuals. Some complain merely of a constant sense of uneasiness, weight, bearing-down, or twisting in the abdomen, while in others the pain is very much more severe, and occurs in definite crises or paroxysms, and may be mistaken for hepatic colic,

which it closely resembles. Occasionally, such attacks are attended by tympanitic swelling of the abdomen, and such tenderness as to suggest peritonitis. There is, however, no rise in temperature.

The condition of the abdomen next demands attention. Starting in the general emaciation of the body—usually a marked feature in the subject of colica mucosa—its walls are thin and relaxed, so that the coils of the intestine can often be felt through them. The colon may sometimes be clearly defined by palpation as a sausage-shaped mass, while, in others, it is flaccid and collapsed. In some patients, the condition of enteroptosis, or falling forward of the abdominal viscera, may be observed, and in one patient I found descent of the right kidney below the ribs. The latter circumstances are no doubt due to the absorption of the fat in and behind the abdominal wall, and the muscles of the latter being also enfeebled, the viscera lose the support they naturally derive from these structures.

In a certain number of patients of the female sex various disturbances of the pelvic organs, such as uterine deviations, ovarian and tubal derangements, occur; but, beyond their existence as the expression of generally enfeebled health, they do not appear to bear any distinct relation to the intestinal disorder. The latter occurs in many women who are entirely free from defects of the organs of generation.

With regard to the digestive functions in the subjects of colica mucosa, hyperchloridia is the condition not infrequently met with.

PATHOLOGICAL CONSIDERATIONS.

Such, then, are the most prominent symptoms and signs of the disease before us: (1) Obstinate constipation, alternating in some with diarrhoea; (2) the discharge of mucus in pseudo-membranous form; (3) more or less constant pain, interspersed with definite paroxysmal attacks.

Can we find any rational explanation for disturbances so uniformly characterising the natural history of this disease? It is, perhaps, of more than common importance that we

should endeavour to do so in this instance, for on some of the conclusions we arrive at, our chief therapeutic measures will largely depend.

If we say that the disease is primarily due to an error of innervation, I think we shall find in this the true explanation of all its manifestations. It has already been remarked that sufferers from entero-colitis are invariably the subjects of neurasthenia, or of nervous hyperæsthesia, and there can be no doubt that in them the sympathetic nervous system, as a whole, is profoundly affected.

The obstinate constipation, which is so marked a feature of the ailment, is almost certainly due to this cause, expressing itself in a condition of chronic intestinal paresis. The recent researches of Dr. R. W. Leftwich have led him to the conclusion that peristalsis takes place in health almost exclusively in the small intestine, and hence, when this is in abeyance, persistent coprostasis results. His experiments have satisfied him that the anatomical structure of the great intestine, and more particularly the shortness of its mesentery, effectually prevents peristaltic movements, except in the most restricted way. He holds that the colon is maintained in a condition of tonic rigidity by means of its longitudinal muscular bands, and that the contents of the ileum, which are discharged into it by the combined effects of peristalsis and hydraulic pressure from above, are propelled along the ascending colon, against gravity, and thence *viâ* the transverse and descending colons to the rectum, by a process which he describes as one of syphonage. He thus regards the great intestine merely as a rigid tube, the contents of which depend for their propulsion on this hydrostatic principle, and not at all, as hitherto held, on that of peristaltic action.

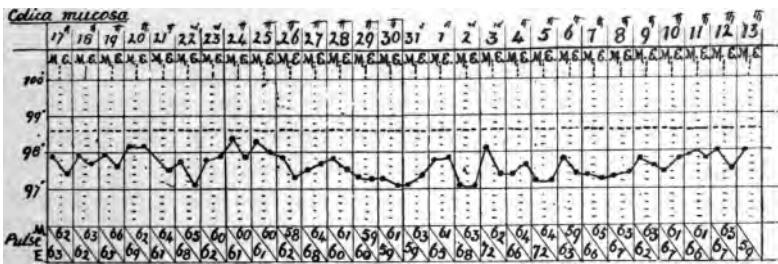
If this hypothesis be accepted, we are driven to the conclusion that chronic coprostasis is mainly due to inactivity of the small intestine, though to this may be added the want of tone in the recti muscles and abdominal wall generally.

As you are aware, the small intestine depends for its innervation on three sources: (1) A system of ganglionic

centres within its walls; (2) fibres of the vagus which stimulate and (3) fibres of the splanchnic nerve which restrain peristalsis, both probably acting through the intrinsic ganglionic centres. In protracted constipation it is then probable that the condition is due either to paresis of the pneumogastric or hyper-stimulation by the sympathetic nerve, and, taking into consideration the neurasthenic condition of the subjects of colica mucosa, it seems rational to assume that this is the state of matters which obtains in their case.

There is some difference of opinion as to the reason for the hypersecretion of mucus in these cases. By some the condition is regarded as an intestinal catarrh, and hence its description by them as membranous catarrh of the bowels. Such a theory, however, rests more upon assumption than upon actual evidence. We know that these cases are essentially long-lasting, in some extending over many years. Now in chronic catarrh we should expect to find definite inflammatory lesions of mucous membrane, such as extensive cell proliferation and hypertrophy. But in the somewhat limited number of autopsies which have been made it is doubtful if such lesions have been met with.

Were the secretion the result of catarrhal inflammation, we should expect to find at least occasional, if slight, variations of temperature. In one case of my own, however, where a careful record of the temperature was kept for some months, there was no rise whatever, but, as indicated by the specimen chart now shown, there was a subnormal register the whole time.



Again, modern pathological research has shown that inflammatory processes are connected with, or result from, the action on the blood of toxins, either automatically produced or secreted by various micro-organisms, such a process being described as a toxæmia. But in the disease under discussion the bacteria found in the dejections are those commonly met with in the intestinal canal even in health, and there being no evidence that their toxins have any share in the production of the mucous discharge, nor that the latter results from any toxin automatically produced, it seems just to conclude that the ailment is not a toxæmia.

On what influence, then, does the hyper-secretion depend? The answer to this question may, perhaps, be found in a suggestion made by a writer who has recently issued an exceedingly interesting monograph on this subject, Dr. Von Noorden, of Frankfort. He refers to a well-known physiological experiment, the result of which he thinks may be analogous to what takes place in the intestinal canal. "It is well known," he says, "that stimulation of the facial nerve causes the submaxillary glands to secrete an abnormal quantity of very watery and barely stringy mucus, whereas stimulation of the sympathetic nerve causes the secretion of a thick, tough, gelatinous, and very stringy mucus that accumulates at the orifice of the secretory duct in the form of tenacious lumps."¹

The precise morbid reflex disturbance that may give rise to the hyper-secretion in the intestine is at present unknown, but the circumstance that regulation of the bowels and the removal of scybala are often followed by lengthened periods of freedom from mucus discharge seems to indicate that the presence of scybala may have some irritating effect on the intestinal mucous glands, and to over-production on their part. But the morbid condition of the nervous system generally must not be lost sight of as an important factor in the perverted activity of the secretory glands under its control. These considerations all seem to indicate that the over-secretion is not due to inflammatory or toxic action,

but that the view expressed by Nothnagel, that the condition is a *secretory neurosis*, is probably the correct one.

It has been already mentioned that the violent paroxysms of pain are often completely relieved by the discharge of a quantity of membranous mucus. It therefore seems likely that the accumulation of this mucus acts as a powerful irritant to the otherwise dormant involuntary muscular fibres of the intestine, setting up violent tonic contractions in them, accompanied by the characteristic pain, and such an attack may therefore be regarded as a nerve-storm.

The significance of these considerations as to the causation of symptoms will be apparent when we come to consider the all-important question of

TREATMENT.

As relating to this subject, I should like to allude to certain conclusions that have been arrived at by more than one member of this Society as to an analogy between the action of the antitoxins employed in serum-therapy and that of the homœopathic similimum in a given case of disease. It has been suggested that, just as the artificially introduced serum antidotes the toxin causing the morbid condition, so the homœopathic similimum stimulates the body cells themselves to manufacture an antitoxin which neutralises the toxin of the given disease.

Now, if this exceedingly ingenious theory be correct, it follows that antitoxins can be efficient solely in those diseases definitely known to be the product of toxins in the blood, for, if there be no toxin, then no antitoxin can be required to counteract it.

Thus, if the *modus operandi* of the similimum be simply to aid the patient to produce an antitoxin, the sphere of homœo-therapy must necessarily be restricted to those ailments that can be traced to a toxic origin. We know, however, from clinical experience, that a large number of diseases which have never, at least, been shown to be toxic do yield to such treatment, and it therefore appears to me that the theory above alluded to, being but partially applic-

able, cannot be accepted as a satisfactory explanation of the action of the homœopathic remedy. Were it the true explanation, the disease now under consideration would have to be excluded from homœopathic treatment altogether, for all the data we possess as to its etiology and pathology point to a neurotic and not to a toxic origin.

On the other hand, if it ever be demonstrated that all neuroses are themselves induced by toxins, then the hypothesis that the latter are overcome by antitoxins automatically manufactured in response to the similimum would, of course, hold good. But it remains true that the old and well-tried rule that the totality of the symptoms constitutes "the outwardly reflected image of the inner nature of the disease" has survived all the changing pathological theories of the last century as a guide to drug selection, and will continue to be as reliable a guide in the future as it has been in the past.

We may then apply the rule to the treatment of colica mucosa with as much confidence as to any other disease, be it toxic or be it neurotic.

In the endeavour to discover the appropriate remedy for each case that may present itself we should then take into consideration, not only the intestinal aspect, expressing itself in constipation, pain, and discharge of mucus, but also the psychological condition of the patient, together with all manifestations referable to the nervous system.

Again, treatment will have to be adapted both to the acute paroxysms of the disease and to the chronic symptoms of the intervals between these. Local measures, for the alleviation of pain, for the dislodgment of scybala and mucus, and the cleansing of the bowel will also demand attention, and finally the question of diet will be found one of the most important of all considerations.

The Management of the Paroxysm.

Here the indications are the relief of pain and the speedy evacuation of the bowels. The pain, as already stated, may be very severe, demanding active measures for its alleviation.

This object may be obtained by the application of fomentations or light poultices to the abdomen, and by internal medication. The remedies that are most likely to be serviceable during this stage are as follows: colocynth., chamom., plumbum, lycopodium, dioscorea, and magnes. phos. The symptomatology of these drugs is doubtless familiar to all, and need hardly be repeated here. The symptoms of the individual case will, of course, guide to the selection of the most appropriate remedy. Should these means be insufficient it may be necessary, in the interest of the patient, to administer a sedative, either hypodermically or in suppository form, and this is indeed the routine treatment in the old school.

Perhaps the most important matter, however, is to clear out the intestinal canal as rapidly as possible, as when this has been accomplished pain subsides almost immediately. There is probably an accumulation of scybala and masses of membranous mucus. To dislodge them it is best to give first an injection of olive oil, introduced by means of a soft catheter as high up as possible. This should be allowed to remain for several hours, and be followed by an enema of warm water, which will wash out the softened contents of the bowel. If a sedative has been given this proceeding will be painless, but if not, the injection may cause spasmodic contractions of the bowel and severe pain. For this reason it is best, in the management of the acute paroxysm, to administer an opiate in some form. The enema should be repeated if the first be not sufficient to clear the bowel of faecal matter, as well as of mucus.

The Chronic Condition.

Here the physician's aim should be, in the first place, to restore, if possible, the patient's lost or enfeebled nerve-tone, and to improve the motor power of the intestines. For these purposes we have various resources, both medicinal and accessory, at our disposal. Both have an important rôle to fulfil—the former in correcting the constitutional or diathetic error lying at the root of the

disorder, and the latter in aiding to overcome the effects of that error.

It may be appropriate here to enumerate the drugs most likely to be useful from the homœopathic standpoint, constituting, as they do, the chief difference between our treatment of this ailment and that of the other school. The accessory measures are common to both.

The decision as to the appropriate remedy to be given will rest, as in all other cases, on the symptom-picture presented by each individual patient; not only in relation to the intestinal defect, but also with regard to his or her condition generally, and in particular to the nervous system.

The most frequently indicated remedies are as follows:—

Graphites. One of the few drugs whose pathogenesis corresponds most closely with the intestinal symptoms of colica mucosa. Its stools are hard and lumpy, glued together by sticky slime, and accompanied by the discharge of mucus in shreds. The bowels are exceedingly inactive, and there may be a sense of weight or uneasiness in the abdomen. Other symptoms which might confirm its selection would be dry or glutinous skin eruptions, delayed menses, induration of the ovaries, and in the mental or nervous sphere, anxiety, apprehensiveness, and depression of spirits.

On account of the latter tendencies, in conjunction with the typical intestinal condition, I prescribed this drug, with some apparent success, for a lady who consulted me on May 19, 1903. I had attended her from time to time for a good many years previously, and had always, in treating her, had to reckon with her intensely neurotic character. Thus, about three years before this time, she had asked for advice on account of a mitral bruit, for which she had been refused by an insurance company. She also, at that time, complained of severe cutting and stabbing pains in the cardiac region, and, believing that the condition was a neurosis, I prescribed spigelia, after a course of which the pain subsided and the bruit cleared up entirely. Another circumstance in the previous history of the patient may be worth recording, though what bearing it

may have had on her subsequent illness I am not prepared to explain satisfactorily. Towards the close of 1901 a small tumour developed in the left breast. For this she was seen by Mr. Knox Shaw, who diagnosed it as a cyst and advised removal. In the early spring of 1902 operation was decided upon, but hardly had anæsthesia begun, when she collapsed so profoundly that it was with the utmost difficulty that animation could be restored, and the operation had therefore to be abandoned. Soon after this the symptoms of colica mucosa set in, and had continued up to the date on which she applied for advice. Strange to say, the mammary tumour had meantime been steadily diminishing and nothing but an almost impalpable knot could be made out. Graphites 12 was given internally, and locally a high injection of hydrastis ϕ at bed-time, with an enema of normal saline solution in the morning. A somewhat liberal diet was allowed, only restricted as to those fibrous vegetables that are known to be difficult of digestion by patients thus affected, moderate exercise and plenty of fresh air being at the same time enjoined. The patient was thereafter watched by Dr. P. Wilmot, of Plymouth, who kept a careful record of her case till the following October. Without going into particulars, it will be sufficient for our present purpose to say that under this *régime* she soon felt much better than for many months before; the bowels acted in response to the douching, and sometimes independently of it, while only on a few occasions was there any evacuation of mucus. Now, however, comes the phenomenal part of her case. In October, 1903, all the intestinal symptoms suddenly disappeared, the bowels began to act spontaneously, pain ceased, and no more mucus was discharged. But, as this morbid condition passed away, the tumour in the breast once more showed itself, and though growing very slowly, yet since then it has been increasing in size, and may have ultimately to be dealt with surgically.

Whether the shock to the nervous system, consequent on the collapse under chloroform, had anything to do with inducing the colica mucosa, during the continuance of which the mammary tumour was in abeyance, I will not pretend

to say. While there was an undoubted improvement under treatment, yet the intestinal condition cleared up too suddenly and completely in the end to be entirely attributed to this, so that it appears to me that in the well-known vagaries of the neurotic diathesis one must seek for the only possible explanation.

Colchicum comes next in the order of merit. The motions induced by this drug are for the most part diarrhoeic, though in some instances there is constipation, with ineffectual urging to stool, and a sensation of *fæces* in the rectum which cannot be expelled. But an important feature in the pathogenesis is that masses of plastic exudation, having the appearance of partly solidified mucus, are frequently expelled from the rectum. Hence the drug may find a useful place in that form of colica mucosa in which diarrhoea prevails, and more particularly so if the patient be also the subject of those gouty and rheumatic symptoms which are so characteristic of colchicum.

The well-known power of *hydrastis* in affections of the mucous membrane generally, and also its symptomatology in relation to the intestine, suggest it as a remedy likely to be useful in colica mucosa. If, however, the prescription be founded on pathological considerations only, it would probably have to be rejected, as its sphere of action is generally to be found in catarrhal and not in neurotic conditions. On the other hand, it is often found in practice that if a drug is well indicated symptomatically, good results are obtained from it irrespectively of the precise pathological condition.

Hydrastis, then, is indicated in chronic constipation associated with colicky pain, where the *fæces* are in the form of hard balls coated over with yellowish tough mucus, or where, according to Hering, with the constipation there alternates the discharge of membranous casts. Should pelvic disorders, such as metrorrhagia, erosion of the os uteri, or yellowish leucorrhœa, be present as concomitant symptoms, these would be additional indications for the drug. The occurrence of characteristic gastric or hepatic derangements would likewise confirm its selection.

By way of comparison with hydrastis, and also in contrast to it, plumbum may be mentioned. While the former affects the intestinal canal in the shape of catarrhal disturbances, the latter does so through the medium of the nervous system, and from this point of view might be expected to play a useful *rôle* in the treatment of colica mucosa. The colic it produces is a familiar characteristic, and its stools bear a marked resemblance to the scybala of this affection. Lacking in its pathogenesis, however, is the discharge of mucus, and the abdominal wall, instead of being relaxed, is retracted. Still, if it should be found to relieve the constipation, as it might be well capable of doing, the mucous discharge might then cease spontaneously.

Without entering into details, which might be wearisome, several other drugs may be referred to, all of them bearing some resemblance to the disease-picture. Such are alumina, kali. carb., ammon. mur., magnes. mur., sepia, sulphur, and others.

Diet.

One of the most important subjects in the therapeutics of colica mucosa is that of diet and accessory treatment. There are two methods in vogue—the one advocated by the French school, headed by de Langenhagen, and the other by the German, of which Von Noorden may be regarded as the representative. In England the practice hitherto seems to have been similar to that adopted in France.

The two methods referred to are diametrically opposed to one another, each resting on the pathological views of its advocate. Langenhagen appears to regard the disease chiefly as an inflammatory catarrh, and therefore adapts nourishment to that condition, while Von Noorden, viewing it as a pure neurosis, prescribes a totally different *regimen*. The former method does not propose to cure radically, but merely to palliate, the patient having to continue treatment indefinitely or at intervals. Von Noorden, on the other hand, does claim to cure his patients, that is to say, that the bowels continue to act naturally after treatment has been suspended.

First, then, with regard to diet, according to the French plan, this should be of the blandest description possible, consisting of articles leaving a minimum of residue behind them, so that the dejections may be small in quantity and non-irritating in quality.

The following articles are allowed: Milk, soups devoid of fatty matter, farinaceous food, eggs, boiled white fish, finely minced beef and mutton, mashed potatoes, and such vegetables as peas, haricot beans and lentils. On no account are any green vegetables to be given, these being found to pass through the intestinal canal wholly undigested.

Raw and even stewed fruits of all kinds are forbidden as indigestible. Stale bread or toast in small quantities is permitted. Alcohol in all forms is prescribed, water, or such mineral waters as Vichy being regarded as the most suitable beverage. Game, shell-fish, and all made dishes are to be avoided. The prevention of any fæcal accumulation in the intestinal canal is regarded as a matter of cardinal importance, and for this purpose a daily purgative is given, the favourite being the time-honoured castor oil, but the whole range of cathartics is commonly employed.

Intestinal irrigation is also considered an essential factor in the treatment. Simple water at about 105° F., or solutions of such substances as boric acid, ichthyol, &c., are thus used. From one to two quarts are injected by means of a reservoir and long tube, the patient lying on the back with the hips raised. Such lavements serve the double purpose of calming spasm of the bowel and of washing away fæcal and mucous detritus.

At Plombières, situated at an elevation of 1,300 feet above the sea-level, and other watering places in the Vosges, thermal treatment is carried out by means of the saline waters found there. The chief ingredient in these is NaCl, one being ferruginous with traces of arsenic. Their temperature is 155° F. At these resorts, in addition to the *regimen* already described, patients drink and bathe in the waters, and irrigation of the lower bowel is carried out by means of *douches ascendentes* of the same natural liquid.

Moderate exercise in the open air, short of fatigue, is

enjoined, with rest in the recumbent position after meals. Such exercise is, no doubt, salutary, and in the writer's judgment the practice of some physicians in this country of enforcing confinement to bed for lengthened periods during the treatment of colica mucosa is to be deprecated. We know from common experience both in hospital and private practice that under these circumstances it is exceedingly difficult to get any natural action of the bowels, and the monotony of such confinement is apt to produce introspection and morbid dwelling on subjective symptoms.

Of the effect of these measures Langenhagen says that, "All the elements of cure work together at the same time, not only by the change of air and the use of the waters in drinking and bathing, but above all in the internal application of entero-clysis of a natural antiseptic water of specially absorbent and dissolving properties, whereby a local curative effect is obtained upon the mucous membrane of the intestine. The general nervous system is influenced and soothed by the bathing of the entire body. The activity of secretion is moderated, stimulated, or otherwise beneficially modified; the phenomena of pain are attenuated and calmed, and, finally, by a wisely combined hydropathy, the general nutrition of the impoverished system is amended, and all the organism strengthened."¹

The modern treatment of colica mucosa in Germany proceeds on entirely different lines, having for its object the permanent re-establishment of natural evacuation without the aid of either purgatives or clysters.

With this end in view Von Noorden a few years ago instituted a radical change in the dieting of these cases. Instead of a bland, non-irritating diet, he began to prescribe food of a coarse and stimulating type, consisting of articles which leave a non-digestible residue, his object being by this means to awaken the dormant function of the bowel and to produce abundant soft stools which might be easily evacuated. The formation of scybala is thus avoided, and the over-production of mucus by reflex disturbance gradually ceases.

¹ "Muco-Membranous Entero-colitis," p. 109.

The dietary under this system—to quote from Von Noorden—consists of considerable quantities of coarse brown bread, leguminous plants, including the husks, vegetables containing much cellulose, fruit with small seeds and thick skins, like currants, gooseberries, grapes, besides large quantities of fats, in particular of butter and bacon. “The permanent effects of a diet of this kind,” he states, “are chiefly due to the amount of cellulose it contains. The cellulose of the bread, &c., undergoes bacterial decomposition in the intestine, gas is developed slowly, and the decomposition proceeds so gradually that the binding together of the fæces to solid hard lumps is prevented; it is clear the propulsion of soft and yielding masses of fæces must be much easier than the evacuation of hard stools.”¹

Large quantities of cream are also given, both for its nutritive effect and for the purpose of softening the stools. No purgatives are allowed under this *régime*, but Homburg or Kissengen water is given in the morning, and is regarded as an aid to digestion and not as a laxative. These NaCl waters are held to restrain the production of mucus, while alkaline waters, such as Carlsbad and Vichy, are said to have an unfavourable effect on the bowel.

Massage of the great intestine is carried out systematically for the first week or ten days of treatment, and is thought to have a beneficial effect in promoting evacuation. If, however, the views of Dr. Leftwich, already referred to are correct, that the lower bowel empties itself by means of syphonage, and not by peristalsis, it seems more likely that the effect of massage would be in stimulating the motor function of the small intestine, and in this way the propulsion of its contents into the colon.

The special diet is continued for five or six weeks, after which the bowels in most cases regain their normal function, and patients gradually return to ordinary dietary habits. Cures thus affected appear to be permanent, so that no purgatives are afterward required, and the discharge of mucus ceases. This object having been attained, the general nutrition improves, a gain in weight of from one

¹ “Membranous Catarrh of the Intestines.” Von Noorden, p. 42.

to two stones being not uncommon, and the neurasthenic condition is at the same time improved. Von Noorden claims to have obtained permanent success by this method of treatment in 50 per cent. of his cases. For further particulars as to this system I refer you to his excellent little treatise entitled "Membranous Catarrh of the Intestines," published in this country by Wright and Co., of Bristol.

In conclusion, I will refer very briefly to two other therapeutical measures that have been resorted to. Dr. W. F. Somerville, of Glasgow, has recently employed high frequency currents in the treatment of the disease, and states that in several cases of many years' standing the beneficial influence of the treatment has been most decided.

Lastly, in some obstinate cases the operation of colotomy has been performed with the object of giving physiological rest to the impaired colon. Such a procedure will be but rarely called for, but if the operation be carried out at all it should, for obvious reasons, be on the right side rather than the left.

Dr. DYCE BROWN thought from his experience of several cases that those practitioners who went to the one extreme of calling the disease pure mucous catarrh, or who went to the other extreme of calling it pure neurosis, failed to grasp the correct state of affairs. The cases he had seen had distinctly had more mucous catarrh than could be accounted for by any mere neurotic condition, but he always found that the two conditions were mixed up together. The disease generally occurred with some uterine disturbances of a more or less serious nature. The mucous catarrh seemed to him to be essentially of a gouty type. Putting aside theoretical conclusions as indications of treatment, he thought the correct guide to treatment was the symptomatology present in each individual case. Cases differed so much as separate cases, and individually varied in their symptoms from time to time, that one should treat each individual case dietetically and therapeutically. Especially in the matter of diet was it important to individualise each case. Dr. Langenhagen was very liberal in his ideas on that point. Although he advised the absence of green vegetables as being indigestible, he noted that a considerable number of patients could take them and digest

them properly; therefore the doctor should watch what the patient could digest and his likes and dislikes. The cases he had seen had sometimes required the continual use of the enema, but he had never used laxatives. Although Langenhagen preferred castor oil, he had noticed that some patients did better with saline purges. The amount of pain in the abdomen and elsewhere was an interesting point. In one marked case which he (Dr. Dyce Brown) treated, the patient complained that the chief pain was about a foot up from the anus, and she immediately began to feel faint and ill whenever a motion took place, and the fæcal mass came down to that particular point, and she sometimes actually fainted until the enema was used and the fæcal mass passed that point. After half an hour's rest the patient was then comfortable. Other variations of pain of a peculiar nature to be noted were those which occurred across the epigastrium and across the transverse colon. With regard to the therapeutic treatment of the disease, several of the medicines the author of the paper had mentioned did not appear to the speaker as being specially indicated. Some of the remedies he had found most successful had not been mentioned at all, viz., *mercurius cor.*, *belladonna*, *lycopodium* and *hydrastis*, and where neurotic symptoms predominated, *ignatia*, *nux vomica*, and occasionally *berberis*. One of the medicines mentioned, *magnesia muriatica*, had a marked uterine action. A useful mineral water in the treatment of the disease was the Chatel Guyon, which, although it was a very feebly mineralised water, yet in it the prominent mineral was *magnesia muriatica*, and in one case he remembered particularly, a lady who went two or three times to Chatel Guyon was each time immensely improved, not only in the intestinal condition, but in the uterine condition as well. It was a useful place to send patients to in whom there was a combination of colitis with uterine conditions.

Dr. DUDGEON said about twenty years ago he had a very remarkable case of a lady who was very nervous and hysterical, but had no symptoms of mucous catarrh. She had large discharges of false membrane without any appearance of excessive irritation of the bowels. The bowels were only moderately open, but she passed large masses or lengths of false membrane, sometimes having a tubular appearance, and sometimes several times a day. She had suffered from this singular complaint for many months, and had been treated allopathically without benefit. He tried various medicines, but the one which seemed to have the best effect was *colchicum*, which modified the discharges so much

that the patient soon thought she was quite well, and he did not see her much more professionally. But her husband was a great friend of his, and he reported to him that his wife eventually lost all the false membranous discharges and regained a considerable amount of health; in fact, from being very thin and emaciated she grew enormously fat, and her nervous symptoms subsided greatly. He mentioned the case because it did not countenance the idea that the trouble was always mucous catarrh, and because it emphasised the value of a medicine which has a reputation in gouty affections, which this was sometimes said to be, although he could not detect any gouty symptoms in the patient.

Dr. MADDEN said that colica mucosa was a complaint which, in its full development, was not very commonly seen in this country. Only once in his practice had he seen a case which had lasted persistently and obstinately with constant discharges. He thought it was important in discussing the paper that the conditions should not be confused with ordinary catarrh either of the colon or any other part of the intestines. This was a special form of catarrh; possibly it was not catarrh at all; but it must have membranous tubular or shredded dejecta to be correctly described as mucous colitis. The author had spoken of the tube casts as being from 1 to $1\frac{1}{2}$ ins., in diameter. Did not that show that they must have been formed in the small intestine? Surely the colon was never so small as that; if they had been moulded on the inside of the colon they would have been about twice that size. The suggestion of the syphon action of the colon seemed to him altogether untenable. It presupposed a rigid tube, and that the colon was practically left full, or nearly so, after each motion, neither of which condition was true. The colon certainly was extremely variable in its size at different times, and in a large number of cases was very nearly empty after heavy motions. He saw no reason whatever to anticipate that as an explanation of its action in expelling the motions. He thought there was peristaltic action of the colon as well as of the smaller intestines, and that the massage which was found so useful in those cases acted on the muscular coating of the colon quite as much on the other parts of the intestines. The side issue which Dr. Alexander referred to in regard to homœopathic remedies stimulating the secretion of antitoxins he thought showed that the author, like so many others, did not quite appreciate what those who advocated that theory meant. None of them had ever suggested that that was the only action of a homœopathic remedy.

Their suggestion was more on the line that the action of a homœopathic remedy was to stimulate those organic elements which were fighting the disease to an increased energy in whatever direction their antagonism was required. In some cases it was in the direction of secreting toxins; in other cases it had a totally different action altogether, but whatever the direction in which Nature was engaged in battling the disease, in that direction the homœopathic medicine encouraged her to make increased efforts. To say that holding the theory that a homœopathic remedy could encourage the extra secretion of antitoxins was implying that homœopathy was only limited to a very few cases was not justifiable. There was no doubt whatever that these cases were constantly accompanied by neurotic symptoms. He thought the suggestion that the neurotic element was the primary one and that the local complaint of the colon was the result of neurotic malstimulation, was probably the correct one and hence would appear to be the explanation of the cases apparently getting well from some influence on the nervous system not directed to the complaint itself. There had appeared an interesting article in the *Lancet* a few weeks ago on surgical cases referring to abdominal troubles in which it was stated that colica mucosa occasionally required the operation of colotomy. The writer said he had known several cases which had benefited from opening the colon at the lowest point in the cæcum, irrigating the whole of the colon from the far end, and literally washing it out with antiseptics a good many times a day. The writer of the article remarked that it appeared that at last some use had been found for the appendix, for some surgeons had made use of the appendix as a tube to enable them to continue that irrigation. He suggested to Mr. Knox Shaw and other surgeons that in cases where it was applicable they should perform a right-side colotomy, bring the appendix into the wound, cut the tip off, leave it as an open tube with a clamp on, and every day remove the clamp and wash out through it. When the cure was completed there was no harm done, as it healed up very readily.

Dr. BEALE referred to the treatment of patients by the Salisbury diet in connection with the subject of the paper. It was quite common for the condition mentioned to occur in patients under treatment by the Salisbury diet, and in certain patients it was wise to warn them of the possibility of such an occurrence, because when it came suddenly there was a certain amount of alarm. A few cases had come under his own notice;

they were all neurotics and all women. The attack was sudden, associated with a certain amount of pain, and there was a somewhat collapsed condition afterwards. No harm seemed to follow the condition, and the patients always recovered remarkably well. The curious point was that they were evidently cases of artificial colica mucosa. In the Salisbury diet one important point was the large amount of water taken, and whether that had any influence in bringing about the condition he could not say. Salisbury's view was that the treatment liberated an amount of stored up mucous matter, or rather a tendency to deposit mucous matter in the walls of the intestines was relieved by means of an excessive secretion of mucus. It might throw some light on the causation of the condition and on the treatment if he mentioned that in the Salisbury treatment one point looked for was the amount of triple phosphates in the fæces. If there was a fair amount of triple phosphates, and if they were increased during the treatment, it was an indication that the treatment was doing good. Certain cases where there was at the start a deposit of triple phosphates in the urine improved, and at the same time there was an increase of triple phosphates in the fæces.

Dr. GOLDSBROUGH, in referring to the etiology of the condition, said it seemed to him that the term neurotic needed a little discrimination, because a great many of the patients were undoubtedly suffering from a form of neurasthenia, whereas they could not necessarily thereby be described as of the neurotic temperament. It seemed to him that it was necessary to take a very comprehensive view of a condition of the kind, because he suspected that a prolonged neglect of digestion, diet and habits generally, especially if there were pelvic disease, was sufficient to bring about the condition. In looking at a case with a view to treatment one had to take into consideration the two elements whether the patient was a real neurotic, *i.e.*, whether the nervous system was over-developed and therefore unstable, giving an intense irritability and yet a weakened nervous supply, or whether the condition had been acquired gradually. He thought in the majority of cases met with the latter conclusion must be come to; the condition was acquired gradually and had to be met by gradual, patient efforts in all points of the case. There was no doubt that a gouty condition was responsible for it to some extent, which might arise from neglect of diet, or digestion, from an unhealthy state of the stomach, or a chronic neglect of the action of the bowels.

Dr. Dyce Brown described a condition where the pain seemed to ensue from a certain point. He remembered several cases where he had examined the colon, and found a considerable ballooning of the bowel, with a discharge of mucus when the bowels were relieved. The neck of the balloon generally began at the point of entrance to the sigmoid flexure. He believed the pain was due to abortive muscular effort to get rid of a large mass of fæces from that point, whereas the neck of the balloon being small it was impossible for the large mass to pass. A reason for the secretion he thought must often be irritation of collected fæces. It was known that fæces acted as an irritant if they remained in the bowel. It was known also that they caused toxæmia. One line of treatment and one set of rules for treatment would not do in every case. For example, in regard to diet, in a toxæmia one had to take into consideration the state of the stomach, the state of the large and small bowels, also the temperament and the presence of gout or otherwise. In regard to the medicines that had been alluded to, in his experience *plumbum aceticum* stood pretty well at the head of the list of medicines, especially when the pain was referred to the descending colon, when the case was chronic and constipation was also chronic. He had given *plumbum aceticum* in high dilutions, from the 6th to the 30th, with certain relief of the pain, although the condition of membranous discharge was apt to go on, notwithstanding that the patient would be relieved from pain and constipation. Little had been said about *nux vomica* and sulphur. He believed those two drugs used carefully would do good work, sulphur particularly. He had also used *magnesia muriatica*. He was inclined to deprecate the use of sedatives in acute cases; he believed opium in the mother tincture, single drop doses, with the application of heat to the abdomen and relief of the bowel by enemata very carefully given, would be likely to give better results than sedatives. If olive oil were used as a preliminary injection, in a sufficient quantity, and very carefully with a long tube, and allowed to remain a considerable time, it would soften what was in the bowel and allow of an easy discharge of the fæces by the time the water injection was given later on. With the water injection it seemed necessary to use the long tube and to do it very slowly and to desist if the patient complained of pain for the time being, and then proceed again later.

Dr. BARLEE (a visitor) said he had practised for some years in France and had seen a good many cases of *colica mucosa*.

He wished to refer to a very interesting case which bore on some of the points mentioned in the paper. The patient was a young girl, aged 16, who had had various symptoms before he was called in. Some two years before he saw her she had arthritis of the right knee, and about a year before that she was taken with contractions of the right arm, moving the right arm up and down and the right leg also. That went on increasing until the patient got crises of Charcot, or hysteria. She was practically at death's door, having about fifty crises a day lasting a minute and a quarter each. The patient was perfectly conscious during the crises, but if she were asked a question she responded after the crises. The doctor tried all sorts of things, including various enemata, after one of which she passed two large enteroliths about the size of turkeys' eggs, so hard that they had to be smashed with a hammer. From that moment the patient got perfectly well; all the nervous symptoms ceased, the patient went away to the sea, and was quite well for six or seven months. Then the same train of symptoms began again and he was called in. He immediately started by endeavouring to treat her intestinal state. Her stools were most peculiar; they were hard with a muddy sediment, and among them were little lumps consisting of pure fat, coloured green. She had the crises again, which he stopped with opium 30 and he eventually put her on plumbum. There was no doubt she had colica mucosa. She had large shreds of membrane of a size about 25 to 35 mm. He cured her with plumbum in the highest dilution, 200, one dose every two days. He nourished her with plenty of good fatty food and also massage. There was a curious point in the case which he had never seen noted. The patient was a Roman Catholic and wore a little silver chain with a medal. When the constipation was at its height the medal and the chain were completely black. When it was washed the chain and medal went black again, but after the patient was cured it remained perfectly white. At the present time the patient was extremely well. So far as he knew she had regular motions without any enemata. She had occasional contractions, but without any crises.

Dr. WATKINS said he was not quite sure whether Dr. Alexander in his paper referred to all cases of membranous colitis. He had made a number of sections of membranes from the colon, and it seemed to him there was a good deal of variety in them. They might consist simply of mucus and fibrin, or fibrin with epithelial cells, or there might be some necrotic mucous mem-

brane present such as seen in diphtheritic membranes. That fibrin was present in some cases could be shown by using differential staining ; for instance, Mallory's connective tissue stain would stain the fibrin red and the mucus blue. As evidence that toxins might be present in some of the cases he might mention that cases had been described attended with pneumonia, septic poisoning and uræmic and diabetic coma. Dr. Dyce Brown had referred to the use of merc. cor. in treating the disease. From a pathological point of view it seemed to him an ideal medicine because mercury produced that condition. There had been a case recorded of mercurial poisoning which produced gastritis, inflammation of the duodenum and also membranous colitis. The intervening part of the intestine was quite normal, and it was presumed that the mercury had been absorbed by the stomach and the duodenum into the blood, and subsequently affected the colon. There had been other cases of poisoning from mercury which had produced colitis where the mercury was absorbed through vaginal douchings. He thought one reason why some of the casts were small and not of the size of the normal colon was because the casts themselves contracted, afterwards separating. Some of them were marked distinctly with the sacculations of the colon, while other casts from the intestines had been found marked by the muscoli conniventes.

Dr. ALEXANDER, in reply, thanked the members for the patient hearing they had given to the paper. It seemed to him that what had come out in the discussion showed very clearly there were two distinct forms of so-called colitis, one which might be truly called colitis because it was of an inflammatory character, and a second class of cases which were referable to neurotic origin. The discussion had reminded him of the confusion that had once existed between two other diseases, namely, typhoid and typhus fever. They were both known as typhus fever at one time, and it was only about the middle of the last century that the two diseases were differentiated. He believed exactly the same remark applied to the disease under discussion. There was, on the one hand, what he had ventured to call colica mucosa, because he did not think there was any inflammatory condition in it at all ; and, on the other, there was a certain class of diseases which were distinctly inflammatory. The cases he had described were not of the inflammatory order ; he had only taken up those of the neurotic character. The fact, as he suggested, that there were two distinct diseases, the one of neurotic and the other of inflammatory origin, accounted for

the difference of opinion in regard to the treatment, especially as to *mercurius*. *Mercurius corrosivus* and *hydrastis* would be of most value in the inflammatory cases. Those who knew their *materia medica* would remember that the pathogenesis of *mercurius corrosivus* was distinctly of an inflammatory character. In regard to the question as to whether the casts came from the small intestine or the great intestine, he thought it was generally accepted that they came from the great intestine, which was borne out by the circumstance that in some casts there were distinct sacculi, proving that they must come from the lower bowel. He thought the Society might on a future occasion take up the subject again, in perhaps some other form, in order that it might be more thoroughly thrashed out, particularly for the purpose of discussing whether there were not two distinct diseases, a neurotic one and an inflammatory one.

NOTES OF A VISIT TO SOME OF THE HOMŒOPATHIC COLLEGES AND HOSPITALS OF AMERICA.

BY JAMES SEARSON, M.D., L.R.C.P., L.R.C.S.I.

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In my experience the Atlantic is absolutely robbed of its terrors. I am an indifferent sailor, but I was pleasantly surprised, because I had an excellent voyage going out, and a still smoother one coming back. The trip is a most restful period. I went over on one of the boats of the Atlantic Transport Line; it takes ten days, as opposed to the five and a half or six days of the other lines, but there is comparatively little motion or vibration.

The first place of call was New York, where I stayed about six weeks. After that I went to Philadelphia, where I spent a week. From Philadelphia I came back to New York, and passed on to Chicago, visiting on the way Ann Arbor, which is in the State of Michigan, where the University of Michigan is situated, which embraces in the medical school not only allopathic but homœopathic students.

From Chicago I went to Washington, where I stayed three days. There is no school or college there, but there is a very interesting hospital which is well equipped, and they seem there to do a large out-patient work. I was assured in Washington that the hospital is largely supported by a grant from Congress (which meets at Washington), and that they have recently bought a site for a large building which is to be erected this year. I saw in Washington the very interesting statue of Hahnemann, the model of which we have in our room of meeting. The model is an excellent replica of the statue, which is one of the most artistic I have seen. Statues generally suggest to one's mind that there has been a lot of money wasted on unnecessary work, but in this case one is struck by its artistic beauty, in addition to which it occupies a very central site.

In these visits one gathered some general facts. First it could be learned that the number of homœopathic practitioners in the States is about 15,000; the number of homœopathic hospitals is about 100; the number of homœopathic colleges where new men are trained and students graduate is about twenty, and the number of graduates turned out of these homœopathic colleges every year is about 650. I endeavoured to find out some of the reasons for the greater strength of homœopathy in the States, and so far as I could tabulate them the answers I received were as follows: The matter was put in this way—that America is a new and younger country, and that any new and reputable movement introduced into America received a hearing and if it was considered worthy it received recognition and representation. Secondly, they have, and have had from the beginning, in connection with homœopathy in America a committee for political organisation. I had a long conversation with Dr. Eugene Porter, the editor of the *North American Journal of Homœopathy*, and Dr. Porter told me that every medical bill which comes before Congress at any time is first brought to the notice of the political committee of the homœopathic body, and if there is any clause in it or any suggestion which is inimical to homœopathy it is opposed or watched. I include under the head

of political organisation this point that in years gone by, whenever a movement seemed to be expedient in the furtherance of the cause of homœopathy, its promoters did not hesitate to make their desires known to the proper quarters.

I have here a book which was presented to me by Dr. Walter Sands Mills. Dr. Mills is the secretary of the New York Homœopathic Medical Society. I found Dr. Mills a most charming gentleman and a most interested practitioner of homœopathy. The book is entitled "The History of the First Twenty-Five Years of the Ward's Island and Metropolitan Hospital, 1875-1900." The Metropolitan Hospital is one of the five homœopathic hospitals in New York; it is also one of the largest, and is called a city hospital. In method it is analogous to one of the Poor Law infirmaries in this country. Patients in New York who are unable to pay medical fees are sent to this Metropolitan Hospital, which accommodates about 1,300 patients, and they are there treated gratuitously. It is stated in this book that sometime during the winter of 1874 and 1875, at a regular monthly meeting of the Union League Club, a number of gentlemen were chatting together, and they discussed the question why it was that homœopathy, then socially so strongly represented, had no voice in treatment in the large City State Hospitals; as a result of that conversation a petition was drawn up by Dr. Egbert Guernsey, signed by the gentlemen who were present, and, on its being sent out, received 655 signatures. These signatures represented over one-half of the estimated wealth of the city of New York. This petition was presented to the City Commissioners of New York; it was evidently pigeon-holed and allowed to lie unnoticed. After four months interval those who had originally signed the petition met together again and wrote the following very strong protest:—

"To the Honourable the Board of Commissioners of Public Charities and Correction: Gentlemen,—Some time ago we presented to you an appeal signed by many of the wealthiest and most influential citizens asking that one of the public hospitals under your charge should be conducted on the homœopathic system of treatment.

"This appeal was based on the fact that a very large proportion of the taxes by which our public institutions are supported are paid by those habitually employing the homœopathic practice themselves. They believe it to be the more efficient and more economical in time, money and life, than the old system of treatment.

"Representing the opinion of those who pay one-half the taxes of this city they believe that their appeal would receive a just consideration and an equitable and prompt action of the Commissioners.

"Up to the present time no practical result has followed the appeal; and we would respectfully draw the attention of your board to the fact that the large number of those who are interested in this matter, and its importance in a political point of view as being based on the right of a large minority to a just representation in our municipal affairs, are sufficient to warrant a definite response to the appeal.

"We would also respectfully represent that the building known as the *Inebriate Asylum* is, or may be, adapted for such a hospital as we desire, and understanding that the present inmates are to be removed, there would be no additional expense to the city, as our house physician would take the place of the present one, and the drug bill would not exceed the present expenditure in this direction.

"We feel that an opportunity is thus offered to the commissioners to give to those who pay the majority of the taxes of the city a voice in the way in which said taxes shall be dispensed, without increasing by one dime the total amount.

"It would be an anomaly in a democratic government that the large taxpayers of this city are debarred from any voice in the care of the city's poor, and we respectfully ask as a *right* that this injustice shall cease.

"Before taking other action in the matter we would be glad to know whether we may look to the commissioners for further effort in the direction of a homœopathic hospital, as the homœopathic physicians of this city still hold themselves ready and willing to perform any professional duties that may be required of them by such action."

As a result they received the following prompt answer:—

“ *Whereas*, More than six months ago an appeal was made to the board by 655 citizens and taxpayers to designate one hospital to be under the medical care of homœopathic physicians, and

“ *Whereas*, The resolution of this board, passed February 13, conditionally assigning the Riverside Hospital for the purpose has proved inoperative, by reason of the continued occupancy of that building by the Board of Health, therefore,

“ *Resolved*, That that portion of the *Inebriate Asylum* on Ward’s Island, made vacant by the distribution of the soldiers to national homes, be set apart for a hospital, to be under the medical care of homœopathic physicians, under such rules and regulations as the Commissioners of Charities and Correction may establish.

“ *Resolved*, That the Committee of the Homœopathic Society, whose petition in this behalf bears date of July 3, 1875, and was followed by a personal interview with the Commissioners on July 13, be notified of this action of the board, and requested to make such suggestions and recommendations as may seem to them calculated to promote the object in view.”

I only state the foregoing to convey to you the impression that was strongly made on one’s mind in America—that they not only have a strong political committee to guard their interests, but they also look round to see in what way they can further the interests of homœopathy, in what way they can extend its use. They have this hospital now, which contains 1,300 beds, under their control. The superintendent, who struck one as being very able as well as very courteous, has under him twelve qualified men as *internes*, all homœopaths. The general feeling is that the granting of that hospital was a very great accession to the homœopathic movement in the States. I have mentioned two things which account for the great spread of homœopathy in America as compared with England, the first being that it is a young country, and the second being the political safeguard. But there is, I think, a third reason,

namely, the large number of students trained in their colleges every year. The feeling in America is very strong that more than 600 young men turned out of the colleges every year must have an enormous influence in spreading the knowledge of homœopathy in that country. There is a good deal of respect held in the States for the homœopathic body. There is, of course, there, as here, a rivalry and more or less hostility between the two schools, but it is a hostility more under the rose than it is in this country.

A year or two ago a circular was sent round from one of the strong allopathic societies inviting homœopaths to become members, informing them that if they joined and simply dropped the name "homœopath" no other questions would be asked.

The *Medical Century* contains the following announcement in this connection: "The Colorado Homœopathic Society held a very successful meeting in Denver on September 15. The attendance was good, and the report of the meeting in the *Critique* of October was a most excellent one. The Society passed some resolutions regarding amalgamation which were very pat. One of them reads as follows: 'Resolved, that the Colorado Homœopathic Society in convention assembled on this the 17th day of September, 1903, hereby extends a cordial invitation to all allopathic physicians in good standing to become members of this Society, on condition that they shall agree to investigate the law of homœopathy and give it a fair and impartial test in practice.' This is a true extension of the spirit of courtesy and fraternity, and is truly reciprocal of that which our school has been receiving from the old school for a year or more." There is a paragraph in *The North American Journal of Homœopathy* for October, 1903, bearing on the same subject which I should like to read. It says: "*Non-Amalgamation Resolutions.—Whereas*, an invitation has been extended by the so-called 'Regular' School of Medicine to the Homœopathic School of Medicine, in which the latter is to drop all of its distinguishing features, such as its name—homœopathy—its method of practice, and, above all,

its *materia medica* and *similia similibus curentur*, Nature's unchanging law of cure, and be known only by the name 'physician.' And *whereas*, we being firmly convinced of the truth of the law of similars, it having been proven innumerable times during the last century, and knowing that the so-called "regular" school of medicine has been compelled by our success to decrease the number of ingredients in their prescriptions and to use the minimum dose, many times actually prescribing the single and similar remedy, thus acknowledging the truth of two of our greatest principles. *Therefore*, be it resolved that we, the class of 1903 of the College of Homœopathic Medicine of the State University of Iowa, since we have nothing to gain and everything to lose, do unanimously refuse to accept their invitation until such time as they shall acknowledge our therapeutic law as the law of cures.

"Be it further resolved that a copy of the above resolutions be sent to each of the homœopathic publications, and that they be read before the meeting of the Alumni Association to be held at Iowa City, Iowa, June 17, 1903."

I have read these quotations to show you the tendency of the relationship between allopathy and homœopathy. Bearing in mind that the number of graduates turned out every year from all the homœopathic colleges in the States constitutes an important factor in the growth of American homœopathy, I found that American men everywhere were unanimous in recommending that the first step for us to take in England is to agitate for the foundation of a college, with power to confer degrees.

I should like to say a word or two about the students. I found them enthusiastic homœopaths. No word that one can use, such as ardent or enthusiastic, is adequate to express to you the feeling of wonderful buoyancy and enthusiasm which animates all the students. They seem to be mostly young men recruited from homœopathic homes; many of their parents are homœopaths, and they send them to the various colleges. They all possess their *Organon* which they read and know. They were excessively kind to me, and I told them that if ever they were to come over

here we should be very pleased indeed to see them. Many of the students there are self-supporting.

The next thing is, how is homœopathy taught in the States? There are a large number of lectures given every week. Sometimes there are two or three in a day, each occupying an hour. The men who are selected to lecture on the *materia medica*, or homœopathic therapeutics, are men who have given special study to those particular branches. "Quizzing," or questioning, is a feature at the beginning of each lecture, throughout the lecture, and at the end of the lecture. All the students quite understand they are quite free to ask the lecturer questions as they go on.

Another method of teaching may be called clinical therapeutics. Attached to the New York College is the Flower Hospital, which has about 120 beds. The hour between two and three is occupied by the clinical teacher in diagnosis; he takes round a section of students, he shows them the cases, and teaches them how to examine them; then at the end of that hour the same students wait, and another lecturer meets them who takes them round to see other cases in the ward. He tells them what the cases are, and allows them to ask the patients any questions they choose for the purpose of eliciting information. They then adjourn into another room and chat over together the question of the drug that should be used. The lecturer asks what drug they suggest, and they have not only to name the drug, but defend it from the homœopathic point of view.

Then there is a class for therapeutics, a dispensary clinic. It is conducted in New York by Dr. Edmund Carlton. He selects at random some of the out-patients; he sits down before a class of probably one hundred students; he questions the patient, and then asks the students to suggest a drug. The text-books are freely referred to. The students make suggestions, they criticise the selection of the drug recommended by the teacher, and so forth. That occupies about one and a half hours on Saturday afternoon. In the Organon class the students all sit down with their books

before them. They read a paragraph or two, and then a discussion is held upon it. In the Chicago colleges male and female students study together, and the plan appears to work very well. The Herring College in Chicago is interesting. In that college they make a very strong point of homœopathic therapeutics and *materia medica*. The teachers include Dr. J. T. Kent and Dr. H. C. Allen. These professors lecture in a most interesting way, and the general feeling is that the students of that college are attracted to it chiefly for the teaching in the homœopathic *materia medica*.

Altogether I feel that the British Homœopathic Association has done a good thing for homœopathy by sending representatives from this country over to America. It is a good thing for those who are sent over, because it adds to one's knowledge of drugs and of homœopathic therapeutics. But, apart from the personal knowledge which one gains and the inspiration which one obtains from coming in contact with the large class of homœopaths in that country, there is another factor which I think is a very important one—the fostering of international homœopathy. I could not but feel after the three months I spent in America that that ought to prove a very important factor in the spread of homœopathy in this country. I found that many Americans knew as little of the conditions of homœopathy in this country as many of us, certainly myself, did of the state of homœopathy in their country, and I think that the coming together of personal representatives from the two countries cannot but do good to homœopathy as a whole, because I am sure that not only are we anxious to spread homœopathy in this country, but we are also anxious for the spread of homœopathy in its wider aspects.

The American people with whom I came in contact were all exceedingly kind—I do not mean merely to myself personally, but they seemed kind to the homœopathy that one in a modest way represented; they seemed to take a cordial interest in British homœopathy. I said to one or two of them, "I am sure when I go back some of our leaders will ask how we can reciprocate your friendly interest in us," and two or three points occurred to me which I would

just like to mention. I do not know whether you have all seen the *Homœopathic World*, but I think the suggestion which is made at the end of the very excellent editorial is a good one. It is a question whether it might not be a helpful thing to establish an international bureau where the American ladies and gentlemen who come over here might obtain, if they cared to, information about British homœopathy and about whom and what to look up, and so forth. The second suggestion I make is that a cablegram expressive of friendly interest might be sent by the representatives of the homœopathic bodies in this country to our American brethren at the Niagara meeting. The third suggestion is whether it might not be possible to encourage a journalistic exchange between the two countries. By that I mean that the men who read papers at this Society should feel that their papers are not necessarily confined to the limits of the *Homœopathic Review* and the *Homœopathic World*, but that they might also appear in one or more of the American journals. The fourth point is whether we might not encourage some of the younger American graduates to take up a course of study here. This is a practical proposal, because, as I mentioned to the committee of the British Homœopathic Association, I was approached when in the States by two graduates, one in Ann Arbor and one in New York, who enquired whether it would possible for them to obtain a resident hospital appointment in the London Homœopathic Hospital. The difficulty about it, so far as I can gather, is that American graduates are not registrable in this country; it is a question for the staff of the hospital to decide whether it would not be possible for one of the two residents in the hospital to be an American graduate.

One of the most interesting places I visited was Ann Arbor. The interesting point about Ann Arbor is that the Michigan University is there, where there are over 4,000 students; they are not all medical students. The medical students are divided into allopathic and homœopathic; the two classes of students work together side by side for the first two years of their student's career. I went into the dissecting room, and the young doctor who acted as my

guide pointed out to me an allopathic student and a homœopathic student working side by side in their dissection. It is exactly the same in the histological and chemistry studies. Then, for the last two years they are educated in their respective schools, either allopathic or homœopathic. These colleges are also recognised as an integral part of the University of Michigan.

SOCIETY NEWS.

NEW MEMBERS.

At the meeting in January, Robert Hume Fallon, M.D., C.M. Aberdeen, of 1, Thistle Villa, Green Point, Cape Town, South Africa, was elected a member of the Society.

At the meeting in March, Miss Margaret Lucy Tyler, M.D. Brux., L.R.C.P., L.R.C.S. Edin., L.F.P. and S. Glasg., of Linden House, Highgate Road, N.W., was elected a member of the Society.

DR. DUDGEON.

At the meeting in January, referring to the pathology of pancreatic diseases, Dr. Dudgeon mentioned incidentally that he was the oldest member of the Pathological Society of London, having been elected in 1847. He is now a life member, in spite of the fact that some years ago the *Lancet* asked the Society why they did not turn him out because he was a homœopath.

OBITUARY.

Mahendra L'al Sircar, M.D., C.I.E.

On going to press intelligence has reached the Editor of the death of Dr. Mahendra L'al Sircar, the veteran homœopathic practitioner of Calcutta, and a Corresponding Member of the Society. Dr. Sircar was elected to the latter honour in 1878. In this country Dr. Sircar was best known as the Editor of the *Calcutta Journal of Medicine*, therapeutic extracts from which have frequently appeared in the Summary of this *Journal*. In India Dr. Sircar was known as a leader in Science in many branches, and most highly respected as a practitioner of medicine and pioneer of homœopathy in the general profession.

SUMMARY OF PHARMACODYNAMICS AND THERAPEUTICS.

Extracted from Exchange Journals by the Editor in collaboration with J. Galley Blackley, M.B., and T. G. Stonham, M.D.

Æsculus Hippocastanum.—Dr. F. F. Laird, of Los Angeles, California, contributes another of his interesting “*materia medica notes*” to *The Clinique* of October and November, the subject this time being æsculus hip. He considers that the liver and portal system are the primary centre of action of the drug, the action beginning on the terminal hepatic blood-vessels, and that secondarily to this all branches of the portal vein are involved, but that the maximum effect is seen in the terminal venules of the superior hæmorrhoidal vein, which carries to the liver nearly all the blood of the rectum. The superior hæmorrhoidal vein belongs to the portal system, while the middle and inferior hæmorrhoidal veins drain into the inferior vena cava *via* the internal iliac vein, so that the portal and systemic systems of veins connect through the hæmorrhoidal plexus. It is evident, therefore, that æsculus cannot produce external piles without first causing internal hæmorrhoids; the engorgement of the superior hæmorrhoidal venules must be so intense as to enforce a varicosis of the hæmorrhoidal plexus. The sphere of æsculus in hæmorrhoids is the purely venous hæmorrhoid which seldom bleeds, and there is associated dull aching across the lumbo-sacral region and hips, worse from walking and stooping.

Since the radicles of the superior hæmorrhoidal vein drain exclusively that portion of the rectum supplied exclusively by the sympathetic nerve, and therefore the comparatively insensitive portion, æsculus is especially homœopathic to rectal disease, of which the patient may be, and generally is, totally unconscious. Throbbing in the pelvic and abdominal cavities is very characteristic when it occurs only during digestion, or is much aggravated then. Next to the superior hæmorrhoidal venules those branches of the inferior mesenteric vein which drain the descending colon

and sigmoid flexure are affected by æsculus, consequently abdominal tenderness is most marked over those regions, and in Dr. Laird's experience æsculus ranks first as a remedy for sigmoiditis, as it is also for pellicular colitis or pseudo-membranous enteritis, in which mucous casts of the lower bowel are discharged with much tenesmus and abdominal pain.

Many cases of neurasthenia take their origin in the rectum, the symptoms being reflexes from disease of this part. When this is the case they will find their remedy in æsculus. Amongst such reflex paræsthesiæ "exaggerated sensitiveness to cool air, especially the respiratory mucous membrane," is noteworthy, as it gives rise to a cough which is hoarse, harsh and dry, with cold feeling of inspired air and aggravation from deep breathing, like *rumex crispus*. This cough is, when calling for æsculus, invariably reflex from organs involved by portal congestion. It often occurs as a persistent laryngo-tracheal cough after the gastric form of influenza.

Æsculus has no direct action on mucous membranes, it produces no inflammatory lesions, is rich in nerve reflexes, and low arterial tension is always present when æsculus is the remedy. Dr. Laird employs the 1x to 3x dilutions. (*The Clinique*, October and November, 1903.)—T. G. S.

Arsenic. *Polyneuritis following the use of Fowler's Solution.*
—A chlorotic girl of 23 was ordered Fowler's solution for palpitation, and took it steadily from the middle of April till the middle of June, beginning with 1 drop per diem and increasing the dose by 1 drop each day until she was taking 20 drops daily, taken in two doses of 10 drops morning and evening after food, which she took steadily for six weeks. When the patient reached 15 drops per diem cedema made its appearance, and those about the patient attributed it to the drops. The physician, however, insisted upon the treatment being continued. The face was now frequently puffy in the morning, and there was swelling of the dorsum of the hands and feet. From having a good complexion, her skin generally was now of a brownish-black tint, and that of the face quite black. This dark colouration lasted from three to four weeks and then gradually faded, being accompanied by scaling of the skin. Soon after reaching the full dose she began to suffer from urinary troubles—frequent urging, enuresis, intense burning and stabbing in the urethra on micturition, the urine being frequently bloody. She complained at the same time of severe scraping in the throat. At the end of six weeks she

complained of weakness and weariness in both legs, with burning and feeling of heat, especially in the feet; the legs were sensitive to pressure; at times, prostrating shooting pains came on, proceeding usually from the calves to the toes, and less often from the thighs to the toes. A few days later both legs and arms became affected with paræsthesia, sensitiveness to pressure and slight paresis. The paresis of the legs increased rapidly, so that at the end of another fourteen days the patient could hardly walk. On June 17 she gave up the drug. By this time she was confined to bed, and as the paresis of the legs did not improve she was sent into hospital a fortnight later with the diagnosis "tuberculosis of spinal marrow." By this time she could neither walk nor stand alone; there was, in fact, a high degree of paresis, but no ataxy; the patellar reflexes were extinguished. She could move the legs a little in bed. The weight of the bedclothes caused her such severe pains that she was provided with a "cradle." There were frequent paræsthesiæ in legs and arms. First attempts to walk were made after fourteen days in hospital. During the month of August she had still frequent pains in the legs; was discharged on October 26 "much improved," but the weakness in legs and paræsthesiæ in arms and legs still came on strongly after continued exertion, so was referred to outpatient department, where gradual improvement and ultimate cure followed. (*Allg. Homöop. Zeit.*, January, 1904, p. 44.)—J. G. B.

Aspirin. *Symptoms of Poisoning.*—Dr. Praube gives his own experience after taking 1 gramme of aspirin, which he used in order to abort a threatened attack of influenza. Fifteen minutes later the left side of the upper lip swelled, and difficulty in swallowing and choking feeling in the throat came on, and respiration was quickened. The condition grew worse in spite of taking boro-citric acid and the use of cold compresses. The swelling increased and spread over the whole of the face; eyes and cheeks were reddened in a very short time. The pulse rose to 160 and the temperature was raised without doubt. Patient took bicarbonate of soda and magnesia, swallowed pieces of ice, and drank the whites of several eggs; the last named seemed to do most good, relieving in particular the difficulty of swallowing and choking sensation. After about twenty minutes he felt his head cooler, and the troubles had gradually diminished, when suddenly over the whole body, especially on the backs of the hands, the neck and feet, appeared a wheal-like, itching,

raised eruption, in spots varying from the size of a lentil to that of a bean.

With the onset of this symptom the other troubles perceptibly abated, so that in an hour (that is, two hours from the beginning of the symptoms) he was able to visit a patient. He then went to bed and fell into a profuse perspiration; itching ceased and eruption faded, though next day there was still swelling of the lips, the left eye and left cheek. On the third day no traces of the attack were left. The author is of opinion that the drug was decomposed by the gastric juice and a phenol-combination set free and immediately absorbed. Examination of the urine showed phenol in quantity. (*Munch. Med. Wochensch.*, No. 31, 1903.)—J. G. B.

Catalepsy.—Dr. Stanley Wilde reports a case of this rare condition treated with success by homœopathic medicines. A girl of 18, otherwise healthy, had suffered from attacks of "unconsciousness" for three years. Since these she had become dull and sluggish in temperament, and her memory defective, but was otherwise well. Dr. Wilde describes an attack as follows: "I was sent for early one morning, and found the girl in bed apparently in a calm sleep. She was lying on the left side with the legs drawn up, and the face was slightly flushed. On opening the eyelids the pupils were somewhat dilated and the conjunctiva insensible. On raising the arm it remained rigid wherever it was placed, and I made various movements of the limbs to confirm the cataleptic nature of the condition. Respiration was shallow and almost imperceptible. The jaws were rigid, but there were no clonic convulsions, although very slight twitchings of the hands occasionally occurred." There was subsequent headache. The attacks occur two or three times a week and lasted many hours. She had been under allopathic treatment without benefit. Cannabis indica was given for a month without benefit, then opium 6. A week later the girl came saying she had been obliged to stop the medicine as it made her head ache and feel sleepy. Opium 30 was then given three times a day. The seizures then ceased, four months elapsing without one. The patient was then allowed by her mother to take a light situation. The attacks then came on again, and opium 30 or 6 did not seem to affect them, but cannabis indica was again given in the 1x dilution (3x had been given before), and they grew less frequent. At the time of report there had been none for six months. (*Monthly Homœopathic Review*, December, p. 726).—Ed.

Cobra Poison. *The Action of Cobra Poison on the Nervous System.*—Dr. George Lamb, of the Indian Medical Service, and Dr. Walter K. Hunter, Lecturer on Medicine at the University of Glasgow, have published in the *Lancet* a preliminary account of some experiments made on animals with cobra poison. The object of the experiments was to show what influence of a direct nature the snake poisons have on the nervous system, and to decide whether the cause of death in poisonous cases is due to the action of the venom on the blood, as maintained by Cunningham, or whether it results from a primary action of the poison on the central nervous system. As hitherto no pathological changes have been found to be present in the nervous system they decided to endeavour to ascertain whether such changes would not be evident in a fresh series of experiments if a more modern and perfect method of histological examination was adopted. Six monkeys and three rats were used for the experiments, and were killed by subcutaneous injections of cobra venom, in doses ranging from 0.25 milligrammes to 10 milligrammes per kilogramme of body weight of the monkeys, and from 0.05 to 0.25 milligrammes per kilogramme of body weight of the rats. Microscopical sections were made of various parts of the brain, medulla and cord.

The result was to show that in those of the monkeys, in which death did not take place till after two hours, the time required for changes to take place, distinct evidence of degeneration of nerve cells was found in the cord, medulla, cerebellum, and cortex. The same degeneration was found in all the rats.

The degeneration was found to affect the cells of the anterior horns in both the cervical and lumbar enlargements of the cord. In the pons and medulla, the twelfth, tenth (motor) and seventh nuclei all contained a considerable proportion of abnormal cells. The vast majority of the pyramidal cells of the cortex showed commencing degeneration, and in the cerebellum not one normal Purkinje cell could be found. The vessels to these parts were considerably dilated, and in the cord some small hæmorrhages into the grey matter were seen. Thus, they conclude, "we see that in cobra poisoning we have a toxic substance, which, when injected subcutaneously, produces symptoms of muscle paralysis, and that when we examine the nervous mechanism which controls these paralysed muscles there is found to be evidence of such degenerative changes as are known to be so frequently associated with paralysis. It seems fairly certain, therefore, that cobra venom has a direct action on the motor neurones. We cannot but conclude that it has a specially selective action on

the nervous system, and that it is from this that death results. (*Lancet*, January 2, 1904.)—T. G. S.

Diabetes Mellitus. *Treatment.*—Dr. F. Mortimer Lawrence contributes an article on this subject, treating it from the dietetic and medicinal points of view, special stress being laid on the former. The basis of Dr. Lawrence's contribution is expressed in the following words: "Recognising the fact that diabetes mellitus is not a single disease, but that the name is a generic one, representing a group of diseases which have in common glycosuria and its associated symptoms, we can for the present offer no better conception of its nature for therapeutic purposes than the definition of von Noorden that it is 'a disease in which the capacity for burning up sugar is morbidly depressed.'" If the healthy man of average weight (150 lbs.) takes 250 grammes of grape sugar, in two or three hours sugar appears in his urine. The diabetic differs from the healthy man in that he is less *tolerant* of carbohydrates. The first principle of treatment, accordingly, is to find the limit of *tolerance* in each individual case, and by diet keep him within that limit. A diet absolutely free from every trace of carbohydrate food is not only unnecessary, but it is absolutely dangerous to the diabetic. The diet of a diabetic should be based on the amount of food required to produce the requisite heat production of a healthy adult, taking into account that the diabetic is in the majority of instances of over-weight, and that he does not secure the full value for his food. "At the very outset we must know the exact amount of sugar in the urine, and we must also know exactly how much food is being taken, otherwise the severity and needs of the case cannot be estimated." A standard diet divested of carbohydrates is requisite, such as that of von Noorden, or with modifications. With the standard diet in view the patient is then treated in the following way: No change is made for three or four days, and during that time the daily output of sugar is ascertained in percentage and grammes. In this way is discovered what the patient can do with an ordinary diet. Then day by day for four or five days carbohydrates are gradually cut off. The quantity of sugar is estimated daily, and tests are made for diacetic acid, so that the onset of coma may be foretold and combated. In Dr. Lawrence's experience coma has been avoided, and usually at the end of a week of the standard diet sugar has disappeared from the patient's urine.

Now *tolerance* = standard diet + x grammes of starch.

To determine tolerance definite weighed quantities of carbohydrates, usually white bread, are given daily, added to the standard diet, and the urine tested until sugar again appears, an indication that tolerance has been exceeded. The carbohydrates are diminished to the largest amount which did not excite glycosuria and this is accepted as the patient's tolerance. It is not to be supposed, however, that the patient will for the rest of his days subsist upon the standard diet + x grammes of starch, so that he may, following von Noorden's plan, be furnished with three lists as follows: (1) Unconditionally allowable foods; (2) foods permissible in moderate (specified) quantities; (3) conditionally permissible foods, permission involving a deduction of an equivalent amount of bread from his previous standard of tolerance.

In some cases no alteration to a standard diet leads to disappearance of sugar. These cases require special management, but not to the total exclusion of carbohydrates. Modifications of bread are then to be considered, also the value of potatoes and the use of sweetening materials.

As regards medicines, Dr. Lawrence avers that the one drug that has withstood criticism is arsenic. He has used Martineau's specific, 3 grains of sodium arsenite in a pint of distilled water. The patient adds of this one tablespoonful, together with 3 grains of lithium carbonate to a quart of water, and this constitutes the daily dose. Nitrate of uranium has often disappointed expectations, but one case is cited in which 30 grains of the crude drug were given daily, the quantity of urine dropped from 150 to 49 ozs., and sugar disappeared. The patient left the hospital in comparative health. Phosphoric acid is useful in weak, prostrated neurotic cases. Aurum is valuable where heart weakness is pronounced and alarming. When nephritis is associated with diabetes—and this is a common complication—aurum seems particularly effective. (*North American Journal of Homœopathy*, January, 1904, p. 1.)—ED.

Ferrum in Deltoid Rheumatism.—Dr. Oscar E. Boericke records the following case: Mr. K., 52, widower, book agent, dark complexioned, well preserved, mentally and physically. Weight 160 lbs. Retrospective tendency. Nervous temperament. Always temperate. General health exceptionally good. For ten days has noticed an uncomfortable feeling about the left shoulder and arm, which he attributed to carrying a heavy valise filled with books, and ignored it till he was obliged to seek for relief. He now describes the pain as constant, dull, drawing, benumbing

or asleep character, extending from the fleshy part of the left shoulder round to the upper scapula and down the arm even to the elbow. At times a painful shock caused him to wince. There was a sore, battered feeling, with complete inability to move the limb. He dreaded contact, touch or jar. He was very bad at night. He became depressed, irritable, disinclined to mingle with his family. His appetite became impaired, bowels costive, and he had vague rheumatic pains in the hip and knee. Ferrum met. 3x was prescribed, one tablet every four hours. Restrictions in meat and carbohydrates, copious drinking of pure water and inunctions of hot olive oil enjoined. In five days there was much improvement. He could dress unassisted, though coldness and numbness persisted. Ferrum met. 6 was given morning and night, to be continued for ten days. In five days he was well and able to carry his valise, 50 lbs. in weight. (*Hahnemannian Monthly*, December, 1903, p. 959.) With this case compare one of neuritis of the left deltoid, recorded by Dr. Stonham, treated by ferrum met. 30. (JOURNAL, October, 1903, p. 409.)—ED.

Obstetric Emergencies. *Homœopathic Treatment.*—C. E. Fisher, M.D., contributes a paper based on practical experience, in which he remarks that in homœopathy pure and simple we have the best weapons for obstetric emergencies. The following points are given under the general headings indicated: (1) *Dys-tocia*. Rigid os can be prevented by cimicifuga. This drug is especially useful in women of dark complexion, rigid fibre, rheumatic diathesis. It should be given night and morning before the expected labour, and every fifteen minutes until dilatation is well advanced. The author has used mostly the 2x dilution. Caulophyllum is indicated when the pain is more in the pubic region, compared with cimicifuga for the pain of the back. The caulophyllum pain is sharper. The patient suffers more and is more irritable. Pulsatilla will often change the position of the head, through its influence on the presenting part [this I can corroborate.—ED.], necessarily not if faulty engagement and impaction has taken place, where the forceps are needed, but owing to irregularities of uterine movement. For pulsatilla the patient must be a pulsatilla woman, one of those who cannot, by comparison with those who might but do not. Dr. Fisher gives the higher dilutions down to the sixth. Chamomilla is indicated in certain states. An unyielding cervix, patient wildly irritable, strung up, highly sensitive and fretful, os hot, genital canal sensitive. It should be given in a high dilution. Belladonna is chamomilla's

twin, but belladonna is the more erratic or violent of the two. A flushed face, aching head, injected eyes, hot and dry throat, through honest effort and mental despair combined, are indications. The pains come and go suddenly. Dr. Fisher recommends the higher dilutions. Gelsemium is a remedy to favour relaxation and dilatation when there are no pointed indications for the foregoing. All dilutions serve. (2) *The Second Stage of Labour*. Ignatia and aconite help the temperamental difficulty of despair and depression, the former especially allaying hysterical nervousness, the latter that dread of death which to many obstetric patients is a real emotion. (3) *Hæmorrhage during Labour*. No remedies take the place of other interference called for, according to a correct diagnosis of the condition inducing the hæmorrhage. But subject to this proviso remedies will help. Sabina in uterine inertia, where the flow is profuse, hot, bright, arterial in spurts. Dr. Fisher prefers sabina to ergot, and gives it in the third dilution. Ipecacuanha is recommended in severe cases, with all the symptoms of relaxation and collapse. It seems to act as a stimulus to the solar plexus. The thirtieth dilution is recommended, but lower give good results. Nitric acid or phosphorus are also indicated in certain types of patient. Thinness, sallowness, lethargy, freckles, dryness of skin, catchy breathing, deep sighing respiration, with relaxation of the anus, are indications for phosphorus. Irritability, florid complexion, tension, hot red blood, for nitric acid. Phosphorus high, nitric acid low seems to be the order of dose at present. (4) *Puerperal Insanity*. Tarantula should be remembered in amelioration from music, ignatia in hysterical and emotional cases. Sorrow, imaginary or real, is the keynote for ignatia. Hyoscyamus in lascivious expression, stramonium in violence of language and action, with jealousy as an emotion, visual hallucinations, all delirium being worse at night. Aurum is indicated in later states when the patient is half well, when mental depression overpowers her and she wishes to die. (5) *Puerperal Eclampsia*. Subject to attention required according to the stage, violence and cause of the convulsions, cicuta, belladonna, atropia, strychnia, zincum and gelsemium may prove of service. Violence and tonicity are characteristic of cicuta. Congestion and opisthotonus, of belladonna. Rigidity, with contortions and twitchings, indicate strychnia. Zincum comes in for clonus, constricted throat and long-drawn contractions without tonicity. Gelsemium is called for in convulsions of milder type, though similar to those of belladonna. (*Homœopathic Journal of Obstetrics*, January, 1904, p. 14.)—ED.

Petroleum in Diarrhœa.—Dr. Grantham Hill records the case of a young lady of 17 who had been troubled with diarrhœa for two years, occurring every day. There would be four or five stools daily, pappy, frequently slimy, jelly-like, painless. Abdomen uncomfortable between stools. Diarrhœa occurs between 11 a.m. and 6 p.m. only, < menstrual period, accompanied with chronic nasal catarrh, dry cough, < night. Merc. sol. 12x, calc. c. 12, petroleum 30 failed, but the diarrhœa and other symptoms cleared up under petroleum (crude) η i. t.d.s. The petroleum was prescribed under the condition of diarrhœa in the daytime only. (*Monthly Homœopathic Review*, January, 1904, p. 24.)—Ed.

Primula Vulgaris in Eczema of the Scalp.—Dr. R. M. Le H. Cooper records a case of eczema of the scalp in which after the condition had been increasing for some time under other drugs, recovery followed immediately on a single dose of the matrix tincture of *primula vulgaris*. The patch of eruption was four to five inches in diameter, bright red and moist, and the hair over that region had become thinned. The patient was a woman of 62, who had suffered from defective hearing, tinnitus, rheumatism and gastric troubles. (*Homœopathic World*, December, 1903, p. 540.)—Ed.

Quinine. A Fatal Case of Poisoning.—A soldier swallowed 8 ozs. of concentrated solution of quinine (5 grains to the dram), i.e., 320 grains. The man at once complained of sickness, retching quickly followed, and was promoted by an emetic. The face became flushed, and violent trembling with rapidly increasing helplessness followed. Within five minutes he became unconscious. The face was ghastly pale and bedewed with clammy perspiration, the pupils were widely dilated and insensible to light and touch. Breathing was slow, laboured, spasmodic. The pulse barely perceptible. Under active stimulation the pulse regained its volume, but unconsciousness remained and the respiration did not improve. After an interval the pulse failed again, and was restored twice afterwards, until it disappeared entirely, this being accompanied by a convulsed state, especially of the lower limbs, and death. At the necropsy the blood was very fluid and dark. The cerebral vessels were distended with dark fluid blood, and the brain generally was much congested. The stomach contained some 6 ozs. of dark brown, thickish, odourless fluid mixed with mucus. The mucous membrane did not appear inflamed. (Quoted in the *Medical Review* from the *Journal of the R.A.M.C.*, October, 1903.)—Ed.

Saponaria Officinalis.—Mr. P. W. Shedd gives a translation of a proving by Dr. Schier of *saponaria officinalis* which appeared in the *Zeitschrift des Berliner ver. homœop. Aertze*. The symptoms are given in schema form. Comparisons are offered with *bella-donna*, *helleborus*, *hyoscyamus*, *cimicifuga*, *cedron*, *arsenicum alb.*, *kali iod.*, *kali bichrom.*, and the following keynotes as indications for the remedy: (1) Utter indifference to his pain or possible death; (2) sensation of drunkenness, with constant endeavour to go leftwards; (3) left-sided trigeminal neuralgia, especially supra-orbital; (4) violent eye-pains, momentarily increasing; (5) diarrhœa, stool frequent, scanty, sudden desire; (6) a peculiar, anxious subjective appreciation of the heart's movements; (7) < night, < mental exertion, < left side. (*The Chironian*, November, 1903, p. 156.)—ED.

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A RÉSUMÉ OF CANCER.¹

BY C. THEODORE GREEN, M.R.C.S., L.R.C.P., F.L.S.,

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THERE is no disease of civilised races that commands more interest at the present day than cancer. The reason for this is two-fold: it is incurable, and its origin is obscure.

With the improved methods of to-day in therapeutics on the one hand, and in research on the other, one disease after another has become curable, and the organism or toxin that produces or accompanies it has been isolated. Tuberculosis and malaria afford the two most notable of modern instances of this success,

“But cancer hath no man tamed.”

We can classify its varieties, referring the carcinomata to the epiblast and hypoblast, and the sarcomata to the mesoblast; we can trace its course to distant parts along

¹ Presented to the Liverpool Branch, February 11, 1904.

the lymphatics in epithelial cancer, and along the blood stream in connective tissue cancer; with the aid of the microscope we can watch its progress from the proliferation of a few apparently normal cells, through its triumphal progress of destructive infiltration of the tissues, and its metastatic reproduction in distant organs, to its degeneration produced by its own activity in ulceration, or its absorption by phagocytes, or by the fibrous stroma which sometimes successfully limits its growth, or by pressure reduces its nutrition, that is, if its host live long enough; with suitable reagents we can differentially stain nucleus protoplasm and the adjacent normal tissues; but what the disease is essentially, what causes it to grow in the way it does and gives it the power to pierce dense bone and fibrous sheath, we are ignorant. This last power is partly due to pressure, which interferes with nutrition of a bone, for example, as happens in the case of an abscess "absorbing" the spinal column; or it may be, there is a ferment secreted by the cancer cells which has the power to dissolve hard structures, in the way that we know fungi do when they penetrate hard wood. Nor can we boast of our treatment. Hygiene, dietary, electrolysis, and drugs, are all of no real avail in checking its ravages. The knife alone can save the victim's life. Extirpation of the offending neoplasm is the only means as yet known to us by which we may deal effectually with this fatal scourge, the number of whose victims increases year by year.

But surgical removal is not cure in the sense that syphilis is cured by mercury and iodide of potassium. That would be a view too crude to take; we must go on trying to find out how to enable the tissues to deal with the matter themselves, to assist Nature in fact, to remove her disabilities.

Not the least remarkable thing about cancer is that a spontaneous cure sometimes takes place owing to the cessation of growth and subsequent shrinkage due to the progressive contraction of fibrous tissues surrounding it. A cancerous nodule may then be securely enclosed and as incapable of doing further harm as a bullet or a vesical calculus is when encapsuled. In these too rare cases

natural processes have sufficed to cure, and may, perhaps, point the way our activities should take in endeavouring to learn a way to render the normal tissues resistant to invasion.

Yet the idea occurs to one, does the fibrous tissue initiate the cure, or do the cancer cells first cease to proliferate?

I remember a case of carcinoma in a woman over 50 years of age, who had laparotomy performed in a Liverpool hospital. The disease was found to be so extensive that the wound was closed without any attempt being made to remove it. She was sent home to die. Then I was sent for, and found the patient extremely emaciated, in great pain, frequently vomiting, and looking near her end.

I gave morphia to relieve pain and promote sleep, and arsenic, phosphorus, &c., for the vomiting and collapse. She recovered, and remained well and able to take long walks for about two years. The abdomen was hard and nodular, showing that the disease was there, though quiescent. Subsequently she died from a recrudescence of her original malady. There could be no question of a limiting fibrous sheath here, and I should hesitate to affirm that the morphia and arsenic checked the growth. Some other factor checked it, analagous, perhaps, to the recovery that sometimes takes place after laparotomy in a case of abdominal tuberculosis; but how we do not know.

GEOGRAPHICAL DISTRIBUTION OF CANCER IN BRITAIN.

Dr. Haviland's book on "The Geographical Distribution of Disease in Britain" is well worthy of study (1).

Let us refer to his observations regarding cancer.

A cancer area characterised by tertiary and more recent clays and retentive soils, by fully-formed rivers, as the Thames, which seasonally flood the adjacent districts, is found to present the highest mortality. The area of least mortality is that where the land is elevated and composed of the oldest rocks, Cambrian, Silurian, and Carboniferous Limestone, where the rivers are smaller, torrential rather than sluggish, and seldom causing widespread lasting floods.

In the counties having a high mortality from cancer we find that the tributaries of the large rivers rise from soft, marly, or other easily disintegrated rocks, and then fall into sheltered valleys, through which the main rivers flow. These rivers invariably flood their adjacent districts during the rainy season, and generally have their waters coloured by the suspension of alluvial matter. The Thames counties, characterised by their tertiary soil and frequently-flooded river, form, as it were, a typical "cancer-field."

Those counties which are characterised by hard and not easily disintegrated rocks, such as the Welsh Silurian and the great carboniferous range which forms the backbone of the northern counties to the north of the Mersey, and which are fully exposed to the drying influences of the wind, have, coincident with these opposite characters, a low mortality.

Hippocrates (B.C. 460-357) was the first to recognise the importance of studying watersheds in relation to local climates and diseases. He knew how the prevailing winds were affected by the one, and the sunshine by the other, and pointed out that these features, according to their position, were capable of causing a difference in the climates of two places only a furlong apart.

Dr. Beddoes states that black-haired people are the most frequently affected by cancer, and red-haired the next.

Owing to more thorough drainage of land, floods are more sudden, frequent and extensive. Owing to the large increase of population and manufactories, the waters drained off contain much more sewage and other filth, while the water outlets, the rivers, remain the same as formerly.

Thus floods nowadays are not only more extensive, but are more dangerous to health.

Cancer increases in frequency with age, often beginning at 35 years. It is apt to begin in parts congenitally defective from the irritation of burns, tobacco, bad teeth and syphilis, while injuries often cause cancer to appear very quickly, and so do the degenerations of old age, *i.e.*, anything that lowers the resistance of the tissues.

Dr. Haviland gives the following reasons why seasonally flooded districts produce much cancer : The floods deposit an

adventitious soil which contains much decaying animal and vegetable matter, which forms a suitable pabulum for the cancer germs, whatever they are, to grow in, and which, he thinks, may fall on the soil from the atmosphere.

In high mortality districts the females affected over 35 years amount to 19·97 to every 10,000 women living.

In low mortality districts 9·27 per 10,000 in mountain limestone, and 11·27 in the chalk of Hampshire.

If the soil is lime, chalk, &c., whether flooded or not, the mortality is always lower, lower than where the subsoil is clayey.

The average for England and Wales for the twenty years 1851-70 was 14·20; in flooded and clay districts, 19·89; in limestone, 9·27.

Dr. Haviland points out that the waters of the Lake district are more highly aërated owing to the frequency of cascades; that, therefore, the aërated waters will the better oxidise and destroy micro-organisms. Air and sunlight, we know, do oxidise and destroy many bacteria, most of the deleterious ones being anaërobic. So, when a possibly contaminated source of water ripples over the stones of a brook, any pathogenic organisms contained therein are more likely to be rendered harmless than when flowing in deep channels not so exposed (2).

In a part of the North Riding of Yorkshire, where the River Ure frequently overflows its banks, during 1851-60, in a mean female population of only 5,092, 41 women died of cancer, equal to an annual death rate of 8·1 to every 10,000 living. Had Liverpool had such a death rate, instead of numbering only 552 women among its female population of 134,014, its death rate from this cause would have been doubled—1,104. During the above decennial period the death rate in Liverpool only amounted to 4·1 to every 10,000 females living, and this in spite of large hospitals, whose inmates come from far and near.

The keuper and bunter sandstone of our district is largely overlaid with boulder-clay. In spite of the water-logged condition of the ground which results from this cause, as between Liverpool and Southport and between Birkenhead

and Hoylake, we do not find much cancer. Possibly this may be due in part to the sparse population, but chiefly to the more or less nomad habits of the people that always obtains in the vicinity of large ports.

ON THE OCCURRENCE OF CANCER-HOUSES.

Dr. D'Arcy Power (3) tells of a certain district in England, which he does not specify, where cancer occurs and recurs with startling frequency, under conditions which he thinks point to the disease being due to an infection from without.

He says the district consists of 60 square miles of a flat country, which lies from 60 ft. to 150 ft. above sea level, consisting geologically of gravel over-lying the boulder clay. It is well watered, there are several fens, and much of the country shows the ordinary characters of marsh land. The population is just over 12,000, agricultural for the most part, and living to a considerable age in cottages, many of which are but moderately comfortable.

There is no marked tendency for the same families to intermarry in different generations. Insanity is common, phthisis is fairly frequent, but cancer is the prevailing disease. During the years 1872-98, 173 cases of cancer have been under observation, 59 occurring in males, and 113 in females, but of these, three patients were suffering from cancer when they settled in the district.

Of the 173 cases, 102 were between the ages of 50 and 80, but the ages of 48 were not known. The seat of the disease was as follows:—Breast thirty-seven, uterus thirty-one, liver twenty-two, lip ten, alimentary canal forty-nine, skin five, bone three, kidney two, ovary, testis, and bladder one each; but the seat of the disease was not specified in eleven cases.

Rich and poor were alike affected. It has occurred in new buildings of brick as well as in the old, thatched homestead. It seemed to cling to certain spots and groups of buildings, irrespective of their age and size.

In one village of 1,036 inhabitants, among whom forty-

two cases of malignant disease occurred between 1872-98, four houses had more than one case apiece in them.

In four cases cancer occurred in adjoining cottages under the same roof, and in two cases in two adjoining, but detached cottages. In seven cases it occurred in houses close together. The water supply seemed to have no special bearing on the incidence of these cases.

Some remarkable sequences are given. A man aged 26, whose great aunt had died of cancer of the breast, lived in a new house on land previously pasture. He died of an epitheliomatous ulcer of the groin. His successor in the house died of cancer of the rectum, and his successor, again, died at 36 of malignant disease of the brain, secondary to cancer or sarcoma of the testis.

Again, there were three cottages under one roof. A married daughter aged 22, died in one of them in 1892 of pelvic sarcoma; her mother next door died of cancer of the uterus in 1894 at 52; and in the third house a man aged 74 died of cardiac dropsy who had been operated on for epithelioma of the lip.

The sister-in-law of a clergyman died of cancer of the breast; her maid, who had lived long in the family, died eighteen years later of cancer of the uterus. She had moved to another house after her mistress's death. Thirteen years later her next-door neighbour died of a similar complaint.

Two brothers died of cancer of the rectum. The next generation consisted of two sisters, one died of cancer of the breast, the other of cancer of the tongue.

A mother died of cancer of the breast, two of her daughters died of a similar disease, and the third of cancer of the uterus. A father died of cancer of the rectum, the mother of cancer of the uterus and breasts, and a daughter of cancer of the breast. In one or two cases the child has had malignant disease before the parent has shown any sign, though it has developed later. It is remarkable, however, that there is a history of heredity in only a small proportion of the cases observed.

Dr. Power notes that insanity was rife in this unhappy

district, many of the houses in which cancer occurred having also one or more cases of insanity in them. He deduces from this fact that cancer is liable to occur in those whose tissues are unstable. As there were, out of 173 cases, ten in the lip, twenty-two in the liver, and forty-nine in the alimentary canal, he thinks it shows that the source of infection gains access through the digestive system. Yet his enquiries did not show that water was the direct infecting agent, so that there is probably some intermediate host of which we know nothing at present.

It might be thought that there is some insect carrying an infecting protozoon, as the *Anopheles* has been proved to carry the malaria parasite; but in the case of cancer the incubation period is far longer than that of malaria, and cancer attacks tissues in a more decadent condition, and seems capable of penetrating the tissues and causing a rapid proliferation of the cells, while malaria directly infects the blood.

Mr. Law Webb, of Ironbridge, was among the first in this country to describe "endemic cancer" (4). He gives a series of cases of cancer of a type similar to the foregoing. In his cases the water supply appeared to have a causal connection with many of the cases he observed. He also discounts the theory of heredity.

Dr. A. T. Brand (5) considers that the evidence is all in favour of cancer being caused by an infection from without. He gives the following summary of its minute anatomy and origin. Metastases are simply offshoots from the parent tumour, caused by migration of malignant cells. He points out that it is not only malignant cells which migrate, but that normal cells do so also; the leucocyte finds its way everywhere; bone cells migrate, as in the interfibrillar osseous deposit in muscle. The two great classes of malignant disease are determined by their source of origin: those derived from the epiblast and hypoblast, called epitheliomata; those arising from the mesoblast, denominated sarcomata. In the epitheliomata the cells are derived from the epithelium and lie more or less loosely in the stroma, which consists of alveoli of connec-

tive tissue. The cells are not attached to the alveoli nor to each other, nor does connective tissue pass between individual cells. These alveoli are really lymph spaces; thus the epithelial cells are bathed in lymph, and being dislodged by the pressure of their own overgrowth, or in any other way, they must enter the lymph stream and are arrested in the nearest lymphatic glands. Blood-vessels permeate the stroma and are often dilated. As they are penetrated by proliferating cells, the latter enter the blood-stream and are carried far away. In the sarcomata the cells are derived from the connective tissue and are embedded in the stroma, which passes between individual cells, and to it the cells are closely attached. There are no lymphatics in sarcomata, but the smaller blood-vessels are in contact with the cells, their walls being often formed of nothing else, a single layer of endothelium separating the blood itself from the cells of the tumour. Hence, it is inevitable for proliferating cells to enter the blood-stream and be carried to distant parts. This anatomical arrangement explains why malignant epithelial cells so extensively affect the glands and are more rarely conveyed by the blood, while sarcomatous cells follow the blood-stream and do not affect the glands. This propagation of cancer by metastasis shows how imperative it is that the surgeon should extirpate the growth at the earliest possible moment, before the local disease has become general.

It is said that the parasitic origin of cancer is improbable because of the multitude of different growths. But these all have the same characteristics.

They infect their environment, tend to ulcerate, and extend by metastasis.

Their variety depends solely upon the tissue of origin and its anatomical structure. All these tumours are derived either from epithelium or connective tissue, and conform in structure to one or other of these two classes.

The great variety of tumours is due to the great variety of the normal structures which arise from these two classes of tissue. In soft tumours cells predominate, in hard, stroma. There is no such entity as a specific cell indicative of cancer,

every cell of a malignant growth being an infected cell derived from a normal structure.

Clinically, the distinction between benign and malignant growths is exact. Pathologically, the distinction is not so clear, nor can it be until the infective organism has been isolated. Benign growths being for the most part simple local hypertrophies of normal structures, are as liable to infection, after having been rendered vulnerable by irritation, injury or degeneration, as are the tissues from which they spring.

Dr. H. G. Plimmer (6) goes minutely into the etiology and histology of cancer, and gives coloured plates showing what he considers to be the parasites of cancer within the cells and in their immediate vicinity. This was in 1899, and I think that if his painstaking observations had been confirmed by other histologists we should not now be in the doubt as to the existence of these parasites that we are at present.

It will not be necessary here to quote or discuss the several hypotheses which were, each in their day, intended to account for the growth of malignant disease, but one or two may be mentioned. In 1874 Durante, and in 1875 Cohnheim, elaborated the hypothesis that neoplasms arose from embryonic tissue. Shortly stated, it supposed that during embryonic life bits of the germinal layers might get cut off and included in the tissues; they might remain latent during the whole of life, or under irritation might develop into tumours; while applying to certain tumours, as enchondroma, it does not explain any of the phenomena of cancer.

Moles, too, survivals of embryonic life, are often the seat of melanotic sarcoma when irritated at a later age.

With the discovery of bacteria and their effect on the body it was but natural that these organisms should be sought for in cancer. Those that seek find, though not always what they look for. Many bacteria of differing kinds have been observed in cancers by Nepveu, Rappin, Scheurlen, and others, which is not surprising, as the diligent may find bacteria in the whole of non-sterilised nature. But these

micro-fungi have not been proved to have any pathogenetic properties. Moreover, in the earlier days of bacteriology the necessity for examining growths under sterile conditions was not fully appreciated, so that some of the bacteria found were, no doubt, introduced from without. Then came Thoma, Malassez, Darier, and others, who described nucleated bodies in cancer cells, and called them "coccidia," but later research by Ruffer, Walker and Plimmer, appear to show that these bodies are not parasites, but only altered cancer cells, invaginated cells, leucocytes, &c.

As differential staining became elaborated, Russell, with the aid of fuchsin, demonstrated in cancer cells the presence of bodies which he, Metchnikoff, Plimmer, and others, believe to be true parasites of the nature of protozoa.

Unfortunately, fuchsin will also stain degenerations of the hyaline protoplasm of the cells, so that the real nature of these "parasites" is open to doubt in the minds of some to-day. There seems no doubt, however, now, that since fixing and staining of soft structures like these cells and their protoplasm is so well understood, there are peculiar bodies found in and about cancer cells, at least in those portions of the neoplasm where the greatest activity of growth is seen, which have not hitherto been fully explained.

Sanfelice affirms that these bodies are not protozoa but blastomycetes, a variety of the saccharomycetes or yeasts.

The differences between cancer cells and normal epithelium is principally the larger size of the former and also shape and reaction to a stain like Congo red, which affects the neoplastic cells very faintly and the normal ones deeply. As the cells of a neoplasm grow with such rapidity, it is not surprising that they are bigger and oddly shaped when compared with normal cells from which they sprang. This increased activity probably accounts for our finding within the cells bodies not normally met with.

In addition to the so-called "parasites," Dr. Plimmer and others have observed in different cases many chromatic granules in the nucleus—the "hyperchromatosis" of Klebs—said to be due to an abnormality in the development of the karyokinetic figure. Then there are cells in which other cells have become invaginated. Some observers have main-

tained that endogenous cell-formation takes place in cancer, but this is not generally accepted.

Dr. Plimmer believes that leucocytes, which he has seen within cancer cells, go there to destroy the parasites, just as they go to destroy bacilli in other diseases. Lastly, there are small fragments of chromatic material surrounded by a material which takes protoplasmic stains, but whose staining reactions differentiate them from the "parasites." Here, then, are various bodies which it is admitted may be mistaken for parasites, but which it is affirmed may be distinguished by proper fixing and staining from them.

The stroma of cancer, when present, deserves notice. In the vicinity of the growing parts of a cancer there is always a collection of lymphocytes, but as one nears the central parts of the tumour these are converted into large mononuclear cells, and later into fibrous tissue, which surrounds the cancer cells.

Then the cells degenerate, and this is really a process of digestion by the stroma (7). Later on the stroma hardens and serves to protect the tissues from further invasion. The stroma is, then, the phagocytic reaction of the organism against the invasion of cancer.

Dr. Plimmer notes that in many hundreds of cases of cancer which he has examined, there is always a zone of round-celled infiltration and phagocytes, which is the most intense near the growing points. In most of the instances in which leucocytes are found in cancer cells, those cells are already occupied by a parasite, and it is quite easy to see that the parasite is undergoing destruction. Also the cancer cells themselves are eaten either by the cicatricial tissue, or by the giant cells which are formed close by.

These giant cells are more numerous in epitheliomata than in glandular cancers, and occur chiefly in the rapidly growing stages.

Great stress is laid upon the proper fixing of tissues before staining; the misleading appearances which have been described being due to methods which shrink the protoplasm and nucleus. Hermann's solution is recommended for fixation; it consists of platinic chloride, osmic

acid, and glacial acetic acid. For the proportions and methods of use and subsequent staining, I must refer you to Dr. Plimmer's paper. But the parasites may be seen in fresh specimens, without staining, by placing a scraping on a slide and examining with a $\frac{1}{12}$ immersion objective, or even a $\frac{1}{8}$, in the fluid which exudes, or in 75 per cent. salt solution. The substage mirror should be placed obliquely.

Various stains are useful; as thionin, which stains quickly, or Heidenhain's iron hæmatoxylin, or Ehrlich's combination of acid fuchsin and orange G.

THE "PARASITES."

The parasites are described as round bodies varying from .004 mm. to .04 mm. in diameter. The central portion is round or irregular, it is surrounded by protoplasm which in turn is contained by a capsule. Though it may be termed a nucleus there is nothing in this central portion in common with the biological nucleus. This nucleus differs in its microchemical reactions from the nucleus of the cancer-cell. This is to be noted against the assertion that these bodies are aberrant nuclear structures. The nucleus sometimes has another small body of similar reaction attached to it, which is probably a process of reproduction by budding. The division into two is the most usual method of multiplication, and is generally effected by budding; or the capsule throws in septa from either side between the divided nucleus. The two segments then separate from each other. In rapidly growing cancers he states that he has seen as many as sixty-four parasites within one cancer cell.

The continuous iteration that these bodies are not organisms has led us no further towards the knowledge of what they really are. That these bodies are merely due to degenerative changes is disproved by the following facts:— That they have none of the reactions of any known degeneration; that they are not found in the parts of a cancer which are degenerating, but only in the actively growing parts; that they are not to be found in any other tissue, nor in any kind of degenerated or inflamed tissue, nor in any

other neoplastic tissue save only sarcoma; that they can and do multiply in cancer kept outside the body; and that they can be grown outside the body. Instances are given of parasitic protozoa occurring in certain of the lower animals which are exceedingly like these cancer parasites in their appearance and in their microchemical reactions. Out of 1,278 cases of cancer Dr. Plimmer has found the parasitic bodies in 1,130. Of those in which he failed to find them, sixty-three were densely fibrous, in fact cured locally, twenty-seven were so degenerated that no stain could be made to affect the broken up and dead cells.

Very rapidly growing "acute" cancers are very rare, only nine out of the 1,278 were of this nature, and in these cases there was scarcely a cell which did not contain parasites. So that the clinical course would seem to accord with the number of parasites found. This is dependent on the diminished resistance of the body or on the increased virulence of the organisms.

This is comparable with acute and chronic tubercle.

After examination by the same methods of gummata, tubercular growths, glanders, actinomycotic growths, epithelium which has been artificially irritated, and normal tissues, in man he has never seen any intra- or extra-cellular bodies which were like the parasitic bodies described above, or which had their reactions. Experiments have been made by several observers by transplanting pieces of cancer from one part to another of the same body, or from man to one of the lower animals, nearly always with a negative result.

But even if these experiments had been uniformly successful, I fail to see what we should learn therefrom, because it would be analogous to the metastasis which is so common in cancer. This metastasis is due to actual portions—cells—of the neoplasm becoming detached from the parent growth, and being carried by lymph or blood stream to distant parts, and there proliferating in the usual way, and is not dependent on the presence of any parasite.

Although transplantation of cancer fails, yet Dr. Plimmer has made cultures from the very rapidly growing cases mentioned, and has inoculated animals with them into the peri-

toneum or cornea. In each instance death has been caused, with the production of tumours, endothelial in origin, excepting the cornea, and pure cultures of these tumours, when inoculated into suitable animals, will produce similar growths. But these artificially-produced tumours have never been demonstrated to be cancerous.

CANCER IN THE LOWER ANIMALS.

Dr. Fadyean (8), a veterinary surgeon, considers that evidence bearing upon the etiology of cancer among human beings obviously ought to include the known facts regarding the occurrence of cancer in the lower animals.

In all the cases he quotes he has verified their nature by microscopical examination. While carefully distinguishing between carcinomata and adenomata, he knows that the latter not rarely become very malignant; the one part of such tumours, consisting of a more or less orderly arrangement of cells, disposed as a lining to tubular or acinous spaces resembling those of a secreting gland, or when forming solid cylinders, being limited outwardly by a basement membrane; while the other part of the same tumour presents that disorderly proliferation of epithelium extending in all directions without being limited by any membrane, which is characteristic of the carcinomata.

Of forty-nine cases of carcinomata examined by him, twenty-five were in the horse, sixteen in the dog, five in the ox, two in the cat and one in the sheep.

Of fourteen malignant adenomata and adenocarcinomata, seven were in the dog, six in the horse, one in the sheep. It is noteworthy that he has not observed malignant disease in the pig, in which animal he considers it very rare.

Of the genito-urinary tract and mamma there were sixteen cases: five in the liver, seven in the kidney, twelve in the alimentary canal, three in the skin, eleven in bones and limbs. The seven cases of cancer in the penis of horses were all geldings.

The relative, if not absolute, immunity of the udder of the cow from carcinoma is difficult to reconcile with the

theory that carcinoma of the human breast is etiologically connected with the irritation incident to lactation. It is to some extent opposed to the parasitic theory of cancer, for, in respect of the frequency and variety of bacterial inflammations of the mammary gland, the cow stands first among all the domesticated animals, and is far ahead of the human female. None of the tumours in the horse took origin at any of the seats of irritation, as galls about the saddle, collar or crupper; with respect to the age at which animals are attacked, nearly all were middle-aged or old.

Several months ago it was recognised in Liverpool University that cancer attacked fishes, and since then various popular articles have appeared on this discovery (9).

The domesticated animals live much the same lives as do their masters, and have sometimes been proved to have become infected from them, as when a dog who licked his master's epitheliomatous lip contracted cancer.

But fishes belong to another order of the animal kingdom entirely separate from that to which we belong. So that it appears as though, in order to find out the *fons et origo* of malignant disease, we must go to the cell itself and search out what are the "disharmonies," as Metchnikoff calls them, that produce it.

It is as though, instead of our body-cells being all ordered in harmonious correlation, some of them become mutinous and go their own way to the detriment of the rest. When the ill-effects of this mutiny affect only the mutinous cells themselves, the result is a benign growth; but when the whole body becomes infected by this anarchical cell proliferation, the result is malignant disease. One writer has ingeniously surmised that fishes first obtained their cancer from feeding upon drowned people who were cancerous, and that the disease is spread among fishes by their feeding upon each other.

But the question here arises, would not the gastric juices of fishes first destroy and then assimilate the cancerous material? Even the cancer juices or toxins would be altered by it. Be this as it may, animals fed in Liverpool on cancerous material have hitherto shown negative results.

OUTLINES OF THE TREATMENT OF CANCER.

(1) *Extirpation*.—In the present state of our knowledge this is the only method that can ever be said to be a certain cure. It should be done as soon as the diagnosis is sure. It is only permissible to delay when the diagnosis is uncertain, or when the patient refuses operation, or when the disease is too far advanced. But after a malignant growth has been removed by operation, ought we not to continue to treat the patient by medicinal or other means?

The knife may have removed all local manifestation of the disease, but its growth has, I think, produced a profound effect on the system generally, which ought not to be neglected by the physician. Drugs and possibly some toxins, that are known to exert an influence on cancer, might well be employed to counteract anything of the *materies morbi* that has been left behind, and also to fortify the system against any subsequent invasion. A person who has once had cancer is more likely to suffer from a second attack than one who has never had it.

Treatment in Inoperable Cases.

Dr. Coley mentions the following methods (10) :—

(2) *Electrical*.—Electrolysis, obviously, can only be employed in a limited number of cases. Its use should be confined to inoperable cases.

The Röntgen rays are very successful in curing superficial cancers like rodent ulcer.

The application of radio-active substances in this direction is as yet in the purely experimental stage.

(3) *Escharotics and other external applications*.—Pastes made of arsenic, mercury, and zinc salts have been much used in their day. Their use is both tedious and painful, and has been responsible for many deaths by poisoning. Orthoform and nosophen, either mixed in equal proportions or by themselves, form useful applications where painful ulcerations are present. Carbide of calcium has been used in inoperable cancer of the uterus. The uterus is first

curetted, the hæmorrhage being checked by the cautery and by irrigation of very hot water. The cavity is then made as dry as possible with gauze. A piece of calcium carbide the size of the last phalanx of the thumb is placed in the uterus. The rest of this cavity and the vagina is packed firmly with iodoform gauze. The treatment is to be renewed in three days. After a series of such applications, Dr. Etheridge states that a simple clean ulcer remains. Dr. Emil Ries believes that the effect is produced by the quicklime which forms, and he adds that quicklime has been abandoned as a cure for cancer, for good reasons. He points out also that the slough may extend too deeply, and that the acetylene gas which is formed is very explosive when mixed with air.

(4) *Kataphoresis*.—Dr. G. B. Massey thinks that “a relatively infinitesimal part of the oxy-chloride of mercury acts lethally on the cancer cells without destroying the normal tissues.” The active electrode of zinc is heavily coated with mercury. The diffusion takes place only from the positive pole, which is placed in the tumour, the negative pole resting on some other part of the body. Strong currents of from 500 to 1,000 milliampères were used. Some good results have been shown by Massey, Morton and others. The chief objection to this method is the necessity for frequent and long-continued treatment, and its inapplicability where the glands are involved.

(5) *Parenchymatous injections of alcohol* were first advocated by Schwalbe and Hasse in 1872-3. The theory upon which the curative action is supposed to be based is that the afferent and efferent vessels are obliterated by the action of the alcohol. Hence the injections are made just outside the tumour.

This method is very painful, and could only be of avail where the tumour is localised, *i.e.*, in just those cases where extirpation would be easy.

(6) *Lymph-gland extract* has been given in capsules by Dr. H. Snow in inoperable cases with some benefit. In explanation of its action, he says that no one can doubt that the lymph-glands resist and, for a time, destroy malignant

protoplasms. Whether this be effected by a phagocytic action of the lymph-cells or by their secretion is doubtful. When given in capsules the cells must be disintegrated and only their juices remain. Moreover, as Dr. Coley points out, it is probable the infection is merely arrested for a time by the glands, and is not destroyed by them. We have seen above that the spread of carcinoma is mainly along the lymph channels.

(7) *Drugs*.—Numberless drugs have been in vogue from time to time: Eggshells dissolved in vinegar, arsenic, phosphorus, chelidonium, conium, condurango, viola odorata, potassium cyanide and many others.

None of them are of any real avail, for, while cures have followed the use of any and all of them, it does not follow that they have been the means of cure.

I do not intend at this time to discuss the several uses and indications of these drugs, on account of lack of space and time.

(8) *Serum-therapy* is considered by Dr. Coley at some length.

Hitherto very little success has attended the use of injections of carcinoma and sarcoma serums. But injections of the mixed toxins of erysipelas and bacillus prodigiosus, either subcutaneously at a distance from the obvious site of the disease or into the tumour itself, have been successful in dispersing undoubted tumours of sarcoma, chiefly of the spindle-celled variety; but carcinoma appears to be very little affected by this treatment. It is suitable in inoperable cases, and might be used with advantage after extirpation, to complete a real cure.

It is noteworthy, however, that patients treated by these toxins appear to be rendered more susceptible thereby to invasion by other blood poisons.

It would be interesting to have an account of the latest results of cancer research by one of those actually engaged in it. But probably these observers are waiting until there can be some sense of finality in their pronouncements. They hesitate to commit themselves.

At the Liverpool University I have seen some of the

alleged "parasites," like those figured by Dr. Plimmer and others, and, unlike as they are to any other cells, the authorities do not give a definite opinion as to their exact nature, though they incline to believe they belong to the saccharomycetes rather than to the protozoa. But what these "parasites" really are, how they come to be where they are, and whether they are either cause or effect of cancer, no one knows. I was informed that in some quarters the cancer cell is believed to develop from germinal cells, a modification of the older theory of Cohnheim regarding the inclusion of embryonic tissue. They also believe that more than one cause of cancer will be found to exist. They have failed to inoculate animals with cancer, but said it would be useful if one could obtain generation after generation of cancer reproduced in this way from animal to animal, because the material for microscopical and other examination would then resemble a "pure culture," and one would then know what one was dealing with, whereas now one gets pieces of cancer from all sorts of places and animals, and, therefore, one cannot tell if the cells, parasites, &c., are all due to the same cause or not. Like other investigators, they do not find the parasites in all cancers, but only in those showing an active growth.

While these uncertainties exist the true scientific attitude is one of patient research, keeping an open mind, and verifying one's experiments over and over again.

The conclusion of the matter at present is that we have not yet found out the ultimate causes of cancer, nor do we know whether it is produced by an infection from without or not.

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ACUTE RHEUMATISM AND ALLIED CONDITIONS.¹

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WHEN the Secretary of the Section honoured me with a request to read a paper before the Society it was with great diffidence that I acquiesced, until it occurred to me that the etiology of rheumatic fever would probably raise a good deal of interest, as so much work has of late years been done in clearing up the subject; and as I have had opportunity of acquainting myself with the experimental work on animals in various laboratories I felt justified in some measure in undertaking to give you an outline of the work which has been accomplished, and incidentally it will appear that there is a connection between rheumatic fever, malignant endocarditis, chorea and rheumatoid arthritis. Afterwards I propose to compare the results of the various methods of treatment, and which, I think, will confirm your faith in homœopathy, and I trust my paper will elicit a valuable discussion which will lead to our arriving at a definite conclusion as to the cause of this fever, and also to our more effectual treatment of this ubiquitous disease.

ETIOLOGY.

By ancient writers, from Hippocrates downwards, this disease has been known by the term "rheuma," which

¹ Presented to the Section of Materia Medica and Therapeutics, March 3, 1904.

means "I flow." The notion was that an acrid humour generated in the brain and distributed over the body. At the present day opinions are divided between the theories of auto- and bacterial intoxication. Prout was the first to suggest that lactic acid might be the poison, and he was led to the conception of this chemical theory by the similarity which acute rheumatism bears in many of its features to gout. In 1858 Richardson published a series of experiments on dogs and cats which were believed to show that lactic acid when injected intraperitoneally was capable of setting up endocarditis; but these experiments were discredited three years later by Rahere. In 1871 Foster published two cases in the *British Medical Journal*, in each of which the administration of lactic acid to patients suffering from diabetes was followed by the occurrence of painful swellings in the joints; one patient had six well-marked attacks resembling acute rheumatic arthritis. Keely also relates that the administration of lactic acid to a patient was followed by pain in the hip and thigh which he called rheumatic. But none of these results have been obtained by later experience. So far as I am aware these experiments and the analogy of gout, and the erroneous idea that the perspiration of rheumatic fever was unusually acid, are the only grounds adduced to support the theory of lactic acid intoxication; on the other hand there is strong evidence to show that lactic acid is not present in excess in acute rheumatism. It is present in very small quantities in the human blood in health, but there is no notable disturbance of the alkalinity of the blood in rheumatic fever. It is absent from normal and rheumatic urine, but has been found in the urine in some other diseases, such as hepatic cirrhosis, acute yellow atrophy, leuchæmia, osteomalacia, rickets, phosphorus poisoning and trichinosis. This acid has not been discovered in any perspirations except that from cases of puerperal fever. The perspiration of rheumatic fever is not more acid than the secretion from a person in health, and it owes its sour smell to fermentative changes which take place after it has been poured out—exactly the same smell is present about persons in good

health who do not change their underclothing after perspiration has taken place.

Latham in his "Croonian Lectures" considered that the exciting cause of rheumatism was the presence of lactic acid together with uric acid. Haig maintains that rheumatic fever is due to some cause which precipitates uric acid in the joints; he says "rheumatism is the old name of the arthritis produced by uric acid, which commonly affects young people and many joints."

I do not propose to discuss the recondite question of uric acid toxæmia; suffice it to mention that Dr. Haig, in making his investigations as to the presence of uric acid in the tissues of the body, has used chemical tests which are not accepted as reliable. Uric acid has not been proved to be present in the blood of patients suffering from uncomplicated rheumatic fever, and there is no excessive excretion of it from the kidneys; the precipitation of it in the urine of rheumatic fever is common to all pyrexial conditions, and can be accounted for by the diminished quantity of water, the amount of pigment and percentage of salts, &c. It has been shown experimentally, physiologically and pathologically that uric acid is not a great irritant of the tissues; in birds and reptiles most of the nitrogenous waste products are excreted by the kidneys in the form of uric acid, and we know pathologically it is present as the biurate of soda in the joints of about half the people who die with renal disease, and yet there has been no history of arthritis during life. It is also found in the joints of many persons who have died from wasting diseases, especially phthisis and cancer, and yet during life there were no manifestations of the gouty diathesis; and, again, in cases of leuchæmia the excretion of uric acid is doubled or trebled, yet it apparently causes no irritation. Modern research indicates that uric acid arthritis is dependent upon much more complicated conditions than a mere excess of uric acid in the blood.

Professor Mitchell and his son, Weir Mitchell, and others, have advocated the nervous origin. A condition of the joints almost indistinguishable from subacute and chronic arthritis may occur as the result of disease of the brain, injury and

disease of the spinal cord and also in injury and disease of the nerves supplying the joints, but it never assumes the acute form as seen in rheumatic fever.

Stern, in an elaborate paper, maintains that the rheumatic process is a result of an increased permeability of white fibrous tissue, particularly that of the serous and synovial membranes. This increased permeability is effected by the calcium salts of the blood, which extract the cementing substance from the fibrous tissue.

It has been thought that rheumatism has been caused by suppression of the function of the skin. To demonstrate whether it was so Senator ventured to varnish two patients suffering from rheumatism; he caused their extremities to be encased in sticking plaster, and almost the whole trunk was thickly painted with collodion mixed with a little castor oil to make it less brittle; only the skin of the head, neck, buttocks and genitals remained free. One patient twice remained in this condition for twenty-four hours, and the other for fully eight days! A third experiment was made on a female patient with chronic pemphigus. The whole body, and even the face, was thickly covered with common tar, and the head, which had been shaven, with *oleum rusci* (this is a tarry product of the beech tree). This air-tight covering was not removed for ten days, but no injurious consequences occurred in any of the three cases.

Having considered the auto-intoxication theory of rheumatic fever, and having seen that the evidence brought forward in its support is not by any means convincing, let us turn our attention to the probability of a toxæmia of bacterial origin. From the clinical and hygienic aspects acute rheumatism presents all the characters of an infective illness. It is to some extent endemic in certain areas; it exhibits at times a tendency to epidemic prevalence. That it is due to an irritant circulating in the blood is evidenced by the occurrence of pyrexia, rapid anæmia, erythemata and purpura, polyarthritides, pericarditis, myocarditis, endocarditis, and at times pleurisy, pneumonia and nephritis; and that the irritant is of microbic origin is rendered probable by the frequency with which the onset of the symptoms can be

associated with an antecedent attack of rheumatic tonsillitis, and the fever being ushered in by shivering and general aching.

The infective theory is further strengthened by the observed tendency of the disease to run a definite course in spite of treatment, to be associated with a marked paresis of the heat-regulating mechanism, at times sufficient to induce hyperpyrexia, and to lead to other serious disturbances in the central nervous system. It is supported also by the occurrence of relapses. In children the local effects of the poison are not so obvious, for sore throat is generally not present and the articular inflammation is slight, transitory or altogether absent; on the other hand, the process is more general, and the lesions of the cardio-vascular system more prominent, and occasionally chorea is present.

In 1875 Klebs detected micro-organisms in cardiac valves which were affected with rheumatic endocarditis, and in 1887 Popoff obtained cultures from the blood of rheumatic subjects, which, on inoculation into animals, gave rise to pericarditis, endocarditis and arthritis. Among the organisms which have been isolated by the earlier observers the most important were the staphylococci, by Guttman, Sahli, Maragliano, and Singer; streptococci or diplococci, by Netter, Maragliano, Singer, Dana, Apert, Triboulet; and a bacillus isolated by Achalme. As regards this bacillus, which is a large anthrax-like, gas-forming anaerobe, Achalme admits that it did not give positive results in experiments on animals; no one in England or Germany has isolated it with the exception of Hewlett, who was stated to have found it in one solitary fatal case of rheumatic fever.

Attention for the last few years has been centred upon an organism described by Apert and Triboulet in 1898. This micro-organism is probably identical with that discovered by Popoff in 1877, and subsequently, in 1899, was obtained by Westphal, Wassermann and Malkoff, from a fatal case of chorea occurring in Berlin. In 1900 Poyton and Paine recorded the isolation of Triboulet's micrococcus in pure culture from twelve consecutive cases of rheumatic

fever, and gave the results of experiments on rabbits, which confirmed their conclusions that the organism in question was a specific cause of rheumatism. In 1901 they gave a further report of their investigation in reference to the isolation of the same organism from some eighteen cases; by inoculation they had produced in animals the following lesions:—polyarthrititis, pericarditis, myocarditis, endocarditis, pleurisy, fibrous nodule formation, fungating endocarditis with visceral infarctions, and probably chorea. They had found the organism microscopically in nearly all the lesions of acute rheumatism, and had succeeded in cultivating it from a large number of them, including the blood and inflammatory exudations, cardiac valves, joint tissues and rheumatic nodules.

More recently Fritz Meyer has taken up the subject and obtained similar results.

In 1903 Beaton and Ainley Walker published the report of fifteen cases in which they had obtained a similar organism—eight of the cases being from acute rheumatism, and three cases from chorea, and one from malignant endocarditis in rheumatic subjects. The accuracy of the diagnosis must be accepted owing to the fact that they were all in one or other of the great general London hospitals. The cultures were obtained either from the blood or urine, and once from an articular exudation, *intra vitam*. By inoculation intravenously in rabbits they obtained the following effects: acute septicæmia, pericarditis, endocarditis, pleurisy and mono- or polyarthrititis. They caused as many as four distinct attacks of polyarthrititis in the same animal by as many successive inoculations. They found the organism in pure culture in the blood, in all the lesions and in the urine of inoculated animals.

Dr. Vernon Shaw has recently published the results of his experiments at the Wellcome Research Laboratories with this same micrococcus on twenty-five rabbits and two monkeys. He was successful in not only producing all the lesions of rheumatic fever mentioned above, but also well-marked iritis in two of the rabbits—one of which was followed by synechiæ, and in both cases he isolated the

organism from the iris exudation and from the fluid in the anterior chamber. He was also successful in producing the general rheumatic process by injection of the micrococcus into the knee joints as well as into the the pericardium.

Thus you see all the postulates of Koch have been complied with; the organism has been found in the diseased tissues, cultivations of them have been made on artificial media, the injection of these cultivations into susceptible animals has produced the disease; the organisms have been again recovered from such animals and have been re-cultivated on artificial media, and such cultures have reproduced the disease when inoculated into a fresh animal. It naturally follows that rheumatic fever is a specific process and a specific organism is its causal agent. It is not claimed that the micro-organism is the true and sufficient cause of rheumatic fever, but rather that it is due to three principal factors, viz., the diseased body-cells, the parasitic cell and the conditions of time and place.

The day has passed when it was thought possible to exhibit disease in a test-tube; it is not an "entity," but is a dynamical process. It has been demonstrated over and over again that the germs of tuberculosis, diphtheria, cholera and pneumonia are capable of living in healthy persons without producing any pathogenic effects. The true cause of disease is the internal condition of the organism, and which is generally termed the predisposition to the disease; this is always internal, and is equal both quantitatively and qualitatively to the effect, which is the disease. The existence of a definite predisposition is dependent upon the inherited organisation of the body and upon its adaptation to the conditions of life, among which may be numbered not only soil, water, air and the general factors of weather and climate, but also social conditions. These changing circumstances of external conditions act upon the internal disposition, which always remains the same. If these conditions change then readjustment must occur, that is, changes in the internal constitution must take place. Every change in environment, every considerable change in nutrition may, therefore, make itself felt by its effect upon our

predisposition, and thus is created the "diathesis." Hueppe has repeatedly pointed out that disease germs are not the true and sufficient cause of disease, but act as liberating impulses—disease stimuli—in breaking down the resistance and so converting the predisposition into the disease, the potential energy into the kinetic energy, the cause into the effect, and illustrates his statement thus: On the occurrence of an explosion the degree of the destruction is dependent upon the kind and quantity of the explosive material. Sometimes, however, we characterise as the cause the spark which precedes the explosion and evokes it. In the first case the cause is something internal and exactly concurrent with the effect; in the second case the cause is something external, which neither quantitatively nor qualitatively stands in any sort of congruent relation with the effect. So it behoves us to differentiate between the double sense of the word "cause." It is, therefore, the internal condition of the organism, of its organs, tissues or cells, that determines the character of the effect. The impulse which must come from without to produce these effects is the "stimulus," and in this case the disease germ. The removal of the resistance may be brought about by enfeeblement of the physiological organisation or by an increased intensity of the stimulus. The stimulus in this case is a living cell, and is therefore very variable in condition and virulence, depending upon the environment—the *genus epidemicus* of Sydenham. Take, for example, the vibrio of cholera and the coccus of infective cerebrospinal meningitis; they have become much more virulent during the last hundred years, whilst, on the other hand, the virulence of the bacilli of leprosy and bubonic plague may dwindle almost to vanishing point. I think it will be conceded that infective disease is caused by three factors, viz., the stimulus of the parasite, the conditions of time and place and the predisposition, which may be hereditary and acquired.

GENUS EPIDEMICUS.

Let us now consider the bearing of the *genus epidemicus* upon the etiology of rheumatic fever. It has been remarked

that acute rheumatism is a ubiquitous disease, and is met with everywhere from the Arctic to the Torrid zone, but it is more frequent in subtropical and temperate climes. Although atmospheric and climatic causes influence the prevalence of rheumatic fever, yet no satisfactory evidence has yet proved any connection between rainfall, low temperature or sudden changes in atmospheric conditions.

Influence of seasons.—It is generally accepted that seasonal changes affect the prevalence of rheumatic fever, and the

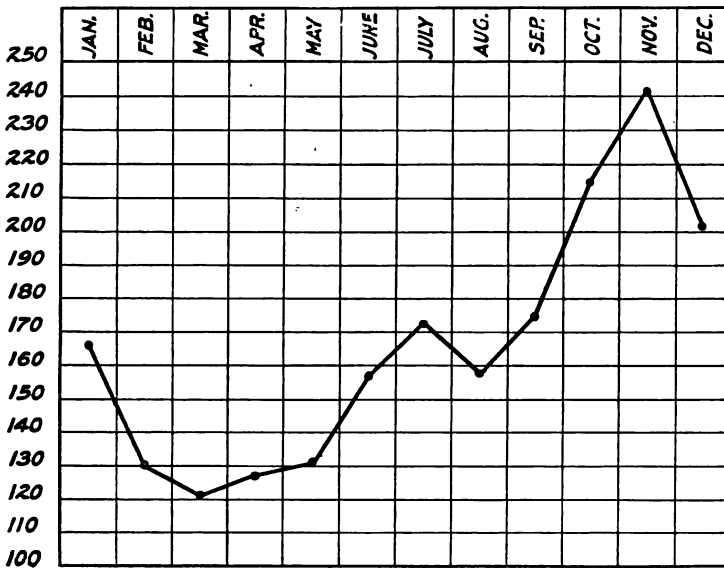


CHART I.
Cases of rheumatic fever in the London Hospital, 1873-81.

belief that it is more frequent in autumn appears to be well founded. This influence of season is very well shown in the accompanying chart prepared from 2,000 cases of rheumatic fever reported by Gabbett, and which had been admitted to the London Hospital during the nine years 1873-81, and are here arranged according to the months of admission.

The number of attacks falls during January, and is at its lowest from February to June. In June or July it goes up

with a bound till it reaches its maximum in October and November, and then begins to subside. This chart is found to correspond closely with Chart II., which was drawn up by Phillips, of 1,998 cases received at St. Bartholomew's Hospital during the twelve years 1882-93.

Dr. Newsholme, in giving his "Milroy Lecture" in 1895, exhibited a number of charts similar to these, showing that the monthly curve of the incidence and mortality of rheumatic fever in London corresponded closely with those of

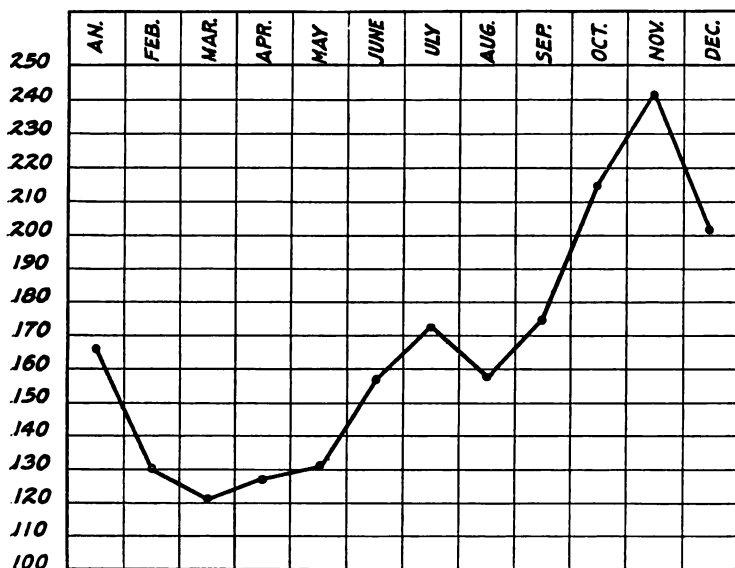


CHART II.

Cases of rheumatic fever in St. Bartholomew's, 1882-93.

other infectious diseases, such as chorea, cerebrospinal meningitis, epidemic pneumonia, erysipelas, puerperal fever, scarlet fever and enteric fever.

Chart III. shows the monthly incidence of enteric fever in London for twelve months, and at a glance its similarity to that of rheumatic fever is seen. The other charts which Newsholme exhibited were very much like this one. I think the correspondence of these charts is a strong plea in favour

of the contention that rheumatic fever should be grouped with the infective fevers.

In certain years rheumatic fever has been unusually prevalent in a particular country, so as to assume the

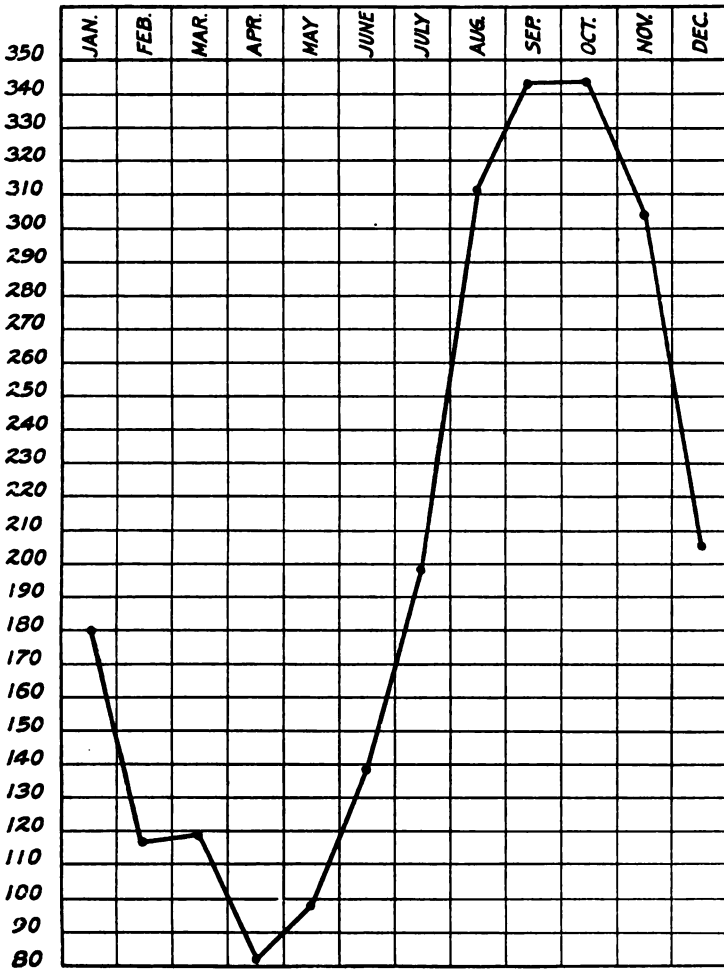


CHART III.

Incidence of enteric fever in London for twelve months.

character of an epidemic; such epidemics have been recorded by Lange, Pringle, Lancisi and others. Apart from

these epidemics there is a certain amount of evidence to show that rheumatic fever is a contagious disease. Friedlander, of Leipzig, saw twelve cases occur in the same house within three years, and during another three years met eighteen cases in two houses. Edlefsen reported that he had observed seven cases in one house and six cases in another, and five cases from each of five different houses. Many others have recorded groups of cases arising within short periods in the same house.

Predisposition.—No race of men is exempt from rheumatic fever, although Europeans appear to suffer more than others. Statistics show that natives of India suffer less frequently than the inhabitants of any other country. It has been estimated that the mortality from this disease in the British army is 1·01 in every 25,000 men, whereas in the native army of India it is only 0·51.

Cheadle is of opinion that rheumatic fever is transmitted as strongly as is the tendency to gout, and that hereditary predisposition is found in 20 per cent. of rheumatic children. Garrod, Fuller and Chomel have traced an inherited disposition in percentages varying from 27 to 33. Church has affirmed that there are families with a strong proclivity to both tubercular disease and rheumatic fever.

Sex.—Careful consideration of statistics has not shown that the disease is more prevalent amongst one sex than the other.

Age.—Acute rheumatism is essentially a disease of adolescence and early man and womanhood. Of 253 cases recorded by Church sixteen were under 10 years of age; 100 were between 10 and 20 years of age; eighty-five were between 20 and 30 years of age; forty-seven were between 30 and 40 years of age; five were above 40 years of age. No period of age is exempt. Widerhofer observed the disease in an infant 23 days old. Stäger met with it in a baby 10 months old. The occurrence of a first attack in a man over 80 was recorded in the *British Medical Journal* for 1888.

A former attack renders a patient peculiarly liable to others, and this is increased by each subsequent attack,

though the percentage of second attacks is small compared with that of first attacks.

Parturition, according to Neimssen, especially after the loss of much blood, predisposes to rheumatic fever. It is said to occur as a sequel to dysentery and scarlet fever, but it is a question whether this is not due to coccal infection.

Chill is probably the most important factor in determining an attack of rheumatic fever. High and dry lands, where the temperature varies between wide limits in twenty-four hours, appear to be particularly conducive to this disease. The influence of fatigue and exposure is shown prominently by military returns during the Egyptian and Cape wars. Its great frequency amongst domestic servants is supposed to be due to their being so much overworked.

MORPHOLOGY.

The organism in question is a tiny micrococcus measuring 0.5μ in diameter, and in films made from artificial media occurs in pairs arranged in chains. When growing in the tissues it shows marked pairing of the elements, and also the arrangement in streptococcal chains, and in artificial culture of particular media it can be made to exhibit chains of quite remarkable length. The micrococci are not capsulated, and they are not agglutinated by the serum of convalescent rabbits or man. They stain with the various aniline dyes. The stain which gives the best results in the tissues is, perhaps, carbol-thionin; the metachromism that is produced by this stain assists in differentiating them from the tissues in which they are lying, for, when deeply stained, they appear a deep blue, whereas the tissues take on a light blue or red tinge. When treated by Gram's method they sometimes retain the stain and at others do not.

The micrococcus has been grown on the following culture media: bouillon, peptone water, dextrose, saccharose, glycerine, lead and nitrate bouillon, gelatine, agar-agar, glycerine agar, blood agar, blood serum and milk. It forms a considerable amount of acid, no gas, no indol. It grows anaerobically as well as in aerobic culture. On potato there is no visible

growth. Its cultural characters closely correspond to those of streptococci. It propagates best in alkaline media, and has been grown in bouillon of an alkalinity of —25 on Eyre's notation. The nature of the acid formed has been discovered lately by Ainley Walker and Ryffel to be chiefly formic acid. After incubation for six days of a litre of alkaline bouillon with the diplococci, they found it contained about half a gramme of formic acid and also about another half gramme of one of the higher fatty acids, probably acetic acid. They also succeeded in obtaining formic acid from the bodies of the diplococci after frequent washings, which would indicate that the acid is manufactured in the cell of the organisms.

It is premature yet to conclude that this acid is the toxin of rheumatic fever, but the probabilities are in its favour.

Formic acid has the formula $H. COOH.$, and occurs in Nature in the sting of the bee, hornet, ant and other insects; it is to this acid that the irritating effects of nettles is due; it is also present in fir cones. It has been found in the urine, perspiration and muscle plasma of man. It can be readily obtained by the oxidation of methyl alcohol or formaldehyde. It is a colourless liquid, gives an acid reaction, has a pungent odour and irritates the skin, the inflammatory effects being characterised by oedema. It is very significant that the arthritis of rheumatic fever has also this peculiarity, the external oedema of arthritis of the ankle and wrist being a marked feature of the affection; and a more careful examination of the joints of acute rheumatism has revealed the fact that there is generally very little free fluid, and that the principal pathological change is inflammatory oedema of the synovial membranes.

There is evidence to show that formic acid not only, by its local action, causes inflammatory changes similar in appearance to that which occurs in rheumatic fever, but also, in its general action, produces symptoms resembling the manifestations of the rheumatic process, and even that form of it known as cerebral rheumatism. A single sting from the bee has been followed not only by the usual local effects, but also by a general scarlatiniform rash and oedema of

the trunk and limbs, succeeded by rigors, suppression of urine, partial unconsciousness and delirium, and later on by diaphoresis. It is generally accepted that *apis mellifica* acts specifically upon the serous and synovial membranes. The late Dr. Richard Hughes reported a case where a lady took two doses of fifteen drops of the tincture, and next morning her second right finger began to swell, the middle joint especially being red and hot.

The *Micrococcus rheumatica* can be differentiated from other forms of streptococci in many ways. It has been found that it can live and propagate in a filtered culture of fluid which has already been used as a medium for streptococci; streptococci will not grow in this fluid.

After thirty-six hours' incubation on blood agar the red colour of the medium is changed to a dull brown or rusty appearance; this is probably due to the action of the acid toxin which reduces the hæmoglobin. Spectroscopic examination of the pigment shows an absence of oxyhæmoglobin and the presence of a body with the absorption bands of hæmachromagen.

Sometimes, after a few days' incubation, involution forms appear, and they cease to grow so rapidly. They then appear as small bacilli of irregular shape, and about 2.5μ in length, and each bacillus apparently represents an undivided pair of cocci.

They have the faculty of growing best in highly alkaline media.

They produce considerable quantities of formic and other acids.

The hæmolytic action of the diplococci upon the red blood cells is much more intense than that of any other streptococci. This action explains the cause of the anæmia which so frequently accompanies rheumatic fever.

The organism when injected into rabbits produces all the lesions of acute rheumatism, except the cutaneous erythemata, and this infective process is quite different from that of *streptococcus septicæmia*.

The micrococci seem to have a remarkable affinity for the joints, for if they are injected intravenously into a

rabbit with staphylococci, they will be found to have entered the joint some time previously to the pyogenic germs. They also appear to have a special affinity for the cardiac valves, for 20 per cent. of rabbits which have been injected develop endocarditis.

PATHOLOGY.

The pathway of infection in man requires further investigation. The importance of the tonsil as a point of entrance has already been recognised. The incidence of the primary valvulitis being on the left side of the heart, and especially on the mitral valve, would indicate that the source of the infection should be sought for in the lungs, for if the infection were a systemic one we should expect to find the right side of the heart more frequently affected. Sir Thomas Barlow and others believe that disease of the tricuspid valve is comparatively common, but that it is generally so slight that it escapes observation unless carefully looked for.

Heart.—The valves of the heart are attacked by the micro-organism from within and therefore at first they are not found on the surface. Where the valve is examined early in the disease the micrococci are found beneath the endocardium in the substance of the valve. When the proliferation which they produce becomes a granuloma and breaks down, then they may be found on the surface; they may also be found in the connective tissue cells of the valves and the chordæ tendinæ. They are also found in the visceral pericardium, in the fibrocellular exudation and in the parietal pericardium. In the heart wall they are seen sometimes in the areolar tissue near the blood-vessels and in the intermuscular septa.

Joints.—The organisms have been found in the fluid from the knee joint, *intra vitam*, but have not yet been seen in the tissues. In rabbits the joint exudation contains them in vast numbers, and the fluid may be clear or opaque, and may even have the consistence of pericardial lymph.

Lungs and Pleuræ.—The diplococci have been found in the lungs and pleuræ of rabbits. They are present in masses beneath the visceral pleura and in the alveoli of the lungs.

Throat.—They have been found in films made from swabbings, as well as in sections of tonsils in patients suffering from tonsillitis, both early and late during the attack of rheumatic fever. This fact should be of practical value in the treatment of tonsillitis in rheumatic subjects.

Kidneys.—The urine presents the same features as are found in other pyrexial conditions. The colour is a reddish-yellow, depending upon a large quantity of hæmatoporphyrin and some urobilin. The specific gravity varies from 10·20 to 10·30; this is due to the diminished quantity of water secreted. On cooling, the urine invariably deposits a heavy precipitate of pink urates, and not infrequently crystals of uric acid. The quantity of urea exceeds the normal, but the uric acid is not generally increased. The diplococci have been found both in the urine of patients suffering from rheumatic fever and chorea, and in rabbits they have also been found in the cells of the convoluted tubules of the kidneys, where they produce coagulation necrosis of the protoplasm. Formic acid is present in the urine in appreciable quantities.

Nodules.—The diplococci have been found *in situ* in sections of nodules obtained from children, *post mortem*, who died from rheumatic fever.

Blood.—The coagulation of the blood may take place within the normal time limit or may be delayed considerably. The amount of fibrin is remarkably increased. The alkalinity may be slightly diminished or may be normal.

The intensity of the anæmia generally bears a close relation to the severity and duration of the disease. The hæmoglobin estimate varies from 50 to 70 per cent., and the counts of the red cells between 3,000,000 and 4,000,000 per cmm. The colour index is subnormal. The anæmia is generally recovered from as convalescence sets in, but in some cases a pseudo-chlorotic condition develops. Leucocytosis of the polymorphonuclears is almost always present during the acute stage. The diplococci appear to be always present in the blood during the fever. By centrifugalising the pericardial exudate the diplococci have been found in the polymorphonuclears—as many as three pairs have been

found in one leucocyte. It would appear that leucocytosis is protective in function.

Brain and its membranes.—In a case of fatal chorea Poynton and Paine discovered micrococci in the mitral valve and in the motor cortex. They have also produced, by inoculation in rabbits, what they thought to be chorea; the rabbit was extremely nervous and manifested sudden movements of the limbs and face. These movements were definite, but not violent, and there was about them that peculiar sudden involuntary character which is so characteristic of slight rheumatic chorea. On examining the rabbit *post mortem* they found diplococci in the pia mater and in the endothelial cells of the blood capillaries dipping into the motor cortex.

Jossué and Salomon have recently described the following case of cerebral rheumatism: A woman, aged 38, was admitted to hospital four days after the commencement of an illness beginning with sore throat. There was pain and swelling in knees, hips, wrists, elbows and shoulders, with abundant perspiration. The temperature ranged from 102.2° F. to 104.5° F. She became delirious and convulsed, and died within nine days. At the necropsy the brain was found to be very congested. The nerve-cells of the frontal lobe were profoundly altered; everywhere the chromatophile granulations had disappeared; some of the cells were fissured and neurophagia was observed. Large diplococci and bacilli were found in the vessels of the pia mater, in the pia itself and also certain capillaries.

Before leaving the pathology of the disease I might mention as a matter of interest that the diplococci have been obtained from the blood of patients suffering from malignant endocarditis.

They have also been isolated from a case of rheumatoid arthritis in a man aged 67. By inoculation of cultures of this organism into a rabbit they have produced not only a severe multiple arthritis, but also an osteo-arthritis of the non-articular type. Osteo-arthritis in rabbits has also been produced by injection of the diplococci obtained from cases of rheumatic arthritis of the knee in man. These results

seem to throw some light on those cases of chronic rheumatoid arthritis which follow rheumatic fever.

DIAGNOSIS.

Owing to the recent development of bacteriology we are now much more efficiently equipped with means for differentiating acute rheumatic arthritis from the many kinds of infective arthritis which so closely at times simulate it in its clinical aspect.

Pneumococcic arthritis is generally associated with or follows pneumonia, but occasionally precedes it, and in some few cases occurs quite independently of it. As showing the necessity of recognising the condition it is only necessary to remark that suppuration nearly always develops, and 75 per cent. of the cases terminate fatally.

Typhoid arthritis takes various forms, but frequently goes on to fibrous ankylosis or suppuration. It is questionable whether Eberth's bacillus is contained in the effusion, or whether it is the result of toxins only. An arthritis due to the infection of cocci may occur during the course of typhoid fever.

Scarlet fever arthritis may occur in two forms. The first often very closely simulates rheumatic fever; it occurs early or during the desquamative stage and soon subsides, and is probably always due to the invasion of streptococci only. The other form is much more severe and not rarely ends in suppuration; it is part of a secondary sepsis or general pyæmia, and is due to a mixed infection of streptococci and staphylococci.

Influenzal arthritis is a rare form and is generally most intractable.

Gonorrhœal arthritis seldom goes on to suppuration, but usually is followed by fibrous ankylosis; gonococci are present in the effusion.

Another definite clinical type of arthritis, known by the name of acute arthritis of infants, is due to an abscess which has formed in the end of one of the long bones forming the affected joint. When an arthritis (acute) occurs in a child

under five years of age it is almost invariably due to a pneumococcic infection, and is generally secondary to an otitis media or broncho-pneumonia, but occasionally is subsequent to meningitis, croupous pneumonia, pericarditis or pleurisy.

TREATMENT.

Prophylaxis.—We have seen that the micrococcus of rheumatic fever is a parasitic organism, but as we know almost nothing of its natural life and habitat we are in doubt as to whether we should regard it as a facultative saprophyte or a facultative parasite; but it stands to reason that segregation and isolation must be utterly ineffectual as a preventive measure when the infective organism can assume a saprophytic existence and where the predisposition to the disease is the predominating factor of the causes. The same rules which are observed for the prevention of tuberculosis should be our guide here. Firstly, we should sterilise all infected excretions from the body; our present knowledge would confine our attention to the expectoration and urine. Secondly, we should observe all rules of sanitation and hygiene which tend to render unsuitable the conditions which favour the propagation of the micrococcus and perhaps render it less virulent, but which act chiefly by diminishing the susceptibility to the disease. When it is proven that formic acid is the excitant of rheumatic fever it will be necessary to consider whether apis will be of any use as a prophylactic. Amongst the rural population there is a belief that bee-keepers are immune to acute rheumatism.

Treatment of the illness.—If we are fortunate in seeing our patient at the very beginning of the infection we should concentrate our attack upon the organism itself, if possible. In those cases where it begins as an angina we should use anti-bacterial gargles to the fauces and apply a water compress externally, so as to encourage a local leucocytosis, with the expectation of increasing the phagocytic process. If signs of a general invasion are present it is conceivable that

a hot bath would benefit the patient by producing a general leucocytosis. If the disease has already established itself we have very little hope of cutting it short by administering direct anti-bacterial remedies, for, as a rule, they are more powerful poisons to the body cells than to the parasitic cells; this has been well demonstrated by a series of experiments carried out by Vernon Shaw and published in the *Journal of Hygiene*. He showed that when animals were suffering from a septicæmia, caused by the bacillus pyocyaneus, that they die more quickly if they are injected intravenously with antiseptics of sufficient strength to act as intravascular antiseptics; for his experiments he used solutions of guaiacol, chinosol and formaline.

Menzer has lately introduced an anti-bacterial serum for the treatment of acute and chronic rheumatism. He has published seven cases of acute rheumatism treated by this method, but the results do not appear very encouraging. With chronic rheumatism he has had some remarkable cures, though the first result of the injections was to light up the arthritis and render it for a time active.

Having directed our efforts against the parasite, and having failed, our next plan of offence is to stimulate the body-cells in their natural work of cure, or, as Paracelsus described it, "the arcana include substances that destroy the 'seed' of disease and others that awaken the 'healing power' of Nature." In selecting these remedies I shall hope to demonstrate that the method adopted by Hahnemann gives better results than any other. I will now give an outline of the treatment usually adopted at the London Homœopathic Hospital.

The patient is clothed in flannel and lightly covered with blankets. The diet is fluid, and consists mainly of milk and farinaceous compounds. Usually alcoholic stimulants are avoided. If the tongue should be coated and the bowels constipated a gentle laxative or enema is administered. For the painful joints simple wrapping in cotton wool often gives great relief from the pains, but sometimes it is necessary to apply a soothing liniment, such as belladonna or opium, on lint and covered with oil silk. If there is any distress or

pain in the præcordium a hot compress of veratrum viride lotion gives much relief.

The internal medication adopted is much the same as that mentioned by Dr. Byres Moir in a paper which he presented to this Society in 1889, and consists of aconite and bryonia varying from ϕ to 3. After the acute symptoms have subsided, mercurius or sulphur are exhibited; other remedies chiefly used are rhus tox., actea racemosa, arsenicum, lycopodium, digitalis, china and ferrum. One of the best preparations of iron is that of the protoxalate of iron introduced to this hospital by Dr. Galley Blackley. For the pseudo-chlorosis hematogen, perhaps, is more effectual. Spigelia, bryonia, arsenicum, colchicum, digitalis and strophanthus are given for cardiac complications. If formic acid is truly the excitant of rheumatic fever we shall no longer expect to derive benefit from the use of apis in the treatment of erythema nodosum or any other lesion of rheumatic origin. The patient should be confined to bed for seven to ten days after the subsidence of the acute symptoms. When heart complications have occurred prolonged rest in the recumbent position is imperative until the softened plastic tissues of the valves in particular have regained their physiological resilience.

Allopathic treatment.—The allopathic treatment of rheumatic fever is by no means unanimous. The principal methods in vogue are treatment by salicylates, by alkalies and by a combination of both, or rather, following on the lines of practice adopted by Hahnemann, they are now given in alternation.

The salicylate treatment is by far the most popular, but during the last few years its beneficial effect has been challenged in many quarters. It is generally administered in the form of salicylate of sodium in 15 to 20 grain doses every two or three hours until the patient is fully under its influence and the pain relieved, when the dose is reduced; as soon as the temperature reaches normal and the pain has disappeared a further reduction is made, but the patient continues to take 30 to 60 grains per diem for fourteen days longer. Other preparations are used, such as salicin and salicylic acid.

The alkaline treatment is carried out by the administration of 5 to 6 drachms per diem of the bicarbonate, acetate, tartrate or citrate of soda until the urine becomes neutral or feebly alkaline, as it usually does on the second or third day after the treatment has begun. The daily dose is then reduced, and only increased whenever the urine shows a tendency to become acid.

There is a great difference of opinion as to the way in which the salicylates act. By some its effects are attributed to a direct anti-bacterial action, but the drug, when administered even in much larger doses than are used, is not present in the blood in nearly sufficient amount to cause the destruction nor even paralysis of parasites. A solution of salicylic acid 1 in 1,000 or of salicylate of sodium 1 in 750 will inhibit the growth of some organisms, but a much stronger solution (1 in 60) is requisite to destroy them. In order to have a solution of any drug in the blood of a strength of 1 in 1,000 it would be necessary to introduce 100 grains of that drug at once into the circulation of an adult man of average weight. Salicylates cannot be given in these huge doses, and even if given would only inhibit their growth and not destroy them. Forty-eight grains administered within a period of four hours will cause death, and even when given in the customary doses of 15 to 20 grains every two or three hours produce symptoms of toxæmia in about two-thirds of the cases. Dr. L. Shaw has given the following analyses of the toxic effects observed in 174 cases of rheumatic fever treated with salicylates in Guy's Hospital :—

	1881.	1886.	Totals.
No toxic effects mentioned	... 40	... 23	... 63
Toxic effects mentioned	... 62	... 49	... 111
			<hr/> 174

	1881.	1886.
Delirium ...	... 21	... 12
Deafness ...	... 33	... 28
Vomiting ...	... 15	... 17
Tinnitus ...	... 16	... 13
Headache ...	... 12	... 21

			1881.	1886.
Epistaxis ...	...	...	6 ...	5
Irregular pulse ...	...	...	4 ...	9
Albuminuria ...	...	...	4 ...	2
Hæmaturia ...	...	...	1 ...	1
Retinal hæmorrhage ...	...	...	1 ...	0
Urticaria . .	...	...	1 ...	0

It would appear that the drug acts more intensely upon the diseased, over-stimulated cells of the body, than on the normal parasitic cells.

Another explanation of the therapeutic action of the salicylates is that they act as a nerve check, suppressing the pyrexia through their influence upon the nerve centre, and allaying the local inflammation by their influence upon the peripheral vasomotor mechanism. The fact that other more powerful antipyretics do not materially modify the course of rheumatic fever would indicate that the therapeutic effect of salicylates cannot be fully explained in this way. Attempting to cure a disease by reducing the temperature seems to be working in a contrary direction to that in which Nature is striving to effect a cure. The rise of temperature in infective diseases would appear to be one of Nature's processes of self protection by which the parasites are destroyed; some organisms are quickly destroyed or paralysed when subjected to a temperature such as occurs in fevers; for example, a temperature of 39° C. will destroy the gonococcus in twenty-four hours. The multiplication of the streptococcus of erysipelas ceases entirely at a temperature of between 39° and 40° C., and is destroyed at a point between 39·5° and 41° C.; again the spirillæ of relapsing fever disappear from the blood of patients as soon as the pyrexial crisis is reached.

Those who hold that lactic acid and uric acid are the etiological factors of the disease maintain that glycocine—the faulty product of muscle—unites with the salicylic acid and is voided in the urine as salicyluric acid, and thus the further formation of lactic acid and uric acid is prevented.

Lastly, there are those who believe the action of the

salicylates is a metabolic one, and they have expressed a biologic law in the following terms :—" Every substance which can paralyse or kill any cell or cell protoplasm, can also act in small quantities (on the other side of an indifferent point) as a stimulus to cell activity." The absolute quantities leading to such effects are very different with different substances.

Latterly the administration of aspirin, which is the acetic ester of salicylic acid, has been advocated in place of the salicylates. It is recommended on the ground that its toxic effects are much less pronounced.

The surgeon in his eager search for new fields in which to practice his art has had the temerity to bring his armamentarium to bear upon rheumatic fever. Dr. O'Connor, in the *Lancet* of January 24, 1903, has published twenty cases in which he performed incisions and arthrotomy; and claimed that the treatment brought about subsidence of the acute symptoms within two or three days, that relapses do not take place, and that the heart is protected against damage.

The paper is a most interesting one, and the apparent results very striking, but the treatment is very severe.

I have made an analysis of the notes of all cases of acute rheumatism which have been admitted to this hospital under the care of Dr. Byres Moir during the ten years 1892-1902. The total number amounts to 100; of these fourteen were treated with salicylates; six died; one developed acute mania and was transferred to an asylum; this leaves a total of seventy-nine, which recovered under homœopathic treatment.

Of these seventy-nine patients I found that each one remained in the hospital on an average 33·3 days; the acute symptoms lasted on an average fifteen days; the number of relapses were nineteen; that is, they occurred in 23½ per cent. of the cases; twenty-six were admitted with no heart disease; of these four only developed heart complications whilst in the hospital, being a percentage of 15·36 per cent.; and what is more remarkable still is that nine of these patients were under 10 years of age, and

eighteen under 20 years of age; it being generally admitted that the younger the patient the greater the danger of heart disease.

I have drawn up the following table to compare these results with those obtained under salicylate treatment.

HOMEOPATHIC TREATMENT.			SALICYLATE TREATMENT.									
Dr. Byres Moir.			Dr. Warner.		Dr. Havilland Hall.		Dr. Bristowe.		Dr. S. West.		Dr. Garrod.	
Average number of days in hospital	33·3	..	34·9	..	34	..	—	..	—	..	—	
Average number of days with acute symptoms	15	..	5·5	..	7	..	—	..	—	..	—	
Percentage of relapses	23·75	..	33·6	..	—	..	—	..	—	..	—	
Percentage of heart complications	15·36	..	—	..	36·82	..	33	..	58·8	..	56·16	

It has been said that statistics can be made to prove anything, but when an honest investigation of them is made they are of undoubted value. I have found it very difficult to obtain any figures of cases under parallel circumstances, but in drawing up this table where there is an obvious difference I have invariably given the advantage to those who treated their cases with salicylates; the consequence is that the results obtained by homœopathy are apparently more favourable than appears on this table; for example, in tabulating my relapses I have scheduled as a relapse when the acute symptoms reappeared and remained for twenty-four hours—there is no evidence to show what Dr. Warner considered to be a relapse in classifying his cases. With regard to the heart complications, when any heart sign or symptoms appeared and remained constant over a period of two or three days I scheduled that as a case of heart disease. Dr. Samuel West, on the other hand, classified as heart complications only those cases that were discharged from hospital with signs or symptoms of heart disease. Moreover, his percentage only dealt with patients who had been attacked for the first time with rheumatic fever; it is generally admitted that heart disease occurs more frequently

during the second or subsequent attacks of rheumatic fever than during the primary attacks. Again, in most of the large London hospitals I believe there are no children's wards, and therefore the ages of the patients are considerably higher and consequently the tendency to heart disease less marked. Homœopathy in general is to be congratulated on these results, and Dr. Moir in particular.

The result of this investigation indicates that the duration of time in hospital is practically the same under the two systems of treatment, and this is confirmed by the above-mentioned paper by Dr. Moir, in which he investigated fifty cases of rheumatic fever and found the average duration was thirty-five days.

Under the salicylic treatment the duration of the acute symptoms of rheumatic fever is reduced by 50 per cent., but the number of relapses are much increased, and what is of much more serious import is the much larger number of cardiac complications. It is true that the allopathic treatment reduces the duration of the acute symptoms by seven or eight days, but is not this at the risk of a most serious damage to the organ which is the key-stone of the organism, which damage is generally life-long in duration, and in all probability will very materially shorten the very existence of the sufferer? We have seen that about two-thirds of the patients treated by salicylates suffer during their administration from their toxic effects; are we sure that these effects are only temporary, bearing in mind how very near the therapeutic dose approaches to the fatal dose of 48 grains? It would appear that whilst the salicylates in some obscure way suppress the symptoms of rheumatic fever; yet by their toxic effects they must reduce the vital resistance of the body-cells so that the dreaded parasite is afforded a more ready entrance to the very citadel of the cell-republic (the heart), where they accomplish their nefarious work.

I should like to take this opportunity of publicly thanking Dr. Byres Moir for the ready way in which he very kindly placed his clinical notes at my disposal.

Since writing this paper I have begun to make some

experiments. So far attempts at producing experimental rheumatism in rabbits by treating them with lactic acid have only yielded negative results.

In estimating the total acidity produced by the rheumococcus in various media I found the yield in glucose broth was double that obtained in any other medium. If I can confirm these experiments, and if the acid is the toxin of rheumatic fever, we have a very clear reason for withholding farinaceous foods from patients who are suffering from this infection.

I have succeeded in isolating the rheumococcus from the blood of two patients suffering from rheumatic fever.

The following bacteriological preparations are exhibited to illustrate the foregoing paper :—

- (1) Cultivation of the rheumococcus on glycerine agar.
- (2) Cultivation of the rheumococcus on blood agar.
- (3) Cultivation of the rheumococcus in milk.
- (4) Cultivation of the rheumococcus in litmus milk.
- (5) Microscopic stained film of the rheumococcus.
- (6) Microscopic section of myo- and endo- cardium from a rabbit, which was the subject of experimental rheumatism.
- (7) Microscopic section of a granulation from a case of malignant endocarditis.

RHEUMATIC HEART DISEASE IN CHILDREN.¹

BY BYRES MOIR, M.D.

Physician to the London Homœopathic Hospital.

FEW can see much of London hospital work without being aware of the gravity of rheumatic disease of the heart as a factor in the death rate, and also that in the poorer classes, after the first attack, the sufferers are heavily handicapped in the struggle for existence ; in fact,

¹ Presented to the Section of Materia Medica and Therapeutics, March 8, 1904.

a large proportion of the cases, after repeated attacks, succumb before reaching maturity.

We have seen in late years the good that is being done by the crusade against tuberculosis, and there is just as much need for a crusade against acute rheumatism, which, in some ways, is a more distressing malady, and yet is just as preventable.

Acute rheumatism has been too much looked upon as a multiple arthritis, instead of a specific infection, in which the joints, the heart, or the brain may be attacked.

While in adults the joints are most frequently affected, in the large proportion of cases in children it is the heart and pericardium that suffer.

As to the insidious nature of the onset there is no need to dwell; we see too many cases of unsuspected heart trouble among the out-patients. My own experience in the wards has been that, while in a first attack in a person of over 25 it is rare to get the heart attacked, in those under fifteen years of age few escape without more or less permanent mischief to the valves or pericardium.

We have, at present, no reasons that can explain why the heart in children should be so much more susceptible to the poison than in adults, but I have lately been tabulating some cases that I think bear upon this. I have been struck in a good many cases, where rapid growth is going on, with the evidence of a very feeble heart's action and weak circulation—as if the heart did not keep pace with the general body growth—thus I have notes in several cases where the pulse rate was only 52 (instead of 80 to 90) with very low tension; and an organ in such a feeble state must be much more susceptible to the poison than when there is a strong and active circulation.

It is also hard to say whether our remedies do much in preventing heart troubles, for, taking the last forty-seven cases admitted into Barton and Vaughan-Morgan wards, in only two (one at 3 years old) is the attack stated to be the first—and both of these had heart trouble on admission

—in two others there was no history of acute rheumatism, only of slight wandering pains in the joints. In all the rest there was a definite history of acute rheumatism, the number of previous attacks varying from one to nine.

Our difficulty in hospital work is to get a sufficient number of cases without definite signs of endo- or peri- carditis or both when admitted.

In all cases of acute rheumatism the heart is very liable to dilatation, quite apart from any distinct endocarditis; this is probably due to the effect of the toxins on the muscles of the heart in the same way that occurs in influenza and diphtheria.

There may be quite in the early stages a well-marked systolic mitral murmur, and we have no means as yet, except by the after progress of the case, of deciding whether this is due to valvular defect or simple dilatation. In the majority of cases, however, there is little doubt, as we have definite signs of both peri- and endo- carditis.

The following is a typical case:—

F. H., a boy of twelve. Has had three attacks of acute rheumatism with heart trouble. The first attack when 8 years old. His pulse was 80. Temperature, 99.6. Respiration, 32. Apex beat was in the sixth interspace, one inch outside the nipple line, with visible impulse, and indrawing of the fifth and sixth interspaces. *Cardiac dulness* was, upper limit, second intercostal space. Left limit, a curved line from second space, two inches from the sternum, passing outside nipple line to apex beat. Right limit, half an inch to right of sternum at second space, and one and a half inches at the fifth space.

At the apex there was a blowing systolic murmur conducted into the axilla, the second sound being much accentuated in the pulmonary area. In the middle of the præcordial area, *i.e.*, over the inner ends of the third and fourth spaces and corresponding part of the sternum, there was a rough superficial pericardial friction sound, having the usual to and fro character, and increased by pressure.

We have here evidence of a very large dull area, and this increased dulness is seldom due to effusion, which is

rare in these cases—but depends upon a dilatation of the heart, which is greater than could be accounted for by the mitral trouble—but is nearly always found where the pericardium is much involved.

Dr. Leonard Hill some years ago showed by experiments that when the pericardium is healthy it is very difficult to obtain any dilatation of the heart, but when a slit is made into the pericardium, or the walls are softened by disease, it is quite easy to obtain extensive dilatation.

While the seriousness of valvular lesions, especially when the aortic valves are involved, has been fully realised, it is only lately that the gravity of pericarditis has been recognised, for when that has occurred to any extent and caused adhesions dilatation becomes permanent.

In nearly all our fatal cases a more or less completely adherent pericardium is found. Dr. Lees, in a paper read before the British Medical Association in 1898, gave the results of 150 *post mortems* in rheumatic heart disease of children. "In only nine was the pericardium found healthy. It was found to be more or less adherent in 113 cases (75 per cent.), and in 77 of these, or in one half of the entire number, the adhesion was complete over the whole surface of the heart. In only 38 cases of the 150 (or 25 per cent.) was it noted that any fluid at all was present in the pericardial cavity, and in many of these the amount was small, in only six more than 3 oz.

The mortality of these cases is very heavy, for of the forty-seven cases I mentioned before treated in the hospital, ten died. Some years ago the late rector of this parish told me that the hospital had a special reputation for the treatment of rheumatic fever; and, while pleased to hear it, my own feeling was that it left much to be desired. And I hope that these two papers may give an impetus towards further work in the treatment of acute rheumatism.

We have a long list of drugs which are used, and though this evening is supposed to be given up to *materia medica*, I have only time now to touch very lightly upon a few of them :

Aconite, according to Dr. Hughes, is truly homœopathic to the rheumatic poison, and especially to the cardiac condition. Dr. Jousset found that the introduction of increasing doses of the extract into the circulation had the invariable result of producing lesions of the mitral valve. I think myself that if its administration is begun early in a case and persevered with, it has a decided action as a protection from cardiac complications.

Bryonia comes next, and is certainly homœopathic to the joint troubles, but is also of use in the pericarditis ; in provers it has produced severe cutting and shooting pains in the cardiac region, but for the acute cardiac pain which we so often find, I find much more benefit from *spigelia*, which seldom fails to give relief. In Hughes' "Drug Pathogenesy" there are no indications for its use in heart affection, but Clarke, in his Dictionary, gives plenty of them.

Cactus is a remedy which I have had some very good results from. I would place its action between that of aconite and *digitalis*. It certainly seems to control the inflammatory condition, and, at the same time, to strengthen the heart's contraction. In its provings it seems to have the power of producing peri- and myo- carditis, and to give a better picture of the rheumatic carditis than any other drug.

Dr. Rubini, who introduced it into practice, advised that while in nervous diseases of the heart the higher dilutions should be used, in organic diseases of the heart it should be given in doses from one to ten drops of the tincture. I have used from two to five drops, according to the age of the patient.

Colchicum or *colchicine* is another remedy of great value in pericarditis.

We have no lack of remedies, but want more careful observations on their effects ; and I hope, with the help of Col. Deane, who has given me some fresh venom he brought from India, to test the value of some of the snake poisons. *Naja* ought to be of special value.

In turning to the treatment of the old school, for some time the view was held that the salicylates were dangerous when cardiac troubles supervened, and should be discontinued, but the latest teaching by Dr. Lees is the following¹ :—

“ Observation of the effects of salicylate in the treatment of acute rheumatism, both in children and adults, has led me to the conviction that it is as truly antirheumatic, as quinine is antimalarial or mercury antisypilitic. But it must, of course, be given in adequate doses, and its use must not be too soon relinquished. For an adult, 20 grains of sodium salicylate with 40 grains of sodium bicarbonate should be given every two hours during the day and every four hours during the night. For a child of 6 to 10 years of age, 10 grains of salicylate and 20 grains of bicarbonate at the same intervals ; this amounts to a daily dose of 100 grains of salicylate. After a day or two, 15 grains of the salicylate with 30 grains of the bicarbonate may be given, and, if necessary, this may be increased to 20 and 40 grains respectively, the total daily amount being 150 or 200 grains.

“ Children require proportionately larger doses than adults, for in them the rheumatic affection is much more intense. It is rare for an adult to die from his first rheumatic attack, but this disaster is by no means uncommon in childhood. Fortunately, children usually bear salicylate well, in them it seldom causes much vomiting, often none at all, and they hardly ever complain of the deafness, tinnitus and headache which are troublesome in adults, nor do they often manifest the mental symptoms, and the

¹ From the Harveian Lectures on “ The Treatment of some Acute Visceral Inflammations.”—*British Medical Journal*, November 21, 1903.

tendency to delirium which are sometimes caused by the drug in later life."

Dr. Lees certainly has the courage of his convictions, and with this treatment I do not wonder that he finds it not uncommon for a child to die in its first rheumatic attack.

While there is no question that salicylates do relieve the joint pains of acute rheumatism, that it is any way a specific has yet to be proved, and it must take a child some time to recover from the effects of the drug. At the same time a good proving of the salicylates is wanted, and I hope the new association may soon give it us. In the meantime there is one going on in America. At Washington the preservatives of food are being tested carefully on healthy men, set apart for the purpose. Boric acid has, I believe, been found to be inert, and the properties of salicylates are now being tested, so I hope we may be able to get a full report of the trial.

Some of you have, I have no doubt, seen an interesting article on doctors in the last number of the *National Review*, by Mrs. Earle. She does not spare them, but her chief contention is that doctors do nothing, or not enough, to keep people well, and rely too much upon drug giving. With this I think we can agree, and we know quite enough of the laws of healthy life for children for the prevention of diseases like acute rheumatism if they could be put in force, but this does not rest upon doctors alone.

It is noticeable at once that we find these cases as a rule from the poorest homes, and the worst physically developed. Dr. Day has shown us to-night a specimen of the feeding of an infant of 6½ months, and improper food I place as one of the great causes. Nitrogenous food given too early and too much soon leads to anæmia, this with poor physical development—especially of respiration—bad air, and exposure to chills, yields a fertile soil for the development of the germs.

It is in the prevention that we must look for our real

success, but much more care should be given to guard against the frequent relapses. In hospital there is always the desire to get out cases as soon as possible, and relapse is frequently the consequence. The anæmia after an attack is most marked, and by careful after-treatment by food, drugs and physical development, many cases could be saved, and enabled to lead useful lives.

Dr. BLACKLEY desired to ask Dr. Watkins with regard to the inoculations of animals with the micrococcus of acute rheumatism, Were the inoculations intraperitoneal, or were they intravascular? Also, what were the grounds for suggesting that acute rheumatism was a contagious disease? There had been many cases of acute rheumatism in the hospital recently, and he had been under the strong impression that the large number of such cases was attributable to the increased rainfall during the last twelve or eighteen months. He formed this opinion from long acquaintance with the hospital. During a long wet summer and autumn the cases of acute rheumatism or rheumatic fever were likely to be very numerous. Acute rheumatism was much commoner in London than in the provinces, certainly commoner than in Manchester, Liverpool or Leeds, all of which he knew well. Several members of the staff of the hospital attributed this fact to the beer-drinking habits of the people of London, compared with the habits of the provincials. One item of treatment which he had been trying with satisfaction both in hospital and in private, consisted in local applications to the affected joints of salicylate of methyl. This gave very good results as far as relief of pain was concerned. He quite agreed with Dr. Moir's suggestion that there still remained plenty of room for investigation as to the precise mode of action of the salicylates; for, with all their faults, there was no question whatever that they had a very decided effect, and he still had a secret regard for the drug himself as a specific in acute rheumatism. He might be utterly mistaken, but as in quinine one had such an undoubted specific for malarial fever, and as quinine and salicine were so extremely alike in their chemical constitution, and in many other ways, it seemed more than probable that salicine, salicylic acid and aspirin, which was a form of salicylate, would turn out to be a specific microbicide. He would have been glad to hear a word or two from both Dr. Watkins and Dr. Byres Moir on the subject of hyperpyrexia, also on the cold bath treatment.

Lieut.-Col. DEANE said he would like to hear from Dr. Watkins and Dr. Moir a definition of what constituted a relapse. Both authors referred to relapse, and to the subject of prevention of relapse. As Dr. Byres Moir had pointed out, the initial predisposing condition of the first attack of rheumatic fever was anæmia and malnutrition; and the continuance or resumption of those conditions when the child left the hospital was apparently the cause of another attack. He (Colonel Deane) could well understand that, but on looking at the chart which compared homœopathic with the other forms of treatment, it did not seem so clear. The salicylate treatment resulted in five days acute symptoms, after which the patient got a relapse before he left the hospital, which, in some of the cases, looked very like the symptoms having been masked or held in abeyance by treatment, breaking out again when the effects of the drug had passed off. Did Dr. Byres Moir refer to a relapse in that sense? He thought not.

Dr. GOLDSBROUGH wished to join those who had already spoken in praise of the papers which had been read, more especially that of Dr. Watkins, which was so elaborate and full of information. He (Dr. Goldsbrough) had not given salicylates. All the cases he had seen had been treated homœopathically. He thought some importance attached in acute rheumatism to giving a single remedy. Following a suggestion of Dr. Burwood he had been led to the following way of giving remedies in acute rheumatism, for example, aconite in the day and bryonia at night, or *vice versa*. It would seem that giving the single remedy had a better effect than using remedies in alternation. The dilution of bryonia was also a matter of considerable importance. Probably some members of the Society would remember a paper by Dr. Madden, many years ago, when he was in Birmingham, on published cases of rheumatism treated by mother tincture of bryonia alone. Some cases seemed to benefit by that strength of the medicine; it should be given every two or three hours. On the other hand there were cases which did very much better on higher dilutions of byronia. If the stronger tincture did not avail, then going to 6 and 12 given alone seemed to have a marked effect on the symptoms. With regard to diet, Dr. Watkins mentioned casually that, theoretically, farinaceous food was contraindicated. He (Dr. Goldsbrough) had for many years been in the habit of prohibiting all farinaceous and nitrogenous foods except milk, treating the patient only with milk and water and fruit, and he

thought they did better on that diet than on any other. The most beneficial fruits seemed to be oranges and grapes without sugar. The hospital cases he had treated had done well on those lines. But he thought a patient could be overfed, even on milk, and the quantity could be limited and diluted with water with great benefit to the patient. When the patient was convalescing the resumption of the ordinary dietary should be delayed until it seemed quite safe, until every vestige of pyrexia and the rheumatic joint affection had passed off. Genuine hyperpyrexia in acute rheumatism he had regarded as evidence of the disorganisation of the heat centre of the nervous system. When the temperature reached 106° , 107° or 108° without any increase in the joint affection, it was clear that there was some other influence at work which one could not but conclude was a disorganisation of the heat-producing mechanism. From the arguments used by Dr. Watkins it did not seem that he could prove acute rheumatism was infectious. It was infective in a sense, *i.e.*, if the parasite obtained entrance into a person with a susceptible constitution the disease would result, but it did not follow that the disease would be spread on that account to other people. With all the large number of cases he had seen and watched, he did not remember more than one case in one house at a time. With regard to Dr. Moir's remarks on heart disease in children, he thought if the cases could be got early enough there was nothing more successful in acute disease than the treatment of acute rheumatism in children, and it was possible for their hearts to thoroughly recover. He had an instance in his own son, who had tricuspid involvement, endocarditis and pleurisy, and with it he had a defect in the valve which remained for some time. But he thoroughly recovered, and there was now no trace of any abnormal condition, though of course care had to be taken that he was not placed in the way of the disease. Dr. Goldsbrough had had the opportunity of watching other children who also were free from recurrence later in life.

Dr. WYNNE THOMAS supported the remarks of Dr. Goldsbrough with regard to the higher dilutions of bryonia and aconite. He could recall the case of a young lady, aged 18, who had been taking mother-tincture of bryonia two days with no difference in her symptoms: there was still high fever and severe pains in the joints. He mixed some bryonia, 3c, 10 drops in a tumbler of water, and she took a dessert-spoonful every two hours. After her second dose the pain vanished completely, the temperature came down from that time, and she had no pains of any

severity afterwards. That case was remarkable for the suddenness with which it responded to the higher dilution when the stronger tincture had no apparent influence. Another medicine he had used in rheumatic fever where the perspiration was sour was *mercuris vivus* 3x. He obtained very good results from it. He also reminded the Society of the paper read by Dr. Percy Wilde in 1893, in which was advocated the treatment adopted at Bath of putting patients into hot vapour. In a series of 100 cases none developed cardiac complications. Dr. Thomas had been in the habit of treating his cases of acute rheumatism with a lamp bath in bed, with the patient lying down. If the patient was in a high fever with the heart beating quickly, it was less trying to take the bath lying down. It usually resulted in the elevation of the patient's temperature while in the bath. He was always glad to see the temperature go up under the influence of the bath, because patients then did very much better afterwards.

Dr. LAMBERT thought the orthodox procedure was to begin with aconite and bryonia, or one or both of them. It seemed to him that this was limiting the treatment a great deal too much. Other drugs had produced the symptoms like those of acute rheumatism. For instance *rhus*. He had seen patients treated with aconite and bryonia who were tossing about the bed in intense agony. Such cases called for *rhus*, not bryonia. He was sure that symptoms indicating *rhus* would be found if they were looked for. He did not see the force of Dr. Watkins' argument with reference to *apis* not being indicated in connection with, say, *erythema nodosum*. Dr. Lambert had no doubt that *apis* was indicated also in some cases of acute rheumatism. On the theory that bee-keepers were immune, the treatment of allowing oneself to be stung by so many bees had been practised. Dr. Green's suggestion about proving formic acid was a very good one. Certainly *apis* ought to be considered. *Belladonna* was another drug which should be thought of in acute rheumatism.

Dr. EADIE asked whether Dr. Watkins intended to imply that the effects of inoculation of the micrococci into animals was necessarily a proof that the condition induced was rheumatic. He believed that the commonest condition which would produce chorea in dogs was distemper, but he never saw or heard of a case in which rheumatism produced it. That fact had often led him to doubt whether chorea was rheumatic. He had never seen a case of chorea following rheumatism in animals. Again, going to text-books of veterinary practice, rheumatism in nearly always occurred in damp stables. Also it affected which were in damp kennels.

Dr. ROBERSON DAY said in order to make comparisons of value it would be necessary to have statistics of patients treated on the expectant plan, as well as by other methods. There had been a comparison between the results of homœopathy and salicylate treatment, but the results of treatment of the similar number of patients on the expectant method should have been added. One might say a word about the preventive treatment. When one had to deal with rheumatic patients they should be especially guarded not only in the matter of surroundings, but dietetically.

Dr. HEY said that in 1902 he had a well-known Scotch bee-keeper under his care with a very severe attack of subacute rheumatism, affecting chiefly the joints, and he had suffered from the disease several times before. He asked how long Dr. Watkins and Dr. Moir would keep the rheumatic patient in bed after the acute symptoms had subsided if there were marked evidences of endocarditis. With regard to rheumatic periostitis in connection with salicylic treatment, about Christmas time last year he met an Edinburgh medical man who was an ardent allopath, and who had been suffering from rheumatic periostitis for some days, and he had tried many things for it, including hot soda baths, salicine, salicylic acid in huge doses, but got no benefit. He gave him bryonia 3x, and after the first three doses he had no return of the periostitis while under observation.

Dr. GRANTHAM HILL said that amongst bee-farmers in certain districts of New South Wales (Australia) the treatment of rheumatic arthritis by allowing the affected limb to be stung by bees was a recognised form of treatment. He thought this treatment originated by a bee-farmer being accidentally stung, and noticing that his rheumatism was improved by this occurrence. On getting a second attack of the disease he repeated the performance with good results.

The PRESIDENT said he had enjoyed the papers and the subsequent discussion very much. One case which occurred twenty-three years ago remained in his memory. It was that of a young lady with hip-joint disease, and was supposed to have been brought on by the fact that she could not take sufficient exercise. She had a well-marked attack. It was when salicylates were very much in vogue, and he treated her for three or four days with salicylates, but without the slightest benefit, indeed she got worse, and the fever higher. He stopped the treatment, and put her upon bryonia and aconite, with the result that in two days she was free from fever and joint trouble.

Dr. WATKINS, in reply, said his paper did not so much insist on the infectious as on the infective nature of rheumatic fever. In proof that it was to some extent infectious there was the fact that epidemics had been described, and numerous cases had occurred in certain houses. The injections into animals which he had spoken of were in nearly every case intravenous; but Dr. Vernon Shaw produced the same result by injections into the pericardial sac and into the joints. When drawing up the chart with reference to relapses, he, Dr. Watkins, put an arbitrary line; whenever the acute symptoms returned and remained for twenty-four hours he noted that as a relapse, simply to compare with other results; he did not think many of the cases indicated would be regarded as relapses. He knew of no means of distinguishing rheumatic tonsillitis from any other form except by bacteriological examination; and even then there was no very ready way of distinguishing the rheumococcus from other forms of streptococci. He did not quite understand Dr. Lambert's reference to formic acid. If formic acid caused rheumatic fever, then to treat it with formic acid was not homœopathy, but isopathy. With regard to the Johns Hopkins Hospital results, he had had his attention drawn to them; he did not think the men there drew enough blood from the patients to enable them to make a proper examination. It was necessary to extract about 5 cc. The experiments to which he had referred had been confirmed in France, and were being confirmed in Germany and in Edinburgh. The micrococcus had also been obtained from persons suffering from chorea; and, clinically, he thought most physicians must agree that chorea was of rheumatic origin. In regard to retinal hæmorrhages, the results given were for only two years, 1881 and 1886.

LEADERS IN HOMŒOPATHIC PHILOSOPHY.¹

BY JAMES WATSON, M.B., C.M.EDIN.

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THE Laws of the British Homœopathic Society contain the following affirmation which intending members are required to sign:—

“In subscribing to the Laws of the British Homœopathic Society, I publicly declare that I will endeavour to promote

¹ Presented to the Liverpool Branch, March 10, 1904.

the honour and welfare of the Society and advance the doctrines and practice of Homœopathy."

The founders of our Society were, I think, well advised in thus distinguishing and emphasising the closely related doctrine and practice of our medicine.

But it cannot be doubted that at the present day the doctrine of homœopathy occupies a subordinate position in the minds of many of our practitioners, and this paper is meant to vindicate for theory the cardinal place which was accorded to it by our founders.

Our philosophy provides us with our rule of practice, and he who sits loosely to the one inevitably comes to act loosely in the other. In any case, the man who has not a thorough and correct grasp of our principles is not rightly equipped for the practice of his art and lacks the assurance which, though it may be insufficient to carry conviction into hostile minds, is yet necessary for the perfect discharge of his work.

For it must not be forgotten that the cause of homœopathy is more than a profession for us: it is a crusade for the cause of Reason. Doctrine had no place in the medicine of Hahnemann's day: the art of healing was purely empirical. Homœopathy came in to substitute a definite rule of law for unreasoned experiments: to place the practice of medicine on a basis which is as inviolable as the law of gravitation. Our philosophy is, therefore, our *raison d'être*: and a clear apprehension of, and an unswerving belief in, its truth is absolutely essential.

In another way the future welfare of homœopathy seems to me to be bound up in a fuller and wider recognition of its philosophy. I refer to the vexed question of the education of the non-professional mind. I am no advocate for indiscriminate pamphleteering, nor have I much belief in the utility of appealing to the public by means of lectures.

But a very great deal can be done by each one of us giving to patients, as opportunity arises, some insight into the principles upon which their treatment is based.

A cultured layman, who has a considerable knowledge of recent writings in allopathic medicine, remarked to me that the recent reaction against over specialisation, the new

importance given to the doctrine of immunity and to the methods of bacterial invasion, all impressed him as tending to justify homœopathic medicine. Whatever we may think of this impression, it certainly indicates the possibility that the public mind may, as Dr. Burford in his recent Presidential Address has already pointed out, come to accept our theory through the latest work of our opponents, and that we who have borne the burden and heat of the day may have all our labour for truth unrecognised. Much may be done to avoid this danger by the explanation and judicious assertion of our principles.

To Hahnemann's genius the homœopathic philosophy owes its birth, and in the pages of the "Organon" we find its fullest expression. That work, though full a hundred years old, still retains pride of place. This fact alone speaks volumes both for the soundness of the philosophy and for the massive intelligence of the mind which conceived it.

No apology, therefore, need be given for the frequency with which extracts from the "Organon" are here given.

The germ of the homœopathic philosophy is contained in the principle *similia similibus curantur*:—For centuries before Hahnemann's time it was known as a casual fact that like cures like. But the fact remained a purely empirical one, and its application was limited by the arbitrary and accidental methods of mere empiricism until the genius of Hahnemann discovered the universality of its application, and formulated it as the first principle of a grand and reasoned philosophy of medicine.

Dealing, as medicine does, with the cure of disease, one is not surprised that one of the main subsidiary truths which Hahnemann in this case not only formulated but discovered, concerns the recognition of diseased states. Not what the essential nature of disease is, nor yet what the diseased process in individual cases may be, but just the perception of what it is which is to be cured.

The line of reasoning which Hahnemann adopted when face to face with this initial problem was one which I think must commend itself to each one of us.

To arrive at a knowledge of what constitutes diseased

states, he first considered the non-diseased, viz., health. To account for the phenomena of the non-diseased state he postulated the existence of "a dynamic force which animates the material organism and retains all the parts of the organism in admirable and harmonious operation as regards both sensations and functions"; and he further goes on to say that "the material organism, without the vital force, is capable of no sensation, no function, no self-preservation; it derives all sensations and performs all the functions of life solely by means of the immaterial being (the vital force) which animates it."

This assumption of a vital force was a most natural one for the men of Hahnemann's time. But the question which will naturally occur to each one of you is whether we, in the light of the many discoveries which have been made regarding the nature and properties of protoplasm, can presume to adopt any such article of belief.

The following quotation taken from Schofield's book upon the "Mental Factor in Medicine," shows that to some at least of present-day physiologists such a hypothesis is not only a feasible but even a necessary one. He says: "Some governing centre must regulate, control, counteract, guide and arrange the action of the human organism with regard to the continual succession of differing events, foods, surroundings and institutions which are ever affecting it in endless succession and in constant varieties, enabling it amid this multiplicity of changing influences to hold on its steady course of growth, health, nutrition and self-maintenance, with the most marvellous constancy."

Schofield designates this governing agent the psychic force, and the mass of data, physiological, pathological and therapeutic, which he brings forward in support of his hypothesis, affords us a valuable twentieth century confirmation of Hahnemann's dictum.

Considered from a purely biological standpoint, the existence of this vital force is not so clearly demonstrable; but, on the other hand, it is equally true and admitted by most biologists that a purely mechanical or physico-chemical theory is inadequate to account for all the phenomena of life.

J. Arthur Thompson, one of the best-known amongst the younger biologists of the day, says in his book on "The Science of Life"—"There is no present possibility of giving a complete chemico-physical restatement of any observed function—these are always residual phenomena. The known physico-chemical causes do not seem adequate to the result. In other words, the categories of mechanism, of chemistry and of physics, cannot be forced upon vitality without doing violence to the very idea of the organism—a complex adaptive synthesis of matter and energy whose secret remains unread."

The following extract, taken from the Gifford Lectures delivered by Mr. Haldane, and published under the title of "The Pathway to Reality," may be taken as representing in a fair and unbiassed fashion the modern view upon this most intricate problem:—

"The great result which modern biology has achieved lies in the demonstration that the living organism is an aggregate of the living units, which are often called cells. But the aggregate is not a mechanical aggregate. The cells are less like a heap of marbles in a pile than like free citizens living in a state. They act for the fulfilment of a common end, which continues as long as the life of the organism continues, and the fulfilment of which appears to be just that life. The impulse which moves them so to act cannot, so far as observation and experiment teach us, be brought under the mechanical category of physical causation.

"What physics and chemistry do not explain to us is the principle of its metabolism, the preservation of its identity in changing material. For this, the essence and characteristic of life, physical science has no formula, no name even."

Nature still retains in her laboratory the secret which endows a certain combination of carbon, hydrogen, nitrogen and oxygen—of which elements we know protoplasm is, in the main, composed—with the faculty for growth, reaction to stimuli, and quasi-purposive action which characterise living matter, and, until such time as this secret is revealed, we need not hesitate to accept with Hahnemann the hypo-

thesis of a vital force which not only controls the individual cells, but also co-ordinates in some mysterious manner, their activities giving to the whole its individuality.

If this hypothesis regarding the phenomena of health be accepted, it follows as a natural corollary that any departure from health must come about through some disturbance of this energising and controlling force. Further, that such disturbance operating through the medium of the bodily parts and activities can evidence itself only in altered sensations and functions. Hence it follows, as Hahnemann first pointed out, "that the totality of the symptoms represents the disease" in its control extent is, as he puts it, "the outwardly reflected picture of the internal essence of the disease."

Before quitting this part of my subject let me repeat what I have already pointed out: the Hahnemannian philosophy does *not* attempt to explain what this internal essence of disease is; it only affords us a key by which we can read the writings of Nature in health and disease. We are content to leave the solution of such problems as the essential nature of living matter, or of the diseased processes, to the philosophers of the new school who are seeking to express in terms of physics and of chemistry this riddle of the universe.

In the meantime a belief in the dynamic quality of health and of disease, together with the correlated maxim that the totality of the symptoms represent the disease in its whole extent, affords us a reliable guide in our daily practice, and forms one of the cardinal principles of the homœopathic philosophy.

"The physician's high and only aim is to heal the sick, to cure, as it is termed."

If you have thoroughly grasped the significance of the foregoing remarks, you will be in a position to understand that the expression here used, "the sick," covers a much wider area than is usually accorded to it. The tissue changes, which are commonly looked upon as the alpha and the omega of disease, are in reality but the results, the ultimates of the disease; there is something prior to them,

something which stands in relation to them of cause to effects. In other words, there is sickness in man prior to tissue change because of the disturbance of the vital force which this tissue change evidences. But you may ask, what practical good is to be got from such insistence upon this dynamic origin of disease?—Is there no danger of such considerations leading us across the border line of common sense into regions of purely metaphysical speculation?—By way of answer to such a query, let us ask ourselves if we have never come across a case of undoubtedly genuine disease which has baffled us in our search for the purely objective signs and symptoms.

Do we not all know patients, genuinely sick people, who go from doctor to doctor seeking relief and finding none, in whom, with the best will in the world to do good and to afford relief, we cannot detect in any material form or change the enemy which is at work in them, rendering them a burden to themselves and a nuisance to those around them? Are there not relatively speaking very many such cases? and does not this class of case form one of the most powerful indictments of that view of disease and of therapeutics which is based merely on objective symptoms?

Let me point the moral of these remarks by a quotation from "The Life and Letters of Sir James Paget," a quotation which fully substantiates my charge. Sir James in writing to Sir Henry Acland tells of a lady patient whom he (Sir James) had unsuccessfully treated, and he goes on to say "What unsatisfactory cases these are. This clever, charming, and widely-known lady will some day disgrace us all by being juggled out of her maladies by some bold quack who by mere force of assertion will give her the will to bear or forget or suppress the turbulences of her nervous system."

There is another class of case which may be instanced in support of this dynamic stage in disease, a class of case which, moreover, illustrates very forcibly the power which infinitesimals can and, on occasion, do exercise of disturbing and deranging the internal economy. I refer to infectious disease.

During the period following upon the exposure to infection and the appearance of objective symptoms, is the

patient not sick? If not, then surely the causal relationship betwixt the exposure and the subsequent outbreak of disease falls to the ground. But if, on the other hand, a causal relationship be allowed, how can we account for the prodromal period otherwise than as the reaction time, as physiologists would term it, of the vital force to the morbid agent at work?

However distasteful this dynamic view of disease may be—and very many, I believe, look upon this as one of the stumbling-blocks in the path of homœopathy—it is one of the essentials of homœopathy. If it were more hospitably entertained there would be less so-called pathological prescribing amongst homœopaths, and such cases as that of Sir James Paget, instanced above, would be robbed of much of their unenviable notoriety.

But our philosophy of medicine must not only enable us to recognise disease in its entirety, it must also furnish us with the means wherewith to combat it. It is no good unmasking an enemy's batteries if you are unable to silence them. How, then, are we to proceed to do so? How is disorder to be turned into order? What constitutes a remedy, and how are we to ascertain the curative properties resident in them?

The answers which Hahnemann gave to these problems were based upon a further extension of the dynamic property of living matter. He argued that the vital force which, as we have seen, is acted on by natural morbid agents to the production of disease, could also be acted upon by other agents to the production of artificial morbid symptoms, and that, to ascertain what the artificial signs and symptoms were which such agents were capable of producing, they must be exhibited upon healthy persons and their pure effects noted. In this way the homœopathic *materia medica* came into existence.

The chief virtue and significance which attaches to Hahnemann's method of determining the power of drugs lies in the fact that it enables us to recognise not merely the gross physical changes brought out in the experiments, but also the subjective symptoms and the alterations in the mental and moral spheres, every one of which may, if the

experiment be performed with reasonable care and precaution, be looked upon as pure effects of the drug just as much as the physical ones. Indeed, as Hahnemann points out, special attention ought to be paid to these very symptoms, because they represent the action of the drug in the highest spheres of man's nature, and therefore portray in far greater degree than do the purely physical changes its potential therapeutic power.

We have now reviewed the two premisses in homœopathic philosophy upon which the third and crowning axiom, *similia similibus curantur*, is based. We have seen what it is which requires to be cured; we have laid down a rule for truly determining the active properties of drugs. We now come to the consideration of the connecting link which, as Hahnemann puts it, is to enable us to adapt, according to clearly-defined principles, what is curative in medicines to what is morbid in disease, so that a recovery must ensue.

This connecting link is contained in the law *similia similibus curantur*. This forms, as it were, the coping stone in the arch of the homœopathic philosophy.

I do not propose to enter upon an exhaustive discussion of the merits of this Hahnemannian dictum. That seems to me scarcely needful in addressing a body of avowed homœopaths.

We all recognise within limits the validity of the law, *similia similibus curantur*, but we do not all recognise the universality of its application. The reason why the supremacy of law is not more vividly present in the minds of all of us lies in the fact that we do not fully appreciate this dynamic quality of life and of disease. Materialist ideas of disease, by which I mean the ordinary conception of tissue changes as constituting the disease, must inevitably lead to materialist ideas of cure.

If one looks upon a cancer as something grafted, as it were, on to the body, then its removal constitutes a radical curé; but if we hold with Hahnemann a dynamic view of the origin of disease, then we must recognise that there is a pre-cancerous state of the patient, as well as a condition

of deranged vital force which the mere removal of the abnormal growth does not touch. I have taken this extreme instance merely as a type; the same estimate with regard to disease causes and disease ultimates has to be made in every one of the multifarious ailments we meet with.

The burden of this paper is to promote an increased recognition of this vital force as the elemental attribute without which the organic unity of life can neither be sustained nor reproduced; it is the pivot upon which the whole homœopathic philosophy revolves, and it is this doctrine which the physiology of to-day lacks.

In conclusion, let me quote the recent words of Dr. A. H. Carter, who says:—

“What we need and want in medicine is something corresponding to those splendid flashes of imagination which yielded the heliocentric theory of the planetary system, the theory of gravitation, the undulatory theory of light, the theory of evolution and the germ theory of infective disease—some fundamental and far-reaching generalisations in pathology and physiology which would vivify and vitalise some part, at least, of the mass of dead material facts which have been accumulated.”

I heartily endorse this pious wish, and would recommend the generalisations of Hahnemann as fully meeting the requirements of the age.

THE SURGICAL TREATMENT OF HIGH MYOPIA.¹

BY C. KNOX SHAW.

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In every grade of life, but more especially among the working classes, a high degree of myopia, with its extreme limitation of the range of vision, is a most serious disadvantage, in many cases preventing the sufferer from

¹ Presented to the Section of Surgery and Gynæcology, May 5, 1904.

earning a livelihood. By high degrees of myopia I mean cases ranging from 15 to 25 D. or more; though some surgeons consider cases under 15 D. as serious enough to warrant operative interference. Still, it may be taken as a practical point that we do not often have those difficulties and discomforts to deal with which would induce us to suggest an operation in cases of myopia under 14 or 15 D. In high degrees of myopia it is frequently impossible to get the patient to wear any form of permanent correction, owing to the minifying of the retinal images and the prismatic effect caused by the extreme concavity of the lenses employed, giving rise to headache and pain and discomfort in the eyes, even though the visual acuity may be considerably improved by their use. It is also very often found that the most careful correction will not give anything approaching normal visual acuity, even when there are but slight changes found in the fundi.

The phenomena of irritation of the intraocular membranes are produced by changes and disturbances of the retinal and choroidal pigment, especially in the region of the macula, which do not present well-defined ophthalmoscopic signs. When there is definite choroiditis and large posterior staphylomata one expects not to be able to obtain good visual results.

I have known high myopes to prefer to do without glasses at all, or to have a lorgnette for quite occasional use, and thus to go about the world with a range of vision limited to the length of their arm.

There is a considerable diversity of opinion among oculists as to the best optical treatment of these cases, when optical treatment is possible. Personally, I am in the habit, in young myopes of high degree, of endeavouring to persuade them to sacrifice some of their visual acuity, in order to secure greater comfort by wearing lenses a good deal under their full correction. I have no hard and fast rule, every case has to be carefully worked out and treated on its own merits; but I most often find that a lens that will give $v. = \frac{1}{18}$, or one third of normal distant vision, will be a comfortable glass for general use. A stronger lens

can be used as a luxury occasionally. Should high myopia be found in young life it is almost certain to be a progressive disease and one that must cause considerable anxiety. It is really sad to hear of the comfort these patients seem to derive from the old superstition that they will get rid of their myopia as they get older—a hope never to be realized—for no one with a myopia over 5 D. is ever likely to get much practical benefit from his age, even should he live to be a Methuselah. It is therefore no wonder, considering the too frequently poor results obtained by lenses in excessive myopia, that the thoughts of ophthalmic surgeons should have been directed, for more than a century, to the possibility of other methods of treatment. It had been noticed that removal of a cataractous lens in a myopic patient was followed by good vision with a weak convex spherical lens, and in some cases without any lens at all, and the same thing had been noticed in cases of dislocation of the lens in high myopes. Therefore, from time to time, the removal of a transparent lens for high myopia has been both advocated and practised: but the proposal made but little headway, as it was vigorously opposed by such masters of the craft as Graefe and Donders—the risks of the operation being considered too serious. Fifteen years ago the operation of discission of the lens was revived in Germany and France, almost simultaneously, and has been followed in many other countries since, until it has now assumed a recognised place in the treatment of myopia. The lens of an emmetropic eye has a refractive power of about 10 or 11 D., and theoretically it would seem that the removal of the lens should neutralise a myopia of 11 D., but practically this is found not to be so, for a myope of 11 D. will become hypermetropic after the removal of the lens. It takes a myopia of 18 D., and sometimes even more, to render an aphakic eye emmetropic by the removal of the lens. This is partly to be accounted for by the difference in the position of the normal and the artificial lens, the latter being suspended about 15 mm. in front of the eyeball. The crystalline lens, in its normal position, would have to have a refractive power of about 16 D. to equal

+ 10 D., as it is usually placed before the eye after a cataract extraction.

Mathematically one can show the reason of this. The antero-posterior diameter of an emmetropic eye is equal to 22·8237 mm., but in an aphakic eye Donders calculated that the length would have to be 30·58 mm. in order to secure that parallel rays of light should fall upon the retina; later observers give the measurement as 31·095 mm. The difference between these two conditions of the eye is therefore 8·2713 mm.

In the emmetropic eye every dioptré of refraction means a change in the antero-posterior diameter of the eyeball of ·321 mm., and conversely every millimetre in length of the eye corresponds to 3·115 D. In aphakia, however, every millimetre equals only 1·38 D.

Suppose, therefore, we are dealing with a myopia of 20 D., the eyeball would have an increased length of $(20 \times \cdot 321)$ 6·42 mm., or a total length of $(22\cdot 8237 + 6\cdot 42)$ 29·2437 mm. This is $(31\cdot 095 - 29\cdot 2437)$ 1·8512 mm. less than the length of the eyeball necessary to produce emmetropia in an aphakic eye. As every millimetre in such an eye is equal to 1·38 D., the mathematical correction of the eye would be $(1\cdot 8513 \times 1\cdot 38) + 2\cdot 5546$.

I say mathematical correction, because the eye is not a mathematical instrument, and these calculations are for a purely axial myopia, and take no account of any forward displacement of the lens, or changes in it, or other conditions that would modify the result. A very rough and ready rule of thumb has been suggested by Oswalt: divide the myopia by 2, and subtract the result from + 11 D.

One can readily understand that the need of an operation will occur most usually in the young or young adult, at the onset of their wage-earning career. In later life the patient has generally adapted his surroundings to the conditions of his sight.

It was a long time before I made up my mind that I was justified in recommending patients to submit to an operation for high myopia, and I do not now think the operation justifiable for high myopia alone if we can secure useful and

comfortable vision with any combination of lenses. The indications for operation are, primarily, disability to follow the usual occupations of life, either from the extreme amount of the myopia or the impossibility of finding comfortable glasses; secondarily, if the myopia is progressive. I do not consider moderate changes in the fundi a bar to operation, though they will naturally have an effect upon the subsequent result. The best results are obtained in patients under 30 years of age, because, in addition to the general risks from sepsis, &c., there is an added risk of glaucoma, which not unfrequently supervenes upon discission of the lens after middle life. There is some difference of opinion as to whether one or both eyes should be operated on. It is pretty definitely decided that both eyes should not be operated on at the same time, but experience shows that some patients prefer to use the operated eye for distance and the unoperated eye for reading. Here we must be guided by the practical examination of the patient after the first operation is completed.

There are two methods of operating, both commencing with discission of the lens, but in one case the resulting opaque lens is removed by a linear extraction, and in the other the discission is repeated from time to time until the soft lens matter is absorbed by the aqueous. After a careful study of the published results of both methods I decided upon employing the second method, and have done so in those cases upon which I have operated. The discission is followed by swelling of the lens, and the eye must be carefully watched, for, as long as the swelling does not cause increased tension or set up iritis, the process of absorption may be left; but, should pain and ciliary injection show glaucoma or iritis, the lens must be extracted as a whole, or the bulk of it removed by a curette through a corneal incision. These are the main dangers and risks of the operation, to which those of sepsis may be added; but some would also add retinal hæmorrhage and retinal detachment. But it is not at all proved that detachment of the retina is met with more often after operation than it is known to occur in simple advanced myopia.

I had intended deferring this short paper until I had a larger number of patients upon whom the operation had been performed to present to you. But being called upon unexpectedly to fill a gap in the proceedings of the Society this evening, I thought it might interest you to know what is being done at the London Homœopathic Hospital for this class of case. Fortunately, four patients upon whom I have recently operated presented themselves at the ophthalmic out-patient department last Thursday, and so I was able to take notes of them.

A. W., aged 24, in 1899 had a myopia of -18 D., which gave her vision of $\frac{6}{32}$. In 1900 the myopia had increased to 22 D. The right eye has been needled six times, and now with $+3$ D. her vision is $\frac{6}{18}$. She expressed herself as being very substantially benefited, and finds a great difference in the comfort of wearing $+3$ D to -18 D.

M. B., aged 27, was needled at the Royal Eye Hospital for myopia and obtained with her right eye, with glasses, $v. = \frac{6}{18}$. When seen she had a myopia of 18 D, and was most anxious to have the other eye operated on. She was needled once in July, 1903, and in November her vision, without glasses, was $\frac{6}{18}$, and with sph. -0.75 \odot cyl. -1.25 she had vision $\frac{6}{12}$. Before the operation she had only $v. = \frac{6}{80}$.

M. P., aged 27, had a faint zonular cataract, combined with her myopia. She was wearing -8 D., but this gave her vision of less than $\frac{6}{80}$. After needling the right eye she had $v. = \frac{6}{8}$ with $+7$ D.

J. H., aged 20, was an out-patient in 1890, when six years old with a myopia of 13 D. which gave him vision of $\frac{6}{32}$. In 1894 his myopia had increased to 20 D. In 1903, with -14 D., his vision could not be improved beyond $\frac{1}{80}$, which is practical blindness. The right eye has been needled twice, and as the lens is not entirely absorbed he still requires another operation, but, in spite of this, his vision has improved to $\frac{6}{80}$ without any glasses, and he is delighted with the result. He will probably see much better still.

All these patients have expressed themselves most gratefully for their improvement in vision ; in fact, it is interesting to note that we find, as others have done, that to the patient the benefit seems much greater than the mere mechanical test

of the test-types would warrant us in assuming. This is due to the fact that the size of the retinal image is increased, there is a better retinal illumination, and that the patients are not burdened with highly concave lenses with all their spherical and chromatic aberration.

The loss of accommodation involved in the removal of the lens does not appear to be so serious a disability as one would expect.

Dr. DUDGEON said he had never operated upon a case for high myopia, but he could easily conceive that an extreme myopia might be very much benefited by absorption of the lens. It was certainly a much less formidable operation than that which was sometimes performed, namely, extraction of the lens. In needling the operation was very simple, and the absorption of the lens went on surely, although slowly. All that was wished for by extraction was obtained by the slower process of discission.

Dr. E. B. ROCHE (Norwich) said that the results seemed to him to have been very satisfactory. Mr. Knox Shaw had been very successful in escaping a glaucomatous condition which, he understood, was threatened in all the cases, and he understood that he had not to remove the lens as a result of any operation. One would, of course, want to know whether others had had the same success, and whether the production of glaucomatous conditions was at all frequent. He did not know whether those who had boldly removed the lens had had a large measure of success. The slowness of the process of needling was a difficulty, and if the lens could be removed without danger and with satisfactory results, that would, of course, be a more rapid and more successful operation. Still, the needling appeared to be the most safe proceeding.

Dr. WYNNE THOMAS said the Society was indebted to Mr. Knox Shaw for bringing before it an ophthalmic paper. Mr. Shaw had said that the operation was of great service among the labouring classes. If a labourer who had to earn his livelihood was very myopic, and could not see without glasses, he was handicapped very materially in getting work. If a labourer having cataract or having his lens removed had a vision of $\frac{6}{18}$ without glasses, he was in a very much better position to obtain employment than a man who had a vision of $\frac{6}{18}$ with glasses. He should like to ask Mr. Shaw his opinion whether the removal of the lens arrested myopia, or whether, after the operation, the myopia still went on increasing. Mr. Shaw had said

that detachment of the retina was not more likely to take place after the operation than before, but he should like to point out that detachment of the retina increased with age. He did not think this condition very often happened before the age of 30, but at the ages of 40, 50 and 60 it was much more prevalent. In all the cases Mr. Shaw had performed discission, but he (Dr. Thomas) would like to know up to what age discission might be practised. Of course, as time went on, the lens got harder, and over the age of 30 the lens was rather difficult to remove by needling only. Did Mr. Shaw find great difficulty in these cases in the narrowing of the anterior chamber? Further, in cases of myopia did the lens get hardened as age advanced in the same proportion as it did in an emmetropic eye?

Dr. THORNET mentioned the case of a woman she had had under treatment. She was operated upon in the spring of this year, and at present what the result would be could not be stated. In that case the lens shut up after the discission, and the lens matter had to be extracted. The tension was raised, and the lens matter had to be extracted very rapidly after the excision of the lens was made. This was done twice, and afterwards the whole of the capsule was taken away. There was no opacity left at all afterwards. The operation of taking away the whole capsule was not one which was very frequently performed. The result had been most satisfactory. A month after the operation was begun the woman was able to see at $\frac{6}{18}$, although before the operation she could see only at $\frac{8}{18}$. The patient was seen on Tuesday last, April 12, and she was able to see at $\frac{6}{18}$, so that there was still improvement. She (Dr. Thornet) thought that the patient would go on improving for some little time. With a plus 8 she could read Jaeger 1. The eye which was operated upon in this case was the worse of the two. This was the right eye. The patient saw very much better with the left eye before the operation, but now she said that she could not see with the left eye at all, because the difference was so great, and she very much wanted to have the left eye operated upon. The case was being followed up.

Dr. ROBERSON DAY said that he had been very interested in what he had heard that evening. He had lately had his attention called to the matter in a patient who had a high degree of myopia, and who, in consequence, was suffering from detached retina and choroiditis. He had been wondering whether it was a safe thing to recommend this operation to patients, especially when they followed some literary career which entailed great use

of the eye. He should be glad if Mr. Shaw would throw a little more light on exactly what took place when the needling was done. They were familiar with the needling of cataract in children, and he did not know whether it would be a safe thing in an adult. But certainly it seemed a very serious thing to contemplate, that a person afflicted with high myopia might, as life advanced, sooner or later become the subject of detachment of the retina or choroiditis.

Mr. KNOX SHAW, replying, said that he was gratified to think that such a technical paper had excited such an interesting discussion. He thought that one of the classes of patients who would be found to be most keen in having a myopia corrected was that of domestic servants, as a very high myopia was a very great disability to girls in domestic service. The vision that could be got after a successful needling would be quite useful enough to enable a domestic servant to do her work, and it would not be such a disability as wearing very high prismatic and chromatic spherical lenses. If one were contemplating the extraction of the cataract one then would not make quite such a free disquisition. The usual proceeding would be to lacerate the anterior capsule of the lens, and so set what soft lens matter there was free to escape into the anterior chamber. If a deep disquisition of the lens were made, one might get a swelling of the lens matter into the vitreous. These were mostly the cases that were followed by increased tension, and all the troubles which naturally followed. As they all knew, if a patient ran a needle or a pair of scissors into the eye and made one puncture of the lens, a traumatic cataract often followed without much swelling. But the difficulty of operation in traumatic cataract seemed to be that the whole of the lens substance was not entirely opaque, and therefore there was a great deal of manipulation necessary in order to get rid of the opaque lens, and many of these cases had been followed by loss of vitreous. Five years ago there was a very interesting discussion at the Ophthalmological Society upon this very subject, and it was then stated that disquisition with the intention of absorption was really followed by better results, though it was much longer than extraction. Most of the speakers admitted that their difficulty came by removing the lens, and several of them spoke very strongly on that point. After trying both methods they came to the conclusion that disquisition was better, though some admitted that they had had to needle the lens a great many times before it was absorbed. If they were going to do extraction it was a very good plan to perform iridectomy at once.

It was wise to do the iridectomy early. He mentioned this in reference to what Dr. Thomas had said. These were the principal dangers of the operation. With regard to detachment, a great deal of the discussion at the Ophthalmological Society seemed to centre round that point. He did not know why, for he had not had sufficient personal experience yet to be able to say what the future results of these cases were going to be. That was why he was anxious at first to wait a little longer before reading this paper. Of course, it would naturally be found that the older a patient was the more difficulty would there be in doing the needling, but, as he had said in the earlier part of his paper, as a rule they did not find their cases in older life, because the patient who had become old had adapted his life to his eyes. But if it should be necessary to perform the operation on persons of 40 or 50, he thought that it was better done by incomplete dissection and subsequent extraction. He did not think that the emptying of the anterior chamber had much to do with the alteration of the refraction. The emptying of the anterior chamber was, as a rule, very soon repaired, and the only result that came by any incision into the anterior chamber was a certain amount of astigmatism. He had one case on which he operated some time ago, in which the capsule would have to be operated upon in the same way as a capsular cataract. He was very interested to hear what Dr. Thornet said, because she had had considerable experience in the matter. He had a patient in the hospital some time ago in whom he found exactly the same condition Dr. Thornet had described. He removed the capsule entire with forceps. That was a step which he thought might frequently be done with a considerable amount of benefit. At this hospital they had always operated on the worse of the two eyes, so that the result which they got was that of the worse eye. Donders and Graefe objected very strongly to the operation, because in those days the risk of sepsis was so great, and they said that it was practically inhuman to operate upon any eye which had any sight in it, because the operator ran a very great risk of blinding the patient altogether. Of course, that was a risk which had to be thought of even now in every case in which an operation was performed. Several of the speakers at the Ophthalmological Society confessed that they had totally lost a certain number of eyes. That was a very serious thing, because a highly myopic eye was better than no eye at all. He thought that some of the frequency of his needling had been through his undue caution. harm could be done by needling gently, but a great deal of

harm could be done by needling excessively, and he believed that in some of his earlier cases he had been a little too lenient with the patient, and did not lacerate the lens quite enough. He thought that as he gained experience he should be a little bolder. The operator must always be prepared at any moment to extract the lens matter rapidly to avoid the disaster of iritis or glaucoma.

DIAGNOSTIC DIFFICULTIES IN GYNÆCOLOGICAL PRACTICE.¹

BY EDWIN A. NEATBY, M.D.BRUX.

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MR. PRESIDENT AND GENTLEMEN,—The title of my paper, as you may have observed, is “Diagnostic Difficulties in Gynæcological Practice.” I should feel much more satisfaction if I could add to it the words “and how to solve them.” As it is, my remarks will amount to very little more than a recital of some difficulties often met with and some mistakes into which I have fallen.

One of the commonest sources of doubt in a case is the presence of irregular uterine bleeding. It has taken long to impress the medical profession with the knowledge that all cases of hæmorrhage which is abnormal in character, time-allocation and duration demands serious investigation, because it so frequently indicates carcinoma. The public has not *yet* realised its importance. The fact that investigation is necessary obviously means that the source of the bleeding is not always one and the same. Were it *always* cancer there would, of course, be no difficulty in diagnosis. Not only is irregular bleeding not always (though so frequently) a sign of cancer, but, even if it be associated therewith, the uterus is not always the seat of the disease. This is shown by the case of

Florence D., aged 42, who was sent to me by a colleague, and admitted to hospital on account of a supposed ectopic pregnancy.

¹ Presented to the Section of Surgery and Gynæcology, April 14, 1904.

She said she had caught a chill three months previously during menstruation, and since that date she had had a dirty brown discharge, but no regular menstrual period. Prior to the date mentioned she had menstruated too frequently and too profusely.

It was presumably this sudden cessation of menstruation, coupled with the constant hæmorrhagic discharge, which had caused the presence of ectopic gestation to be surmised. There had been no history of characteristic pain, and the physical condition on examination did not support the supposition.

But the uterus was manifestly enlarged, and some "mass," the notes state, was felt in each fornix.

When the abdomen was opened a slightly blood-stained fluid escaped; the surface of the peritoneum was dotted over with small, hard, translucent, malignant nodules. The "masses" felt per vaginam contained a colloid material, and the omentum was crumpled and infiltrated. The uterus appeared healthy. The microscope confirmed the diagnosis of carcinoma of the peritoneum.

A still more striking illustration is afforded by the case of a lady sent to me by Dr. Wilkinson. A tumour was felt in the hypogastrium, reaching to the umbilicus. Free fluid was present in the abdominal cavity, and had been much more considerable prior to Dr. Wilkinson's treatment. For four months patient had been suffering from bleeding on and off all the time. When there was not actual hæmorrhage there was stained and offensive discharge. The patient's age was 43; she had had two confinements, with good recovery. Before the date when the constant flow began the periods had been, for at least two years, unduly prolonged. On examination the tumour was easily delimited. The cervix, which was small and healthy, appeared to move in unison with movements imparted to the tumour. The sound passed painlessly for 4 ins., and, though most gently handled, caused free bleeding.

What could be simpler and more straightforward—a pelvic tumour, apparently uterine, an enlarged uterine cavity, excessive and offensive bleeding and discharge at an age when cancer of the body of the uterus is becoming frequent. Here, surely, a confident diagnosis of corporeal carcinoma could be given, or, at any rate, endometrial

malignant disease in a myomatous uterus. Although the alternative presented itself to us, the soft and uneven consistence left little doubt in our minds that the former must be accepted as correct. When the abdomen was opened a week later there was free fluid in abundance, but *no* uterine tumour, and the uterine tissue seemed healthy. A solid ovarian tumour undergoing necrobiosis was found, with a somewhat œdematous pedicle, and was readily removed. The microscope confirmed the diagnosis of malignancy, but the pedicle was found to be free from invasion. The patient made a good recovery, rapidly lost a cachectic look she had had, gained flesh and strength and—the crucial point—lost the blood-stained and offensive discharge.

How could this case have been accurately diagnosed before operation? Had any doubt been felt in all probability it might have been cleared up by an examination under anæsthesia. It is possible that the uterus might then have been discovered to be separate from the tumour. Nothing but such a differentiation would have availed, for the other objective signs and the symptoms pointed distinctly to the tumour being of uterine origin.

These two cases then show that a malignant condition of the adnexa may produce in a way we call reflexly the offensive and hæmorrhagic discharges which we regard as one of the cardinal signs of uterine cancer. The second case shows that a solid ovarian growth, in this case malignant, may be associated with considerable peritoneal free fluid without any obvious infection of that membrane, and that after removal of the growth the peritoneal secretion ceases. The case exemplifies also the rule that solid ovarian tumours tend to lessen the menstrual flow, while possibly altering its character, the converse holding good with solid uterine tumours. In neither case is the rule anything like universal and absolute.

Gynæcologists have long known that reflexes from the appendages may induce menorrhagia. One of the first cases I remember of this kind was that of a hospital nurse transferred to me by Dr. Burford. She had recently had scarlet fever, and was suffering from menorrhagia since that illness

only. Both ovaries were acutely tender, and she had had sharp pains in the iliac regions during the illness. The same condition is common enough in hydro- and pyo-salpinx. But the kind of reflex result referred to in my two cases is, as far as my experience goes, rare.

There are other causes of offensive discharge, but I will only here allude to one—that of so-called mucous polypus of the cervix. This may cause obscurity in a case such as that of a lady kindly sent to me by Mr. Dudley Wright. The patient, aged 56, had a large uterine fibroid, with constant watery discharge, pinkish or colourless, with faint odour and somewhat excoriating. After watching the patient for three months, during part of which time the discharge had ceased, I found that it was again present, and that a small mucous polypus, not present before, had appeared at the os uteri. I regarded this as indicating an unduly active endometrium, with possibly malignant changes going on, and advised operation. The patient preferred to have it done at her own home in a provincial town by a local surgeon, who concurred in my recommendation of operation, but on other grounds, which I do not know. However, he ignored the polypus, perhaps overlooked it, and found the uterine endometrium quite free from any suspicion of malignant change. I find on enquiry that this patient has now lost her watery discharge.

In some cases with even less markedly abnormal discharge I have found on curetting or on performing hysterectomy, that pronounced malignant disease was present. The only safe plan is to operate, either by curetting for diagnostic purposes or by total removal.

Before leaving the subject, I may say that so-called mucous polypi deserve careful attention, and should always be removed and examined microscopically. In a case I recently operated on, in conjunction with Mr. Clifton Harris, a polypus was present together with offensive discharge. The polypus was removed and the uterus curetted. Dr. Watkins reported malignant changes commencing in the polypus. In another case brought to me by Dr. Netherclift, in 1897, no unpleasant discharge existed, but the microscope revealed

malignant adenoma. Removal of the polypus only was followed by no recurrence and the menorrhagia she suffered from disappeared. She remains well. These small tumours may give rise to other symptoms suggesting cervical carcinoma, viz.: bleeding after sexual intercourse, or after jolting in an omnibus, &c.

In June of last year a lady, aged 76, was brought to me by Dr. Midgley Cash, of Torquay. The menopause occurred at 53, and menstruation had presented no abnormalities; she had had two children. For 14 days previous to seeing me she had suffered from hæmorrhage, and for some time longer than that, watery coloured discharge with some smell. On examination, a central, well-defined mobile hypogastric tumour was found. This was determined to be the enlarged uterus. A sound passed $6\frac{1}{2}$ inches without obstruction, and caused free bleeding. No evidence of infiltration was obvious. From this history you will probably readily arrive at the same conclusion as I did, and on the same ground, viz.:—A delayed menopause and a well-defined mobile tumour argued an old myoma which had remained quiescent for many years. The hæmorrhage and discharge indicated active endometrial changes and probably carcinoma. The patient's appearance confirmed this. Owing to her age and feebleness operation was not urged. In November, Dr. Cash wrote to inform me that patient had continued in much the same condition, with progressive weakness, some constant pain until 10 days previously, when a discharge of thick, green pus occurred, about a pint in quantity. This was followed by relief of all the symptoms, and the tumour and the hypogastrium had practically disappeared. The discharged pus, followed by the disappearance of the tumour, suggest that the condition was not malignant, but that the myoma had undergone cystic degeneration and subsequent suppuration. Almost no discharge now exists and the patient has gained flesh and colour. I cannot even now say how such an error in diagnosis in a similar case could be avoided, unless by the blood-count method.

Regarding hæmorrhage after the passing of a sound—of course where no violence is used. In Dr. Cash's case it was

shown to be no proof of malignant disease. In a case sent to me by Mr. Dudley Wright for menorrhagia, passing the sound was followed by very free bleeding and the uterus was enlarged. I was anxious to ascertain the cause of the bleeding and arranged to curette. When the patient was under the anæsthetic I discovered a uterine myoma of considerable size, which, owing to rigidity of the ventral walls and adiposity, I had overlooked. The curettings showed only glandular overgrowth and no malignancy.

In this connection I should like to emphasise the great diagnostic advantages to be obtained in many abdomino-pelvic cases by examination under anæsthetics. Two cases recently under my care in the hospital well illustrate its value. In both cases there was a lump in the pelvis mostly on the right side, situated behind the cervix, pushing that structure forward against the pubic symphysis. In one the lump was larger than the other, but those who examined all exclaimed on the great similarity of the two cases, in which I concurred. In neither case could the body of the uterus be isolated from the mass and it could not be moved, in the one case from rigid and fat walls, and in the other from rigidity and extreme tenderness. Under anæsthesia the large lump became movable, and the uterus was found to be lying in front of it and to the left. The lump was an ovarian cyst, multilocular and of irregular shape. The other patient was too ill to render an extra anæsthetisation desirable, but at the operation the uterus was found quite separate and lying to the left, the lump was immovable, being a pyo-salpinx with very thick wall quite adherent to the pelvic wall and floor. This could readily have been made out under anæsthesia. Without anæsthesia the first case from its fixity and irregular shape has been diagnosed as a malignant uterine growth. The second case had considerable pyrexia, but I have not seldom seen as much in cancer cases; but the size and situation of the lump, if defined under anæsthesia, would have readily been recognised as totally different from the first. It is in just such cases as these that examination of the white corpuscles may be useful. If they are over 17,000 per cmm., and are polynuclear, pus is certainly

present. The examination was made, but not in time to be used for diagnostic purposes. The white corpuscles numbered 15,600 per cmm., and were in many cases polynuclear, thus strongly pointing to pus, if not rendering its presence certain. The main difficulty in such cases lies in the fact that it is often impossible to ascertain whether the uterus forms part of a given tumour or not. In the case of Mrs. G. in the hospital in 1902 it was supposed in the out-patient department that a pelvic tumour was entirely uterine. When she was examined under anæsthesia in the hospital it was discovered that the uterus lay in front of and to the left of a larger lump of different consistence. A broad ligament cyst was then diagnosed to be pulling the uterus upwards and pushing it forwards, and this was verified at the operation.

It would be a work of supererogation to multiply instances where examination under anæsthesia had enabled a diagnosis to be made. The shape, size, consistence, mobility, and relation of the parts in an abdominal or a pelvic case can so much more readily be made out by this means that in any doubtful cases I urge its adoption. In abdominal cases auscultatory percussion may be of use in obscure cases, but it is a method which requires both care and experience in application, otherwise it is liable to be quite misleading.

The diagnosis of abdominal troubles where fluid exists often presents considerable difficulty. Sometimes a doubt arises as to whether fluid is present or not. This may be due to the smallness of the quantity, the thickness of the surrounding walls, or the viscosity of the fluid, or again to the fluid being shut off with a number of small loculi. The physical sign "fluctuation" is of no value in these cases as a rule. A soft myoma and a degenerative solid ovarian adenoma will yield this sensation without any definite cavity containing fluid being present.¹ The determination of fluid depends on the two signs dulness and "thrill." An

¹ These two conditions frequently can only be differentiated by finding the uterus separate from the tumour in the case of the ovarian tumour, or by finding the two ovaries and that of the myoma. Frequently neither of these can be done.

obscure thrill may be transmitted through a thick layer of fat, but the wave can be intercepted by placing the edge of the hand or a book at right angles to the direction of the wave.

When the presence of fluid is established, its location is next to be settled. A simple ovarian cyst, with dulness and thrill over the tumour, and clear flanks, is the elementary form of encysted fluid; and an ascites, with dull, bulging flanks, clearing with lateral decubitus, with thrill and resonance in the front and upper parts, is the elementary form of free fluid.

Complicated forms of peritoneal effusion occur when the fluid is shut off by adhesions. Here thrill and dulness are irregularly distributed, and lumps of an ill-defined nature may be felt. When one flank is clear and the other dull something of this kind must be expected. If the dull flank, from which a thrill is communicated, remain dull when the patient turns on the opposite side encysted fluid is almost certainly present. Ascites from ordinary medical causes and a renal tumour occupying the flank, if occurring together, would give somewhat similar physical signs, but the association is so rare that it may be practically ignored.

It is only fair to say that this pretty theory is sometimes rudely shattered by facts. A recent case under the care of Dr. Blackley and Mr. Knox Shaw, to which I am permitted to refer, presented these very signs. Considerable difference of opinion was expressed at the consultation as to whether the fluid was free or partly encysted, and I adopted the latter view. When Mr. Shaw opened the abdomen no adhesions or evidence of cyst were found. The case was one of simple dropsy from cirrhosis. I can only account for the physical signs by a thick and oedematous abdominal wall, and by the proximity of the cæcum and colon to the surface on the right side.

This combination of signs is usually the result of matting together of the abdominal contents owing to inflammation or new growth. The commonest causes are tubercle and cancer, but peritonitis resulting from gastric or intestinal ulceration, with or without perforation, and chole-

cystitis, appendicitis, &c., may do the same. The chief point for decision in such cases is between cancer and the other conditions. If cancer sufficiently far advanced to cause loculi by adhesions and deposits be established, no operation would usually be indicated, whereas in all the other conditions it might be strongly indicated. As between cancer and tubercle, temperature is little guide unless there be definite hectic pointing to tubercle or pus.

The most usual causes of free fluid in the peritoneum apart from loculi, and, from a surgical point of view, are cancer of the pelvic viscera, especially the ovaries and papilloma of the ovaries. A case I reported some time ago where enormous quantities of fluid were periodically drawn off, and which was supposed to be due to cancer, proved at the autopsy to be due to ovarian papilloma, associated with old peritonitis. In this case, had an early exploratory operation been done, the patient's life might have been saved. The idea of cancer, however, had so firmly taken root in my mind that I did not give the patient the benefit of exploration.

Some years ago Dr. Blackley kindly placed under my care a lady with the abdomen greatly distended, with almost universal dulness, and with an almost imperceptible thrill. The dulness did not appreciably clear from the flanks on change of position. No lump was to be felt in the belly. On opening the abdomen it was found full of a thick jelly secreted by a small ruptured ovarian cyst, with which ovarian dermoids on both sides were associated. Where there are even distensions of the abdomen, bulging of the flanks, marked dulness, not "hydrostatic," with only a suspicion of a thrill, this condition should be thought of.

And now, gentlemen, in bringing these desultory and somewhat disconnected remarks to a close, I must thank you for the patient hearing you have given me, and hope that the discussion may be more profitable and interesting than my paper.

Dr. NANKIVELL said they had listened with the greatest possible pleasure to Dr. Neatby's analytical and philosophical

remarks. Everything that was abdominal was more or less mysterious. He recently saw a case in consultation in which the illness began with severe albuminuria and acute dropsy. In about a fortnight the dropsy almost disappeared, but the heart was very weak, the urine was still albuminous, and the patient had attacks of severe dyspnoea as in asthma. There was apparently a tumour in the abdomen about the umbilical region, and there was dulness on percussion at the point of the tumour. He saw the patient again in ten days, and in the meantime she had been seen by a surgeon who suggested ovarian tumour. On his own second visit there was ascites in the flanks. There was also a marked œdematous condition of the abdominal walls. The tumour was much less painful and much less distinct, and on the whole the condition of the patient had improved. The friends were so imperative for an operation that a surgeon was called in, who, however, postponed operating for about three weeks. After two or three aspirations of non-albuminous fluid he operated, expecting to find an ovarian tumour partly emptied. Everything, however, was perfectly healthy, except that there was an atrophic condition of the liver. That was a case in which diagnosis was extremely difficult, and if the operation had not been done, probably the real condition would not have been discovered. In another case an old lady whom he attended for bronchitis and congestion of the lungs told him that for two years she had had, at quarterly intervals, a pink vaginal discharge, quite free from smell. It usually lasted for two or three days at a time. She believed that it was of the same nature as the menstrual period, and would not permit an examination. It has now been absent entirely for two years. It was unaccompanied by any uterine symptoms.

Dr. HERVEY BODMAN said that a case which had occurred in his practice within the last few months presented a conundrum to him, and that he would be interested to hear Dr. Neatby's remarks upon it. The patient was a young lady whom he had attended about two years previously, on account of an acute retroflexion of the uterus, resulting apparently from an awkward fall from a stile. This was corrected by the sound and temporary use of a pessary. About eighteen months afterwards she married, and about six months after her marriage he was asked to see her again. She was then complaining of pain somewhat similar to that which had been caused by the retroflexion. Menstruation up to this time had been regular and not excessive, but more painful lately. Upon a vaginal examination, instead of the small

fundus being found behind the cervix, the swelling was much larger than the normal fundus, being about the size of a small cocoanut ; it was rather soft, and capable of being indented by the finger. The sound passed forward the normal distance. This led to the suspicion of the swelling being an ovarian dermoid, and a colleague who was called in to consult took the same view. Upon an operation being performed, however, the swelling turned out to be uterine. It filled the pouch of Douglas, was of a purplish colour and vascular looking, and was of a soft elastic consistence. The swelling was of about the size and appearance of a pregnant uterus in the third month. Both ovaries were found to be in a normal condition. All that was done was to lift the tumour out of the pelvis, where it was tightly impacted. The operation was followed by marked relief. After the operation the summit of the tumour could just be felt in the hypogastrium. This occurred in early August. The lady went away in September, and she continued to mēnstruate for two or three months after the operation. But in November she missed a period, and since that time, except for an entire absence of nausea or vomiting, the usual symptoms and signs of pregnancy had developed, and the abdominal swelling had increased. The question was what was the condition of the uterus at the time of the operation, and when did the pregnancy begin? The size of the uterus now corresponded with the pregnancy having commenced about the beginning of October, whereas the operation took place in August. If there was pregnancy at the time of the operation how was it that the subsequent development did not at all correspond with the pregnancy having existed then? On the other hand, if the condition at the time of operation was not pregnancy, what was it? That was the conundrum that he was anxious to hear answered.

Dr NANKIVELL : Are there foetal movements?

Dr. BODMAN replied that there were. Everything pointed to a pregnancy of about six months.

Mr. KNOX SHAW said that the part of Dr. Neatby's paper which concerned him most was that which related to the presence of free fluid in the abdomen. He remembered hearing of a hospital physician who suggested that students should not be allowed to attend the *post-mortem* room, because the brilliant diagnoses made in the wards were not always confirmed *post mortem*. Now that abdominal section was fairly free from risk, cases in which free fluid was suspected could be treated by a small incision, instead of by the use of the trocar and cannula.

He had been struck with the variety of the conditions which were found with free fluid. He remembered a case in which a long consultation took place, and the staff present agreed upon only one point. On the actual diagnosis there were varied opinions, but they were all agreed upon one clinical symptom, and that was that the fluid was encysted. He was called upon to perform the abdominal section, and found that the point agreed upon was the one on which all were wrong. The fluid was free. The point argued was that because there was dulness at one flank, and because the line of the fluid did not vary, therefore the fluid must of necessity be encysted.

Dr. NEATBY, in reply, said that he did not know that he could satisfy Dr. Bodman's curiosity as to the conundrum which he had put. There were, perhaps, two possible explanations. One was that the patient might have had a soft myoma, and was not pregnant until after the operation. The other possibility was that some imperfection of development in the uterus had occurred, resulting in a more or less complete separation of the uterus into two divisions by a septum, and that at the time of the operation there was pregnancy on one side and that menstruation occurred from the other side, and that pregnancy had taken place now on the other side. Nothing else occurred to him to explain it. It was quite possible that, if an anæsthetic had been administered before, the swelling might have been diagnosed to be uterine. It was in cases of this kind that such enormous benefits had been obtained from anæsthesia.

SOME OBSERVATIONS REGARDING THE PHYSIOLOGY AND HYGIENE OF THE EYE.¹

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GENTLEMEN,—I propose, with your kind permission, this evening to bring before you a variety of facts and observations, principally concerning the anatomy, physiology, psychology, and hygiene of the eye, points of

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general interest to the profession ; and although the matter is spread over a large area, and deals with several subjects, yet I hope the paper will be of some little service in refreshing your memories upon a few facts, which the exigencies of busy practice have relegated to the past. My difficulty in bringing a subject of this kind before you is to avoid being too general and elementary on the one hand, and too technical and special on the other.

My observations I will group under the following headings :—

- (a) The development of the eye.
- (b) Interesting points in connection with the surgical anatomy of the orbit and the eyeball.
- (c) Points about the extrinsic muscles of the eyeball.
- (d) The physiology of the eye and the psychology of vision, as regards more specially distance perception, size perception, colour, and the duration of luminous sensations.
- (e) The general hygiene of the eye, including remarks upon bad hygienic conditions in schools, the careless and improper use of the eyes, the bad effects of alcohol and drugs, the question of tobacco as regards the eyesight, and, lastly, a few remarks concerning the use of spectacles.

(a) DEVELOPMENT OF THE EYE.

The optic vesicles are pushed down at a very early date by two processes growing forward from the anterior vesicle (the primitive cerebral hemisphere). These optic vesicles are at first hollow prolongations, consisting of an anterior dilated portion and a posterior tubular portion or stalk, joining the anterior portion to the primitive fore-brain, and forming later the optic nerve. As the optic vesicle grows forward an involution of the epiblast takes place towards the vesicle, the epiblast being thickened here indents the vesicle, and approximates its anterior to

its posterior wall, and in this way the anterior and posterior walls of the primary optic vesicle come closely in contact, obliterating its cavity. The two layers now having become cup-shaped receive the name "optic cup" or "secondary optic vesicle." This ultimately becomes the retina, and the optic stalk, losing its cavity, is transformed into the optic nerve.

The local portion of epiblast thickened over the optic cup forms the rudiment of the crystalline lens, becoming detached it lies as a spherical body in the cavity of the optic cup. The mesoblast grows up through an opening called the choroidal fissure, and separates the lens from the optic cup, and forms the vitreous. The mesoblast also forms round the optic vesicle two capsules, an outer fibrous layer, the sclerotic, and an inner vascular layer, the choroid. The mesoblast forms also the cornea in front of the rudimentary lens; the epiblast forming the epithelium or conjunctival covering of the eyeball. The same involution of mesoblast which forms the vitreous indents the optic stalk, and forms the central artery of the retina. Occasionally the choroidal fissure is not entirely obliterated, and we get its position shown in the iris, by what is known as coloboma iridis.

(b) There are several points in the anatomy of the eye which may be of interest. As regards the relative size of the eyeball to the orbit, the eyeball only takes up about one-half the actual space, because of the large amount of space which is behind, between the eyeball and the optic foramen. Besides the eyeball we have optic nerve, muscles, blood-vessels, nerves, lymphatics, &c., and also a large amount of adipose tissue, which cushions the eyeball, permits of movements and prevents injury. The limiting membrane between the cellulo-fatty tissue and the eyeball, Tenon's capsule, is also behind the conjunctiva, and it is said to reach behind this membrane almost to the margin of the cornea.

We can readily see from the above description how

much accommodation there is for an abscess, for a tumour, or for a foreign body in the orbit ; indeed, a tumour can grow very large before it begins to seriously press upon the eyeball, and foreign bodies can lodge in the fat for a considerable time without causing any great disturbance. The eyeball is nearer the upper and lower margins of the orbit than it is to its sides, and the greatest interval between the eyeball and the orbital wall is on the outer side. Therefore it is easier to reach the interior of the orbit from the outer side ; in enucleation, however, the optic nerve of left eye is, for other reasons, more readily divided from the inner side.

The orbital fascia is interesting chiefly for its forming the check ligaments internal and external, the capsule of Tenon, and the suspensory ligament, which latter forms a hammock-like sling supporting the eyeball and preventing it from sinking downwards. In operations requiring the removal of the superior maxilla, the attachments of this suspensory ligament should, if possible, be left intact. The check ligaments prevent excessive action of the recti muscles, and when these muscles are divided they prevent them from retreating far back into the orbit.

For all practical purposes the capsule of Tenon envelops the posterior two-thirds of the eyeball, although some authors, as I have already stated, give a larger envelopment ; indeed, they say only the cornea is uncovered by it, a thin film of it reaching under the conjunctiva to the limbus of the cornea ; it is a thin translucent fibrous membrane, formed by the posterior lamina and part of the anterior lamina of the orbital fascia, practically extending from the insertion of the recti muscles over the sclerotic to the place of entrance of optic nerve, where it is reflected backwards over the sheath of the optic nerve to the apex of the orbit. It does not blend with the nerve, and there are two lymph spaces formed by it in communication with one another, one between the capsule and the eyeball, called Tenon's space, and the other between the

capsule and the sheath of the nerve, called the supravaginal lymph space. There is loose areolar tissue which permits free movement, and the eye may be said to form a sort of ball and socket joint, the capsule of Tenon lining the socket. The eyeball is held in position in the socket by the recti muscles, and the socket or capsule of Tenon is held in position by the attachments of the orbital fascia. The muscles being partly attached to the capsule are able therefore to move the stump after enucleation.

(c) The extrinsic muscles of the eyeball consist of the four recti, which, as you know, pass forwards on each side and are inserted just in front of the equator of the eye. There are also the levator palpebræ superioris and the two obliques.

The interesting thing about the levator palpebræ is the way in which it forms a broad aponeurosis between the two portions of the lachrymal gland, and then splits into three lamellæ. The uppermost lamella blends with the superior orbito-tarsal ligament; the middle lamella, the most easily seen, is inserted into the anterior surface of the upper border of the tarsal cartilage; and the lower lamella is attached to the conjunctival fornix. The usefulness of this arrangement is obvious. The margins of the tendon being attached to the margins of the orbit prevent excessive action.

The superior oblique is peculiar on account of its very familiar little pulley or trochlea, which enables it to rotate the eyeball inwards, and draw the cornea downwards; in fact, in a direction which is that of an axis, set at an acute angle to the direction of the force exerted by its own fibres.

The inferior oblique differs from the other muscles of the eyeball by having its origin in the front part of the orbital floor; its fibres therefore pass backwards as well as outwards and then upwards, embracing the eyeball so as to be inserted upon its upper surface, and so situated as to directly oppose the action of the superior oblique. The two obliques together act somewhat in harmony in abduction. The action of the other muscles is quite obvious.

(d) The eyeball is an apparatus for bending the rays of light, so that they theoretically form pencils coming to fine points (foci) upon a sheet of delicate nerve tissue (the retina) specially adapted to receive them. In this way the impression is concentrated so as to be conveyed to the brain. The endings of the optic nerves are arranged so as to be out of the way of ordinary nerve stimulation. There is some extremely sensitive arrangement by means of which the ether waves we call light affect the nerve terminals of the retina. Just as death is the negation of life, so darkness is the negation of light. We see objects because they reflect to us more or less light. If light be absent we fail to see the object, because there is no light for the object to reflect, that is assuming that we have normal visual powers. No matter what the stimulus may be, electric, mechanical, or the stimulus produced by the ether waves of light, the sensation of light is always sent to the brain by the nerve terminals, the rods and cones of the retina. A familiar example of mechanical stimulation is that flash of light experienced from a blow.

Strange to say, these end organs of the nerve-fibres, the rods and cones of the retina, are not pointed towards the light as it streams through the pupil, but they are pointed backwards towards the sclerotic, so that the light waves traverse the translucent nerve-fibres and the cellular and granular layers of the retina before they touch the rods and cones themselves. The rods and cones are therefore the specific organs for taking up the influence of the waves of light; they are present everywhere in the retina except where there is the blind spot, which latter corresponds to the entrance of the optic nerve.

The greatest sensibility to light exists at a little pit to the outer side of the entrance of the optic nerve; this is the fovea centralis. The radiating nerve-fibres here bend towards their rods and cones, and none of them pass over it. The retina at the fovea, in fact, is represented only by the layer of rods and cones, the other layers of the retina.

being absent. As we get towards the ora serrata, the periphery of the retina, sensibility gets less and less; that is to say, there is a duller, less distinct sensation, and the form of things cannot be so clearly distinguished. It is entirely with reference to central vision that we test the refraction, accommodation and the visual acuity. For perception of movements, however, as well as for slight differences of luminosity (the light sense), the periphery of the retina is actually more sensitive than the fovea centralis. Our visual sensations are of three different kinds: we take cognizance of the form of an object (the space sense); the colour of an object (the colour sense); and the brightness of an object (the light sense). Peripheral vision is of use in orientation; it enables us to guide ourselves and avoid obstacles, to take, so to speak, our bearings. If, for example, as we are walking, we look straight before us and there is a stone lying in our path, the latter forms an image in the periphery of the retina; in this case in the upper part of it. The stone, to be sure, is not distinctly perceived, but still it excites our attention. Our gaze is directed at it, it is then seen distinctly, we recognise it as an object and avoid it. The same thing happens if we go out in the street and men come towards us from one side, &c. The images falling upon the periphery give us warning signals, which make us cast our eye directly upon the objects which excite the images, and it is precisely moving objects that are most sure to excite our attention, since, as just stated, the peripheral portions of the retina have a high degree of sensibility for the perception of movements. It is almost impossible not to "turn the eyes" the moment anything peripherally lying or especially moving does catch our attention, the turning of the eyes meaning that rotation of the eyeballs as well bring the foveæ under the object's image.

Accommodation is the focussing or sharpening of the image looked at. This is brought about by the contraction or relaxation of the ciliary muscle. The crystalline lens

grows more convex when a near object is looked at, and becomes flatter when the object recedes. This is due to the antagonism of the circular ligament, in which the lens is suspended, and the ciliary muscle. When the muscle is relaxed the ligament assumes a spread-out shape, which keeps the lens rather flat. When the muscle contracts the ligament relaxes its pressure on the lens, and the lens, being highly elastic, becomes more convex. Thus the lens is more refractive when the muscle contracts and less refractive when the muscle relaxes. Accommodation for near objects is thus the more active change, when we look far off we simply let our eyes go passive. Contraction of the pupils and also convergence accompanies the accommodative act. Time will not permit of my going into the question of binocular vision, suffice to say that it entirely depends upon corresponding points of single visual direction, which exist upon the two retinae.

The perception of distance.—When we look about us at things our eyes are incessantly moving, converging, diverging, accommodating, relaxing, and sweeping over our field of vision. The field appears extended in three dimensions, with some parts more distant and some more near. For perception of distance to be perfect it needs the two eyes. Soldiers in judging distance for shooting have to use the two eyes, although one eye is closed when actually taking aim. Distance subjectively considered is an altogether peculiar content of consciousness. According to Professor James, convergence, accommodation, size, degree of brightness, &c., &c., all give us special feelings, which are signs of the distance feeling, but not the distance feeling itself.

The perception of size.—The dimensions of the retinal image determine primarily the sensations on which conclusions as to size are based, and the larger the visual angle the larger the retinal image; since the visual angle depends on the distance of an object the correct perception of size depends largely upon the correct perception of

distance ; having formed a judgment, conscious or unconscious, as to that, we conclude as to size, from the extent of the retinal region affected. Most people have been surprised that what appeared a large bird in the clouds was only a small insect close to the eye ; the apparent large size being due to the previous incorrect judgment as to the distance of the object. The presence of an object of tolerably well-known height, as a man, also assists in forming conceptions (by comparison) as to size ; artists, for this purpose, frequently introduce human figures to assist in giving an idea of the size of other objects represented.

The system of colours is a very complex one. If one takes any colour, say green, one can pass away from it in more than one direction, through a series of greens more and more yellowish, let us say towards yellow, or through another series more and more bluish towards blue. The colours have this peculiarity, that many pairs of them, when they impress the retina together, produce the sensation of white. The colours which do this are called complementaries ; as examples, we have spectral-red and green-blue, spectral-yellow and indigo-blue. Green and purple again are complementaries. All the spectral colours added together also make white light, such as we experience in the sunshine.

The duration of luminous sensations.—This is greater than that of the stimulus. A fact taken advantage of in the making of fireworks. An ascending rocket produces the sensation of a trail of light, extending far behind the position of the bright part of the rocket itself at the moment, because the sensation aroused by it in the lower part of its course still persists. So shooting stars appear to have luminous tails behind them.

By rotating rapidly before the eye a disc with alternate white and black sectors, we get for each point of the retina alternate stimulation (due to passage of white sector) and rest (when a black sector is passing). If the rotation be rapid enough the sensation aroused is that of a uniform

gray, such as would be produced if the white and black were mixed and spread evenly over the disc. In each revolution the eye gets as much light as if that were the case, and is unable to distinguish that this light is made up of separate portions reaching it at intervals; the stimulation due to each lasts until the next begins, and so all are fused together. If one turns out suddenly the gas in a room containing no other light, the image of the flame persists a short time after the flame itself is extinguished. If we open our eyes instantaneously upon a scene, and then shroud them in complete darkness, it will be as if we saw the scene in ghostly light through the dark screen. We can even read off details in it which were unnoticed while the eyes were open. This is the so-called primary positive after-image. According to Helmholtz, one-third of a second is the most favourable length of exposure to the light for producing it. Negative after-images are due to more complex conditions, in which fatigue of the retina is usually supposed to play the chief part.

Intensity of luminous objects.—Black is really an optical sensation. We have no black except in our field of view; we do not, for instance, see black out of our stomach or out of the palm of the hand. Pure black, however, is only an abstract idea, for the retina itself (even in complete objective darkness) seems to be always the seat of some internal changes, which give some luminous sensations. This is what is termed “idio-retinal light”; it plays its part with all after-images when the eyes are closed. Any objective luminous stimulus must be strong enough to give a sensible increment of sensation over and above this “idio-retinal light.” Another point is that there must be a certain amount of luminous intensity in an object for its colour to be anyway distinguished. Thus, for instance, in the dark all cats appear gray. As the light increases we distinguish the colours, first the blues, and last of all the reds and yellows are seen, up to a certain point of intensity, then they grow indistinct again through the fact that each

then takes a turn towards white. At the highest bearable intensity of light all colours are lost in the blinding white dazzle. This has been spoken of as a mixing of the sensation white with the original colour sensation; however, it is not a mixing of sensations at all, it is a replacement of one sensation by another, due to a changed neural process. For all the above-mentioned interesting psychological facts I am almost entirely indebted to a most excellent little work by Professor James, of Harvard University, from which I have largely quoted.

(e) HYGIENE OF THE EYE.

Dr. Norton, of America, in his work on "Ophthalmic Diseases," is the only author I know who devotes a chapter to this important subject. I believe his book to be one of the very best treatises upon the eye we have in homœopathic literature. This gentleman very truly says, "that many cases of blindness have undoubtedly resulted from the neglect of simple everyday precautions." Their very simplicity causes them to be overlooked by the profession, and ignored by the laity. Some years ago in a paper I read before this Society, speaking upon the use of nitrate of silver in ophthalmia neonatorum, I greatly praised what is known as "Crede's method." The simple method of at once combating the gonorrhœal poison in a baby's eyes by the timely instillation of argent nit. (2 per cent. solution) in all cases where there is the slightest suspicion, even to the extent of making it a routine practice in all confinements. This has saved the eyes of many thousands of children. An infant's eyes should be examined frequently by the doctor, as a matter of routine, for several weeks after birth, so as to at once nip the onset of any trouble in the bud by active treatment.

Amongst reprehensible and idiotic practices there is nothing perhaps worse than that of blinding young children by making them live in an environment of everything

white, one may call it "colour starvation"; the baby is clothed in white garments, it sleeps in a white bassinette, the nurse is dressed in white, the child is sent out in a white perambulator, in which it lies in the summer-time in the glaring sun staring at the sky; then the mother wonders what is the cause of something going wrong with the eyes, and it is indeed a providence if the cause is checked in time by a wise doctor, and the mischief is nothing more than acute conjunctivitis.

Another foolish proceeding is the producing of extreme convergence by the frequent holding of bright and attractive toys, &c., quite close to the child's eyes. This is a great cause in the production of squint. As the child grows older it becomes more and more necessary that he should not be over-exercised in his powers of convergence. Indeed, the first ten years of life are a critical time for the eyes, and the more out-of-doors amusement a child has, the less he pores over books, threads beads, and in other ways exercises his accommodation, the more he is likely to escape having to wear glasses for some error of refraction. Some of the kindergarten schools are very objectionable on this account. Whatever advantages to civilisation there may be in compulsory education, there is no getting away from the fact that the eyesight of our people is deteriorating by our increased education. The superior shooting of the Boers in the late war over some of our soldiers was due to this fact. Poor children are sent to school in the morning, sometimes without any breakfast, they are made to pore over books and writing in dusty rooms, perhaps the rooms very badly lighted, and there is the strain of competition, &c., &c.; the general health suffers, and is it to be wondered at that the eyes cannot bear the strain?

Dr. Norton wisely observes:—"The school life of a growing child should be so regulated as to secure the best mental advancement, and, at the same time, the best physical development." Is this done by our great educa-

tional system, which compels parents by the law of the land to send their children, weak, badly fed, and unhealthy, to schools where their eyesight is practically at the mercy of, maybe, a careless and thoughtless teacher? When the mischief is fully developed the poor child is sent to an Ophthalmic Hospital, where perhaps an overworked staff has to deal with great numbers, with insufficient time to go thoroughly into each case. This results often in anything but an accurate prescription for glasses, which are obtained cheap, badly fitting, and of the poorest quality. The parents may be too poor to afford anything better.

Examinations are now made in the primary schools, and nearly all the children enter with normal eyes, but they soon begin to develop errors of refraction. In America and Germany there is more myopia, in this country more hyperopia, and astigmatism everywhere is exceedingly common. This latter is the worst of all to deal with, and needs the more expensive glasses, as the lenses have to be specially ground by a skilled workman, and with a machine that costs the manufacturing optician about £600. In American universities the percentage of myopia has reached 70 per cent., and in the higher grade schools 25 per cent.; this shows that the number of near-sighted pupils increase from the lowest to the highest schools, and in direct proportion to the length of time devoted to the strain of school life. The only way to prevent all this is the making of careful and frequent examinations of the eyes. Schoolmasters and teachers should have a card of simple test-type letters against the wall, and at the proper distance of 20 ft., the child who cannot see the type should be at once sent to an oculist. If the child complains frequently of headaches while studying, or seems to be getting nervous, anæmic, &c., the teacher's duty is to suggest to the parents the wisdom of consulting a doctor. How careful people are about their teeth, and the teeth of their children, and how careless they are [with their eyes. We can get very acceptable

false teeth, when our own are lost from neglect, but the same cannot be said of artificial eyes.

All children with inflamed eyes should be kept from school, not only because an inflamed organ must be kept at rest, but because many inflammatory affections of the eyes are infectious, and one cannot always at once say which are the infectious cases. A very severe form of acute conjunctivitis is highly contagious, caused by the Koch-Weeks' bacillus, and vulgarly known as "pink eye."

There are many other faulty conditions in the upbringing of children and in school life—badly printed books; home lessons often done late at night, with a very poor artificial light, and when the body is tired and the brain sluggish; a hard and fast curriculum, whereby weakly children are made to compete on equal terms with the strong and able; cramming; insufficient outdoor exercise; bad light; bad air; too close and prolonged application, &c., &c.; these things both permanently damage the general health, and this most important of all special senses, the eyesight. There should be frequent change in educational work, the blackboard should be much used, and there should be frequent intervals of rest. Children should be sent early to bed, and not allowed to sit up reading sensational papers and novels. The flood of more or less trashy literature in this country is doing great harm to the eyesight of young people.

School buildings should be built away from narrow streets, so as to have good light and good air, and a surrounding large open playground. Dampness should be avoided and the ventilation and drainage perfect. Sufficient light is of the utmost importance. Cohn says: "The quantity of light cannot be too much;" while Javal says: "That every portion of the room should be so flooded with light that the darkest place will have sufficient illumination on a dark day." According to Risley, the window surface should never fall below one square foot for every five square feet of floor space, and that this should

be exceeded in many localities, on the north side of buildings, and on the ground floor. The colour of the walls should be of some light shade of green, blue, yellow, or gray. The furniture should be of a light colour, and roller shades of the same colour as the walls should be lowered over blackboards, when the latter are not in use. The direction of the light is of importance, objectionable cross lights should, of course, be avoided, and, if possible, the light should be to the left and rear of the pupils. Dr. S. D. Ridley, in his admirable article upon School Hygiene, draws attention to the faulty construction of school desks and seats, placed at a wrong angle, which not only produces, according to orthopædic surgeons, spinal curvature, but, by excessive strain upon accommodation and convergence, becomes a source of grave danger to the eyes. The seat and desk should be so arranged that the child will find it easier to sit upright at his work than in any other position.

All that has been said as regards children in school applies equally well to the adult. The eyes should only be used for near work when the body is erect; reading when lying down is bad, and the light should be good and fall on book or paper from the left side. A reading stand is not only a luxury but a necessity for those who do much reading. The best light is daylight, next the Welsbach, incandescent, or the electric light properly shaded and protected by globes. Gas and kerosene are good, but they should be shaded by globes, coloured white on the inside and tinted green on the outside. People ruin their eyes reading in the dusk, and in insufficient and unsteady light; the poor print of cheap newspapers so frequently read by the dim light of a railway carriage is very bad, also the dangerous habit of reading in bed by candle-light. To those who indulge in these foolish practices one cannot cry don't too often. A few months ago there was a discussion in the *Daily Mail* upon the ill effects of tobacco as regards the eyesight. Dr. Bell Taylor, the well-known oculist, had

published a strong condemnation of smoking as being a potent factor for evil to the eyes. Well, gentlemen, although excessive smoking is undoubtedly most injurious, I am of opinion that if the digestion is good and the general health unimpaired, the smoking of good tobacco is not of itself such a *bête noir* as Dr. Taylor would have us believe. I think tobacco in any case is far less harmful to the eyes than the reading of the small print of the *Daily Mail* and other halfpenny papers by the wretched, unsteady light of our railway carriages. Alcohol in excess, morphia, cocaine, and other pernicious drugs are very harmful. That nicotine does act harmfully upon the retina there can be no doubt, the eyesight of persons employed in tobacco factories is often greatly damaged, but smoking by sensible men who are not enslaved by it, and who smoke in moderation, seldom does any harm to the eyes. It is very excessive smoking I strongly deprecate. A man runs a great risk; he may establish a tolerance, or he may, like some of the arsenic eaters of Styria, break down in the attempt. Sixteen or twenty cigars a day with blindness to follow is hardly to be desired, no matter how great our appreciation of the weed. Among all classes there is a prejudice against spectacles, although of late years this seems to be dying out; the use of the correct glass to those suffering from refractive errors is one of the greatest boons to humanity. It is really a necessity in all but very slight cases. Glasses are frequently treated with great roughness and carelessness by their wearers; they are thrown about, they become scratched and dirty, and even well-fitting frames by rough handling are put out of shape. The centres of the lenses should be opposite the central vision, otherwise the patient is looking through prisms, and not benefiting by the accuracy of the prescription. The frame should fit the bridge of the nose and the face like a glove fits a hand. Folders are wretched things; if worn they should never be folded, for they easily get scratched and misshapen. It is most important that the

best quality only of lens should be obtained. The best crown glass is better than pebble, and the frames should be carefully adjusted by a thoroughly competent optician. Often the careful work of an oculist is undone by a cheap and careless tradesman. The common custom of allowing incompetent opticians, jewellers, chemists, watchmakers and peddlers to test the eyes and fit glasses cannot be too strongly deprecated. Said a little working watchmaker to me one day, when I found him in his shop testing, in his ignorant way, a woman's eyes, "If they are such fools as to come to us, sir, let it blind them. Others do it, why shouldn't I?" The prevalent habit of going without glasses for reading late in life is also very bad. The public should be taught that in all normal eyes glasses are needed for near vision after forty.

In conclusion, let me remind you that the health of the eye depends greatly upon the general health of the body. By obeying general laws of hygiene the usefulness of the eyes will be best maintained.

SOCIETY NEWS.

NEW MEMBER.

At the meeting in May, Clarence Granville Hey, M.B., C.M.Edin., M.R.C.V.S.Edin., of Croft House, Alofts, Yorks., was elected a member of the Society.

OBITUARY.

Dr. Noack.

The death is announced of Dr. Noack, of Lyons, who had been a corresponding member of the Society since 1863.

SUMMARY OF PHARMACODYNAMICS AND THERAPEUTICS.

*Extracted from Exchange Journals by the Editor in collaboration
with C. J. Wilkinson, M.R.C.S.Eng.*

Acetic Acid. Acute Poisoning.—A girl of 19, who had swallowed a considerable quantity of strong acetic acid with suicidal intent, was seized immediately with violent vomiting and with pain and intense burning in the mouth and pharynx. Later she developed frequency and feebleness of pulse, a slight elevation of temperature, a persistent and violent cough, with very abundant purulent expectoration, and occasional futile efforts to vomit. The urine was black and smoky, similar to that due to carbolic acid poisoning, and contained 1 per cent. of albumen. The red corpuscles were pale, with very little tendency to form rouleaux, and with frequent mulberry-shaped distortion. The second, on separation, had a distinct reddish tint, due to escape of hæmoglobin. The heart sounds and apex beat were very weak. (*Riforma Medica, Abstract New York and Philadelphia Medical Journal*).—C. J. W.

Ammonium Bromidum in Whooping Cough.—In a very severe case of whooping cough, where the paroxysms were violent, occurring six or seven times a day, the child's face turning black, the eyes protruding and suffocation threatening, after trying many remedies without avail, ammonium bromidum in doses of about 1 grain in syrup of tolu and water acted like a charm; the child improved almost from the day of taking the medicine. (F. Kopp in *Homœopathic World*, March, p. 119).—ED.

Anilinum.—Professor Rehn, of Frankfort, at the German Surgical Congress, supplemented a report of last year by his recent observations on growths in the bladder in workmen employed in aniline factories. He had observed twenty-three cases. Five were papillomata (of which two afterwards underwent malignancy).

nant changes), the remainder were originally either sarcomatous or cancerous. Dr. Schwerin had failed in attempts to produce such growths in animals when he added aniline to their food. (*The Lancet*, May 14, 1904).—C. J. W.

Bellis Perennis. *A Proving.*—A proving of the daisy by the late Dr. Burnet is published in the *Homœopathic World*. After 20 drops of tincture No. 1 he felt weary and disinclined for walking. Had to compel himself to ascend the stairs. In three hours this state passed off, and he was impelled to run, the go-ahead feeling lasting two hours, and followed by feeling very tired. Had a wretched night, tossing to and fro and dreaming, with past events mixed up with those of the present. The next morning he had a dull, obtuse feeling in the front half of the head. A bad night was quite unusual. At 10 a.m. took 40 drops in water. Had a taste in his throat for an hour or more. Then no apparent effect, except unusually alert and energetic, which continued until bedtime. A restless night. At 1 a.m. a pain in the lower part of the right biceps, as if after carrying a parcel. On rising it pained him to dress. The biceps was rather tender to pressure, and a little swelled. It was quite bad all day, and in the course of the day the same occurred in the left. Fifty-two hours after taking the dose the biceps were still aching. During the previous night also a good deal of pain in the bowels, beginning in the right side, passing upward and across the navel to the left, then downward, and hot flatus was discharged. Pain in the left side left him, but not the other. On the same evening, also, three large papulous blotches appeared on the face, one on the right temple, one on the left side of the nose and one on the left side of the chin. Digestion was slightly disturbed two days after, and the biceps were still tender. Normal five days from the beginning.

Six days afterwards he took 50 drops in about two teaspoonfuls of water at 9.30 a.m. In the night some pain in the bowels and slight frontal headache; the headache persisted next day, described as bilious, but believed to be a drug effect. No appetite for 2 o'clock lunch. Slight pain in muscles of right arm. Slight constipation. Four days afterwards noticed a congenital cutaneous appendage of the size of a large apple-pip, usually always pale, lifeless and shrivelled, become pink in colour, standing out full and hanging by a short stem; it pricked a little. A tiny boil appeared over the right eyebrow, which itched and tingled, and a number of blotches appeared on the forehead, a pimple on the chin in the beard, and in the middle of the right cheek a blind

boil has appeared of the size of a good-sized black currant; it looked purple, pained, was hot and surrounded by an areola. The papilla over the eye enlarged, and became pustular; the blotches increased. These eruptions were so prominent that an explanation was called for their appearance. These effects wore off with copious evacuations from the bowels. (*Homœopathic World*, April, p. 157).—Ed.

Ficus Religiosa as Cause and Cure in Hæmorrhages.—

Dr. S. C. Ghose gives three provings of *ficus religiosa*, and then cites several cases of hæmorrhage in which it proved curative. The drug is a native of India; the parts employed are the fresh leaves collected from June to August. *Proving 1.*—S. C. G. took 40 drops of tincture in one dose. Result was a frequent desire to urinate, and the urine contained blood. Inclination to cough and expectorate blood. A slight dull headache, giddiness and nausea, dimness of sight, weakness and restlessness ensued. The symptoms appeared to be removed by small doses of the tincture subsequently taken. *Proving 2.*—Wife of above, age 17, took 20 drops of the tincture repeatedly through two days. On the third day menorrhagia and dysentery set in simultaneously; the blood was bright red; she had slight headache (burning on the top), dimness of sight, weakness and restlessness. The face became yellowish, dyspnoea, sadness and melancholy, bearing-down pains in lower part of abdomen. *Proving 3.*—40 drops of the tincture were given to a healthy dog one morning, and the next. The second day the animal began to vomit bright red blood. It kept quiet, and was very unwilling to move. Subsequently three doses of 5 drops each were given, and the vomiting ceased. *Clinical Case 1.*—An Indian girl was suffering from chronic dysentery. The stools contained blood. There was emaciation. The stools became normal in fourteen hours (? days, Ed.) after giving *ficus religiosa* in 1 drop doses every four hours. *Case 2.*—A man was attacked with hæmatemesis, coldness of the extremities, heat and heaviness of the epigastrium, pallor, oppression, fainting, ringing in the ears, vertigo, loss of appetite and prostration. Vomiting occurred in intervals of several hours. *Ficus religiosa* acted promptly, and the patient was soon restored. *Case 3.*—In a case of typhoid fever, with bronchitis and hæmorrhage from the bowels, this drug in drop doses proved greatly curative. *Case 4.*—Chronic dysentery, with depression, vertigo and dyspnoea, was cured in a week. *Case 5.*—Epistaxis, where the blood was bright red, preceded by nausea, with dimness of sight, weakness and restless-

ness, was all right in fourteen hours. *Case 6.*—Hæmatemesis, in which there was sensitiveness to sound, depression, headache, vertigo, dimness of sight, dilated pupils, tinnitus, yellowness of face, white tongue, copious secretion of saliva, anorexia, nausea, pain in the stomach and dyspnœa, yielded to *ficus religiosa* 1x every hour in two days. *Case 7.*—Hæmoptysis, with similar conditions. *Cases 8, 9, 10.*—Severe wounds, in which this drug was applied locally, with arrest of the hæmorrhage in a few minutes. (*Homœopathic Recorder*, April, p. 153).—ED.

Gaultheria in Gastralgia.—Mr. A. B., aged 56, had gastralgia, with sensation of clawing in epigastric region; sharp pains extending from the stomach and the back. Attacks occurred daily at intervals of two or three days. Worse after least food or cold water. Not relieved by hot-water bottle or other remedies. *Gaultheria* 1x gtt. vi. gave ease in a few minutes. The oil was given on the occurrence of the next attack, with speedy relief after one dose, and subsequently after three doses. At the time of writing there had been no attack for three months.

Mr. A., aged 40, who had for several weeks been mentally overtaxed and exhausted, complained of the same gnawing, tearing, unbearable pain, worse after eating, of gastralgia. *Gaultheria* 1x was given as in the preceding case, with immediate relief, and in two weeks the attacks ceased. These cases are reported by Dr. T. L. Bradford, who thinks *gaultheria* specially indicated in gastralgia from exhausted nervous energy. (*Homœopathic Recorder*, March, p. 107).—ED.

Quinine Intoxication.—A case is reported by Renia of quinine intoxication as the result of a dose of 300 grains. Epigastric distress, accompanied by dizziness and loss of consciousness, immediately followed the ingestion of the drug. This condition persisted for three days, when the patient partly recovered, complaining of severe headache, tinnitus and, later, deafness and blindness.

Eight weeks after this the hearing returned, the cephalalgia had diminished and the vision began to return. Six months later the vision of each eye equalled one-third of normal. The visual field of both eyes was considerably reduced. There was complete "achromatopsia." The pupils were slightly dilated, and reacted to light slowly. The ophthalmoscopic appearance was that of advanced atrophy, such as is seen after embolism of the central artery, combined with white atrophy, which is consecutive to

acute papillitis. (*La Clinique Ophthalmique* and *Hahnemannian Monthly*, March, 1904).—C. J. W.

[See case of quinine poisoning summarised in *Journal* for April, p. 219.—Ed.]

Radio-Activity.—Dr. Morton, of New York, has raised an interesting point in an article entitled "The Artificial Fluorescence of Living Tissue in Relation to Disease" (*New York Medical Journal*, February 13, 1904). He charges the body with a fluorescible solution, such as that of quinine, and then exposes a given part to radium or the X-ray tube. In this way he sets up local fluorescence, and claims that the therapeutic action of the radium or the focus tube is thereby increased. Dr. David Wilson reviews the therapeutic use of uranium salts, suggesting that their action may be due to the irritation of the intestinal mucous membrane by the slow passage of a radio-active substance through the bowel. (*Medical Press*, April 27, 1904).—C. J. W.

Sanguinaria Canadensis in Headache.—A young man of 32 complained greatly of a paroxysmal headache occurring once a week, although sometimes it would not return for ten or twelve days. These pains usually came on in the morning, increased in violence during the day and lasted till the evening. The pains were of a digging, throbbing, sometimes piercing and lacerating, character, as if through the brain, and were situated on the top of the head and forehead. They were decidedly worse on the right side. Sometimes there would come like a flash of lightning a pain through the back of the head. The head seemed at times as if it would burst. The headache was followed by chills, nausea and vomiting. Sleep relieved. *Sanguinaria* was prescribed on the symptom "like a flash of lightning a pain through the back of the head" in the 1x dilution, 3 minims every two hours. The medicine was taken thus for a few days, then a dose every four hours for a week, and, finally, every night and morning for a fortnight. The result was that these attacks of headache never returned. (F. Kopp in the *Homœopathic World*, February, p. 72).—Ed.

Zizia Aurea in Chorea.—Dr. Shanks cured a case of chorea with this drug in a girl of 16 who had benefited under arsenic until toxic symptoms developed. A rest cure of six weeks had done no good. She was tall, thin, pale, anæmic and poorly nourished. She had choreic movements of the arms, and at

times of the legs, also drawing and twitching of the muscles of the face. The latter movements sometimes played about the eyes and forehead, at other times about the cheeks or mouth. These spasmodic movements gave the face a strained appearance, bordering at times upon the sardonic. The movements continued in some measure during sleep. Improvement began within forty-eight hours, and complete recovery took place in a few weeks. Two years later similar symptoms recurred in the face, which yielded again to zizia. (*Progress*, February, 1904; *North American Journal of Homœopathy*, April, 1904).—C. J. W.

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CEREBRAL LOCALISATION: SOME SUGGESTIONS
ON PRINCIPLES AND CONCLUSIONS.¹

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I.—INTRODUCTION.

IN this paper I wish to draw attention to the complex and intricate subject of the relation of the brain, in its topographical and functional aspects, to mind as states of consciousness, judgment and practice. I need not claim for this subject an attention deep and commensurate with its intricacy and obscurity, that will be accorded by everyone who comes face to face with the issues involved in the desirable acquisition of a knowledge of the relationship. In their broader aspects these issues are more than those involved in special practice in neurology, in the surgery of the brain, or in mental alienation. The latter are deeply

¹ Presented to the Section of Medicine and Pathology, May 5, 1904.

important and no apology need be offered for introducing the subject to the notice of this Society on the basis of these branches of knowledge. But within the relationship of brain to mind is involved the ultimate one of mind to matter, concerning which every mind is interested, but concerning which, also, I venture to think, we, as practitioners of medicine, who base our practice first of all, and mainly, on a comprehensive principle which implies a reaction of the whole organism upon the treatment offered to it, are specially concerned.

In a recent discussion on the dose question in this Society, a point was clearly made, and in a forthcoming discussion at the American Institute of Homœopathy the same point will again be emphasised, that in order that the problem of the dose question may be elucidated the effects in practice of mental suggestion must be eliminated. It is at least logical to assert that the effects of suggestion cannot be eliminated without the possibility of discriminating them in the complex of a patient's clinical picture on a given date. But more than this, a practitioner may desire to combine suggestion with his homœopathic practice, as in fact many do, knowingly or unknowingly. If unknowingly, one would think this practice were better adopted intelligently, and the effects of suggestion and the effects of other therapeutic measures discriminated whenever possible. How far treatment by suggestion is practicable will obviously depend on an adequate appreciation of the laws and reflex effects of mental reproduction upon the organism, otherwise a question intimately depending for its elucidation upon the relationship of brain and mind with other parts of the organism.

But in this Society, the intimate relationship of brain, mind, and bodily appearances or phenomena carries our interest yet a step further. In the treatment of a case of disease our aim, as a rule, is to remove the symptoms or picture, using this term in the most comprehensive sense, of the disease from which the patient suffers, for in so doing we remove his disease, or restore him to health, as we say. In our attempt to accomplish this object, in the administration of drugs as medicines, we place reliance upon a rule of

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selection for particular medicines, which, stated in language, as far as its simple meaning goes, involves a logical contradiction of the purpose we have in view. Instead of saying "Let this patient's symptoms be removed" and forthwith giving him something which, according to the appearance of things and in the rough Philistine manner of the old-fashioned school of medicine, would drive his disease from his body and leave him again still living to sing the song of our glorious victory, we say "Let this patient receive a drug as medicine which would, were he in health and the dose large enough, produce a condition similar to that from which he is at present suffering." Why do we thus so contradict the appearance of things? The answer is ready to hand. Because our practice works better for the patient than the old-fashioned Philistine way. But the claims of logic are not quite satisfied. We, or our ancestors before us, have gone on for a century trying to explain the why and the wherefore of the benefit of our practice, but in the next case appearances are still against us and we are obliged to adopt our rule of apparent logical contradiction as before and for ever. What I have to bring forward in this paper, is intended to consist, in part, of a contribution towards an understanding of our philosophical position as homœopathic practitioners. On that ground, in addition to the more strictly specialist aspects of the subject, I invite attention to what perhaps to a number of my readers might be too obscure and far-reaching to command their interest. Allow me one more word on the specialist aspect of my subject. During the current four or five months I am contributing some papers on brain and mind states to the *Monthly Homœopathic Review* based on cases from practice. I have there touched on some of the problems I am referring to on the present occasion. Should you do me the honour of reading the papers in the *Review*, may I ask if this paper may be read as complimentary and supplementary to those? The subject is so wide and there is so much involved in every reference to any aspect of it that fresh thought upon it always seems possible, and to carry with it some elucidation of previous thought.

II.—BRAIN, THE ORGAN OF CONSCIOUSNESS.

The brain, or more strictly that part of it known as the cerebral hemispheres, may be described as the organ of consciousness. The term "consciousness" is preferable to the term "mind" because it enables us to place approximate limitations to its meaning, whereas the term "mind" is scarcely susceptible of such definition. Of necessity, the cerebral hemispheres cannot be considered as an organ of the body out of connection with other parts of the brain which serve important central functions in immediate relation to consciousness, or indeed out of relation to organs which serve other than nervous or mental functions. When speaking of one part of the body as an organ of a particular function, the necessary independence and interdependence with all other organs is assumed, and the separation of one is in and for thought only. No organ of the body acts by or for itself. A repetition of this truism seems needful when considering consciousness as a functional aspect of brain, if only as a warning against the metaphysical conclusion that consciousness exists as function independently of brain, or the psychological one that brain states are but states of consciousness.

Conclusions that certain parts of the brain are inter-independent with certain aspects of mental function are accepted as inferential judgments and no more. The validity of judgments when arrived at is tested by corroborative evidence from different branches of physiological enquiry, as to whether they serve the purpose of knowledge as bases for practice. Guarding ourselves with these provisos, by a psychological analysis in correlation with the results of physiological method, we may find that recent research enables cerebral localisation to be pushed much farther into the domain of mind and knowledge than hitherto has been conceived possible.

We must, however, begin by attempting to define the limits of the term "consciousness." So much confusion of statement usually gathers round this term, that unless each author defines what he means by it beforehand he is liable to be misunderstood. He may attempt a definition

by endeavouring to mark the outside limits of it as an objective experience. It is not my consciousness I wish to define in relation to you, after the manner of metaphysics and the older psychology, but your consciousness in relation to me as an observer, or those of patients placed under our care, concerning which, as physiologists, pathologists, and medical practitioners, we are called upon to judge. Of consciousness in this sense there are two fairly well-marked limits concerning which we may judge. These may be described (adopting Hughlings Jackson's nomenclature when speaking of epilepsy) as the lower level and higher level of consciousness respectively, the minimum and maximum of conscious life. The lower level is marked by the distinction familiar to everyone, between a bare awareness of something, without a discrimination or perception what, and a dreamless sleep. In reference to the relation of observer and observed and this limit, we may say that a dreamless sleep is a state concerning which the subject thereof is not in a condition to judge of, except that, on regaining consciousness, he is aware that his total consciousness has been interrupted. But an observer has been able to judge that a sleeper has awakened from sleep, or from the unconsciousness of anæsthesia, intoxication or coma. For physiological purposes consciousness may thus be said to begin as an awakening from the unconsciousness of dreamless sleep. Anæsthesia, intoxication, delirium or coma are best regarded as abnormalities of consciousness. This is one limitation of consciousness I propose to adopt. The maximum level of consciousness must be marked in a very different way. Apart from the limitation of bare consciousness by sleep, the only other way we have of judging of consciousness objectively is by another person's response to our communications with him by means of language. Whatever judgment we may form in reference to consciousness, whether in the examination of a patient, in the study of psychology or physiology, or in reference to ordinary everyday converse, or any other special branch of knowledge, our judgment of it, as a judgment beyond the limit of our own minds, that is as a scientific judgment in any sense, must

be limited by the capacities, the statements, or the utterance of the common language. Beyond the use of language, it is impossible for me to judge of your consciousness as conferring with me on the subject, or that of any person whose mental state I wish to examine. This is the reason which, for physiological purposes, we may call the limit of consciousness at the use of language, the maximum limit, compared with the limit of awareness between sleeping and waking, the minimum limit. As a short description, we might term the maximum the limit of *responsive communication*. These words convey to the mind the distinction which it is desired to mark: on the one hand the distinction between the lowest level of consciousness and the highest, taken together and accepted as the range of consciousness concerning which it is possible to judge of, and what there is beyond of experience which it is possible to convey in language as meaning, which may be regarded, in a sense, objectively as *experience in common*. What there is in consciousness beyond what is conveyed in language as meaning or experience in common, which pertains to individual experience alone, such as feeling, pleasure and pain, individual reality, identity, &c., concerning which the individual who experiences it is the sole judge, cannot, strictly, come into consideration for scientific purposes, but can only be regarded in some philosophical view of total reality. What is included in individual experience is, of course, admitted as existing in the consciousness of every individual, as part of the, by other persons, unperceived, unknown content thereof.

By way of elucidating what is meant by consciousness under these limitations, it may be pointed out that a very fair average limit of *responsive communication* by any person as the maximum limit of consciousness may be accepted as normal, and deviations from it judged of as quick or slow, expressive in different ways, intelligent or otherwise. The mode in which a person makes use of language, the character of volitional or sensory elements, emotional expression and its relation to the waking or conscious state, can all be judged of in an examination of individual cases. On the other hand,

on the side of meaning as *experience in common*, excepting the uniqueness of individuality, there is little that need escape observation or judgment. Let me suggest the following illustrations: At the time of reading this paper my readers can judge of the meaning of the statements I am making on the subject of psychology. As long as I keep to the limits of the subject, which can be judged of by everyone who chooses, my readers are judging of my consciousness, and our combined or representative statements are *experience in common*. This principle can be extended to knowledge we possess in common in any sphere, and it is specially and most completely illustrated in medical knowledge. Medical knowledge is supposed to cover the whole of knowledge relating to the appearances of life. And the knowledge of our patients can in like manner be compared with our own knowledge on matters of health, or knowledge of any other subject when conversing in the common language. It is this knowledge as meaning in language, added to what is individual in experience, which I wish to include under the term consciousness with the limitations suggested, and which I include under the proposition *the brain is the organ of consciousness*. If you will, we may say the brain is the organ of consciousness, knowledge, and individual experience, which statement, with the limitations suggested, will not now be misunderstood.

III.—CEREBRAL LOCALISATION SHOULD BE STUDIED METHODICALLY.

Current conclusions on cerebral localisations have been reached by a variety of means of investigation. It would take too long to offer a history of the various steps which have led to the present state of the science. I can only touch on the historical aspect of the subject in the lightest manner. There appears no doubt that the earliest attempts at localising mental functions with different parts of the brain were made so long ago as the thirteenth century by the scholastic philosopher, Albertus Magnus. Not much was done at this early period nor indeed until quite modern

times, and associated with the French philosopher, Gall, and the system of phrenology. Although Gall's system has now been superseded, the latter is to be credited with the foundation of modern work in the direction of localisation. Like all early attempts at scientific generalisation, the system of phrenology was based on a very imperfect appreciation of the data needed for accuracy and completeness from either an anatomical or physiological, or even psychological point of view. The system was built up on such data as were then at hand, and in the light of the current views of mental qualities or functions.

Since Gall's time the anatomy of the brain has become almost an open book, experiment in physiology has been extended to the nervous system in all regions, psychology has come down from the cloudland of metaphysics, and modern science asserts the demand for verification at every step before a prospective conclusion can be accepted as final. In a discussion of cerebral localisation the question of verification stands in a very peculiar position. The means of verification are of the crudest compared with the fineness of the function it is judged possible might be localised. Mechanical or electrical stimulation of the brain of the dog, the monkey or of man, appearances discovered *post mortem*, inferences negative or positive from the clinical data of disease, are all that are at present available. Results are therefore approximate only. While it is concluded that certain limited areas of the cortex serve for certain aspects of function the results of investigation have to be received with caution, and they are to be considered as approximate and subject to revision. This is markedly illustrated by the recent investigations of Sherrington, who has been led to locate the motor area anteriorly to the Rolandic fissure, although previously it was located both anteriorly and posteriorly. Also, if both hypotheses suggested by experiment and results are to be received with caution, it is equally necessary that aspects of function it is desired to localise should be simplified in thought and brought into line with physiological conceptions agreed upon as indispensable for other parts of the nervous system.

No mental physiologist in the present day would dream of attempting to localise such a function as alimentation, eventuality, causality. On the other hand, different aspects of perception are much simpler: for example, locality, colour, time, tune, but even these require and have received reduction into simpler elements of different sensory and psychical quality, and we now have localities for visual presentation and association, auditory presentation and association, the various *speech centres*, intellectual association, and others.

In an investigation of the structure of the cerebral cortex and its connections, various methods have been employed and the structural connections at present established are the outcome of corroboration by various methods. For example, Stilling and Meynert's method consist in making serial sections of the cortex, staining and reconstructing the anatomical connections from the various reactions obtained. Türck and Waller have been distinguished for their investigations of pathological cases, especially in the connection with secondary degenerations. Another method is that of comparative anatomy and embryology, among workers in which Meynert and Edinger have led the way. In the observation of myelination at different periods of life Kölliker, His, Flechsig, and many other observers have worked. This method is of service from a functional point of view, as is that of artificially-produced degenerations. In the physiological sphere experimental stimulation and excision of the brains of the dog and monkey have led the way to the establishment of the motor area, in which Ferrier, Horsley, Beever, Risien Russell, and many other workers have been engaged. The observation of clinical cases, especially of the different forms of aphasia and sensory disorders accompanying tumour, hæmorrhage and other lesions, verified by *post-mortem* investigation, have led to important results. In this latter connection the name of Hughlings Jackson will occur to your minds directly as a pioneer in clinical work on the brain.

In this very general reference to method and in keeping with my introductory remarks, I wish to point out that localisation can also be studied methodically from the

psychological point of view, and that my present survey of the subject is an attempted introduction to such a study. This method in no way supersedes any of the others, but should issue in an approximate coördination of knowledge obtained by other means. I can only touch very briefly on different aspects of the subject.

In the psychological study of consciousness it is customary to begin by analysis of the lowest level, or the threshold, as it is termed, and many psychologists speak of something below that level, the subliminal or sub-conscious mind, as they term it, although how they are able to judge of the subliminal or subconscious below the threshold, except by consciousness above that level, they do not tell us. Now, when studying cerebral localisation, it is obviously impossible to begin with the lowest level of consciousness, for the lowest level is the vaguest, the most general function of the brain it is possible to think of, and no special locality can be allotted to bare awareness, or the difference between the sleeping and the alert or waking state. Not so, however, the other level that I have mentioned—the maximum, the level of *responsive communication*. And I want to suggest that in thinking of the brain as the organ of mind, and in all attempts to unravel the intricacies of its structure and function, the method adopted should be based on this aspect of consciousness.

I must dilate upon this point a little as I proceed to indicate the localities which serve this function. The essence of *responsive communication* consists in an expression of a logical proposition of subject, predicate and object. In the present connection we have nothing to do with rules of either logic or grammar, but with the simplest psychological elements of the logical proposition, judgment or idea. Now what are these elements? They are three in number. (1) Every logical proposition, as it is used in communication, contains a volitional or active or motor element, which in silent deliberate thought, or in the utterance of thought in speech, has, according to up-to-date research, its location in the brain, especially as regards the latter in the third left frontal convolution, Broca's convolution as it has been

termed, from the physiologist who discovered this as the motor speech centre. (Fig. 1, motor speech.)

We have to bear in mind that although speech is a general function of conscious mental life, the centre for motor speech is localised on one side of the brain only, on the left side in right-handed persons, and on the right side in left-handed persons. It might have been expected that speech centres would have been bilateral, but the reason of the unilateral development of the speech centre is probably

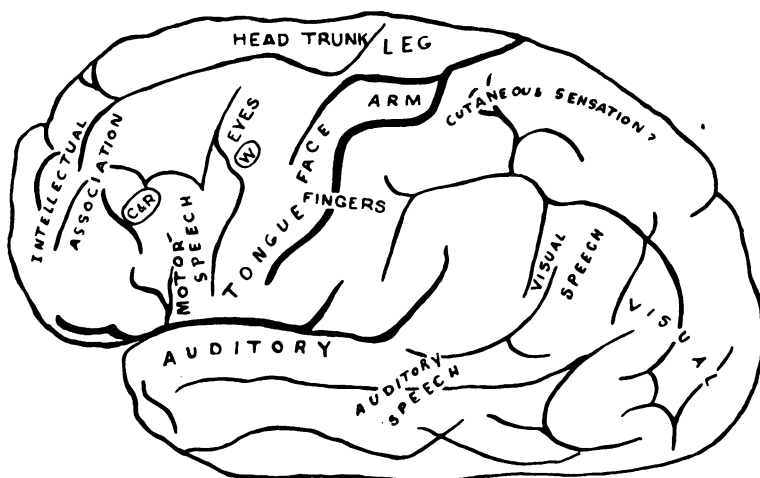


FIG. 1

C. & R. = Cardiac and Respiratory Centre.
W. = Writing Centre.

intimately concerned in the development of volition, and is thus an important fact to be borne in mind in attempting to understand function and structure of the brain as a whole. Volition is developed in man in association with the use of the hands more than any other motor region of the body, and were it the rule to use both hands together or interchangeably in the higher branches of volition, and also for writing, there is every reason to think that centres for speech and movements peculiar to both hands would have developed

bilaterally. This view is borne out by the fact that in a certain number of cases of motor aphasia, where Broca's convolution is destroyed, the function of motor speech is taken up by the third frontal convolution on the right side.

I have termed the motor element in speech the active element, and have associated it with the deliberate element in silent thought. I shall have more to say on both these points presently, but in the meanwhile would emphasise this active element in speech in association with volition for other purposes than speech as the fundamental fact of consciousness, and which, subject to adequate development, would be represented bilaterally in the brain. Movements performed by one limb only are represented unilaterally, movements performed by both limbs together and by the trunk and head are believed to be represented bilaterally. Let us accept this fact as a first result in our methodical study of localisation. The significance of it will be further perceived in an attempt to correlate a knowledge of development with the minute structure of the cortex.

(2) The next fact to be taken notice of is that in all deliberate exercise of speech there is a sensory as well as a motor element. This genuine sensory element in speech has to be distinguished very carefully from the motor element, for in the motor element itself there is a sensory element included which accompanies all motor speech, but which is not the sensory element proper of speech. In all the common acts of speech we do not pause to recollect or perceive whether we have used the right words, the motor speech centre performs its functions relatively automatically, and we hold converse by thought rather than by speech. But if anything becomes amiss with the mechanism by which the speech movements are effected, say the respiratory, vocal, buccal or labial muscular systems, if consciousness is otherwise retained we become instantly aware that our words are not being correctly uttered, not necessarily because we discover our difficulty after the event, although of course we do that, and the latter is discovered through the sensory element proper of the speech mechanism, but we feel the difficulty in the utterance of the words, the muscular sense

of the throat or mouth, or lips, the laryngeal articulation, or the coördinated representation of the combined movements convey impressions to the motor speech centre, and disorder is experienced in utterance instead of order. The muscular sense is the sensory element of the motor centre, but not the sensory element proper. The latter is to be described by comparison with the motor or active or volitional, as the sensory, passive or receptive element, and is experienced every time a thought or expression is perceived to have been uttered either by oneself or others.

Physiologists to-day localise this element, not in the motor centre, but in a locality having contiguous relationship to the centres for either sight or hearing, the visual speech centre, served by the angular and post-parietal convolutions, and an auditory speech centre by the middle part of the second temporal convolution. In individual experience, as voluntary speech, the motor and sensory elements are somewhat difficult to discriminate, but this difficulty is removed when the use of language is regarded as but one aspect or another of what I have termed the maximum level of consciousness, the consciousness of *responsive communication*. All language, then, contains the double aspect as proceeding from the individual as volition (motor) and a perception that language is being used (sensory), or as proceeding to the individual and perceived by him (sensory), such perception or sensory element calling up the response or volitional speech in reply (motor element). (Fig. 1, visual and auditory speech.)

(3) The third fact to be noticed in the use of language as the means of responsive communication is that the volitional or motor and the perceptive or sensory elements are always given together as one fact of experience, or, if as separate facts, in the relation of mutual dependence one upon the other. We never exercise volitional speech without an implicit perception of the sensory forms in which the volition will be clothed or appear. We never perceive speech directly spoken to ourselves without making some sort of volitional response, either a direct response as volitional speech and a perception that we have responded, or an

indirect, that no response is needed, or is, or can be given, and a perception that such is the case.

The point of importance in reference to this is the manner in which the fact of union or mutual dependence of these two elements is to be understood or recognised as localised in the brain? In reference to this it should be noticed that the fact of union cannot be perceived as such in experience, but only inferred from the uniform occurrence, reciprocal relationship and contrasted mutual dependence of the first element upon the second, and *vice versâ*. The occurrence of the two elements united appears to transcend the common condition of time under which they are perceived to appear. For example, normally we can speak faster than we can perceive that our logical propositions contain motor and sensory elements. Rapid speech contains from 120 to 140 words per minute. If it were possible to watch speech while exercising it at this rate, the rate would be about two, and verging on three, words per second. How much more rapidly than this we can merely think and not speak I have not time to go into. Nor can I say at the moment what fraction of a second of time it is possible to perceive. But the deliberate perception of speech, as containing a motor and sensory element united, takes much longer than the occurrence of the latter elements in experience. Again, if the motor and sensory elements are correctly localised in the areas pointed out as inferred from physiological methods, their occurrence transcends the space conditions under which they are believed, I cannot say perceived, to appear. We can speak in a much quicker time, and perceive our speech, than it takes to conceive of the transmission of an impulse from the sensory to the motor areas or *vice versâ*.

Bearing these facts in mind, how are we to judge of the reciprocal relationship of the two facts in experience, *in reference to their localisation in the brain?* The answer is not a direct, but an indirect one. No conclusions as to locality ascertained by experimental means can be accepted as absolute in their functional significance or relationship. The motor and sensory areas are separated by

spatial intervals, but as the elements of the function are not exercised separately, the connections of these areas must be as important as the areas themselves, and even although it may be accepted that the areas are correctly localised as serving the different elements, they never do so out of their connection and relation to each other. Moreover, it may be presumed they never do so out of connection and relation with the brain as a whole. Neither speech nor silent thought are functions which exist for themselves. They invariably have relation to the object of thought, to meaning or intent, and to the outward motive of speech. They must, therefore, be held to be in intimate connection with the brain mechanism which serves other functions than speech, the intellectual, motor and other sensory areas. On the other hand, as to our knowledge, no brain function including consciousness and speech is carried on without speech or silent thought, the intellectual, motor and other areas cannot be thought of as functional areas in the absence of the speech mechanism and its connections. The latter is to be regarded as the distinctively central function of the human brain. The areas and connections which serve this function form the foundation for the methodical study of cerebral localisation as a whole, and all areas and connections represented in the cortex. Whatever methods may be adopted in the investigation of either structure or function of the speech mechanism or of other parts, it is safe to assert that the results of investigation will all be verified finally in the connections and areas of the speech mechanism in relation to other parts of the brain and the body and environment, and in relation to which the functions of thought and speech are exercised.

These are, then, the three elements of the speech mechanism, the volitional, the sensory, and their functional union in conscious experience. The significance of these elements in the methodical study of localisation may be pointed out in this way:—They correspond to the three main divisions of mental functions as states of consciousness, volition, feeling and thought, the volitional as the active, and feeling as the passive, and thought as union in the conscious-

ness of both elements. Moreover, these three divisions correspond to three well-marked main divisions of the cerebral hemispheres, the central or Rolandic region serving the active function, the lobes posterior to this, namely, the parietal, occipital, temporal and limbic lobes, the sensory functions, and the pre-frontal the function of thought, with feeling as its accompaniment.

IV.—RELATIONS AND CONNECTIONS OF FUNCTIONAL AREAS.

From the experiential point of view given above I must now briefly survey the relations and connections of the different functional areas. We cannot truthfully say that either the active or passive elements in the experience of speech have their *origin* in the areas which bear the name. On the other hand, experiments have proved to demonstration that particular areas are by comparison with other areas concerned in effecting the experience of these two aspects of the function. No cortical area can be held to initiate function; on the other hand, it may be safely presumed, if only it could be ascertained by experiment, that up to the finest point localisation of particular aspects of function is developed. In the face of this apparent contradiction it may be said that the fundamental principle of localisation is thereby disclosed. It is that of relative representation. A particular part serves function, not in isolation ever, but always in relation to the function of the whole and all the other parts. The functional integrity of the whole as function is essential for the functional integrity of each part, although in a limited sense the integrity of all the parts is not essential to the functional integrity of the whole. It is in this sense we can speak of defects in various aspects of function and localise them in different parts, while aspects of function characteristic of the whole remain relatively intact.

As is well known, the brains of different people are very differently developed in their degree of functional representation, as also is a single brain at different periods of life, and different brains at different stages of organic evolution. The

height or degree of representation characteristic of different brains is termed the degree of specialisation to which it is developed. The degree of specialisation is always specialisation of function which in localisation may be held to have a general aspect. In their general aspect functions are carried on by the brain as a whole in relation to other parts of the brain and nervous and bodily mechanism.

It is, however, only roughly we can speak of movement, hearing, sight and equilibrium as general functions, for in experience movement is always some particular movement, hearing can only have for its content some particular quality of sound, and sight can be aware of light only in its particular qualities of reflection. Equilibrium is equilibrium at a particular instance often. On the other hand, for practical purposes, it is legitimate to speak of movement, sound, and light in general, because we find these qualities of experience served by single organs and central or representative nerve mechanisms. Take the case of movement again, movement in general may be accepted as movement of the whole body, as in walking or running, movement of the trunk, whole limbs, or head, by comparison with particular groups of movements of the feet, hands, face, eyes or mouth, or the speech mechanism as a special group, or of the internal viscera. As regards localisation, particular areas serve general movements, as of the trunk, limbs, &c., but where in these parts there are specialised movements, such movements are represented within the area of the general movement presumably by extension of this area in development.

Now, in the face of the essential truth that motor and sensory functions are always really united in consciousness, it is clearly evident that to one area alone must be allotted a more general function, as well as a more special, than as a rule it has been found by experiment to serve. In the case of the motor areas, for example, while a particular area serves a particular region in general and special movements within that region, it serves part of the coördinating function of the whole of the brain as the controlling system of the whole body. A recognition of this principle will serve to clear up many of the apparent contradictions which have come to

light in making experiments, also the remarkable result that different experimenters have come to different and apparently opposite conclusions. As far as movement in general is concerned, the whole motor area is concerned in effecting the total will of the animal or human being to which it belongs. The total will is the total possible coördinated impulse to movement which the degree of development of the human being or animal is for the time being capable of. And, inasmuch as the whole organism in its response to the environment can be regarded as a whole, a unit, so its movement can be regarded as a whole and receives its impulse from the brain as a whole, the motor area being especially concerned with this. Thus in regarding localisation of the motor areas it is necessary to keep in mind that although special areas serve special regions they do not serve them out of organised connection with each other or with the whole, and that in the exercise of one part some impulse or wave of excitement is maintained or communicated to the whole, and to all parts every time part or the whole are exercising their function.

If we pass from movement to sensation the same principle of localisation holds, although it is needful to discriminate very carefully from movement different qualities of sensation. We can dismiss from our minds for the time being sensations of pain, heat and cold ; these are probably aspects of cutaneous sensation, although they are believed by some authorities to have special representation. General sensation includes the general feeling of touch and massiveness, which is conveyed from solidity in the external world, to the brain through all resistant parts of the body, the skin, muscles, articular surfaces, bones. Physiologists are divided in opinion as to the manner in which the so-called somæsthetic sensation is represented in the brain, but the general consensus of investigation leads to the conclusion that the motor area serves this function as well as that of impulse to and coördination of movement. They are therefore sensorimotor areas for these regions. It is difficult, however, to dissociate this form of general sensation from the conscious localisation of cutaneous sensation or tactile sense, using this term in its more general, as well as the most

special, meaning. For example : I knew I was moving my right arm in writing this paper, through the feeling of resistance and effort conveyed to consciousness and inferred as to the motor area of my brain, through the muscle, joint and bone sense. Except in the tips of the fingers, cutaneous sensation has little to do with this knowledge. On the other hand, the shape and surface of the pen, with any other details conveyed through touch, as far as I can discriminate them from the actual resistance of the pen to effort as a solid body, is knowledge of another kind. It involves a discrimination of finer quality, intimately associated with the sense of sight, and with sight is the contributory sensation to the knowledge of space and the external world as objects in space. This variety of cutaneous sensation is probably represented in the brain behind the motor area, between that and the occipital lobes which serve for vision. It is located by physiologists in the parietal region, overlapping on the mesial surface and continued along the callosal gyrus or gyrus fornicatus, as it is also called. Areas for special regions of cutaneous sensation have not as yet been marked out, the means for investigation being so much more restricted owing to the evidence of existence of discrimination requiring consciousness and speech for presentation to an observer. A certain number of physiologists, headed, if I remember rightly, by Charlton Bastian, who, as you know, was foremost in investigating the speech mechanism, refuse location of cutaneous sensation to other areas than the motor, regarding the latter as completely sensori-motor, but this opinion might arise from the necessity previously remarked upon, and proved negatively by experiment, of remembering that all areas are in organised connection with each other, and overlapping in their function in conscious experience. The discrimination of cutaneous points and surfaces, together with pain and temperature, are distinct qualities of sensation like resistance, sight, hearing, taste and smell, and on the analogy of separate areas serving other functions, the view, corroborated by many cases of disease, that cutaneous sensation is served by the parietal and

callosal marginal regions is most consonant with other conclusions. (Fig. 2.) I have no time to deal with other qualities of sensation, except to point out that the highest quality of all, that of vision, is served by the occipital lobes, visual speech having a special centre. Hearing is served by the temporal lobe, with a special centre for auditory speech; smell and taste, the hippocampal region.

There is one aspect of mental function which is compounded in experience of sight, touch and feeling of resistance, which is believed to have special localisation in the cortex, namely, so-called mind-sight, or perception of objects. This function is located in immediate relation with the occipital, parietal and temporal lobes, but the locality cannot be marked out definitely by experiment.

On very good evidence the frontal region is believed to serve the intellectual functions of association, apperception and reasoning, of which attention is the volitional aspect, and feeling, as emotion, the sensory aspect. All thought has some amount of feeling or interest in it in which, as it were, it is contained or embodied. The actual forms of silent thought consist in faint revivals of visual or auditory speech representation through attention as volition. The frontal region is thus a true sensori-motor region of a massive, as well as very finely discriminative, emotional, attentional quality.

A somewhat remarkable discovery has just been foreshadowed by Drs. Langerdaden and Bezerman,¹ of Amsterdam. These observers have succeeded in localising a cardio-respiratory motor centre in the frontal region. They place it at the base of the mesial frontal sulcus where it joins with the anterior central and inferior frontal, close to Broca's motor speech centre. (Fig. 1, C & R.) This is a point of very great interest especially in reference to the influence of emotion in the cardio-respiratory mechanism. The measure of control thought and feeling can give over the heart and respiration, in the light of this knowledge, will come under psychological judgment. Some work has been done already in cases of hysteria with cardio-respiratory

¹ *Brain*, Spring Number, 1903.

spasm, in which, attention being given to the spasm direct, it has become entirely and deliberately controlled by the will.

There is a considerable extent of cortical surface unaccounted for in the survey I have presented, notably the surface on each aspect of the fissure of Sylvius and the island of Reil. There are of course many aspects of functions which I have no time to touch upon. I wish, however, to make two remarks on these. The first is that the movements and sensations of the stomach, intestines, urinary and reproductive organs have probably a representation in the

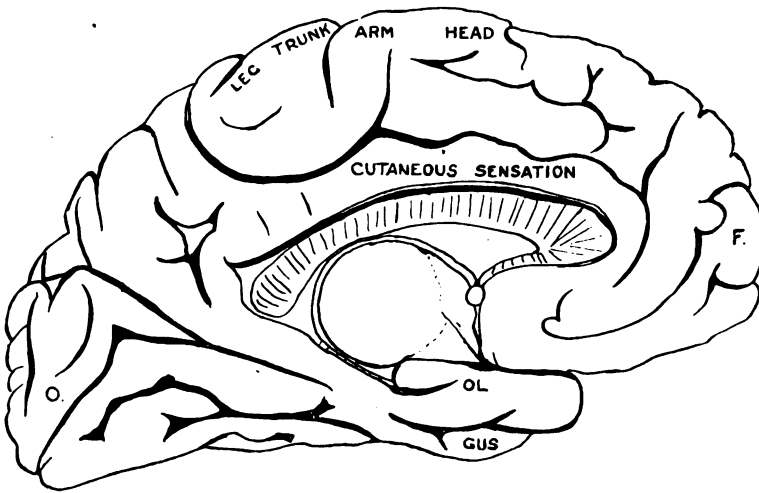


FIG. 2.

Ol. = Olfactory Centre?
Gus. = Gustatory Centre?

brain, and that their region would not be far from the olfactory and gustatory sense areas in the hippocampal region. (Fig. 2.) The second point has reference to the probable function of the corpus striatum. The real function of these large and most central ganglia has always puzzled physiologists. With the exception of fibres from the internal capsule from the motor tract, the connections of these ganglia with the cortex is by continuation of gray matter with the

hippocampal region, but they do not appear to have any commissural connection with each other. Injury to the corpus striatum has usually been attended with disturbance of the evolution of heat, lesions in that neighbourhood being accompanied with hyperpyrexia. These facts suggest that the corpora striata are the tissue metabolism controlling mechanism. If they are in direct connection with the motor area, in addition to the cardio-respiratory control above mentioned, some control over tissue metabolism will be exercised through volitional muscular exercise. We may have here the clue to hot or cold blood being associated with strong will and temper, not of the feminine or tearful sort.

Before pointing to the significance of the facts I have briefly surveyed I must draw attention to minute structure, also to the association and projection tracts of the central nervous system.

Let me recall the modern conceptions of nervous structure, the basis of which is the nerve cell with its protoplasmic connections termed the neuron. The neuron represents the simplest type of structural unity, but functionally its unity is absorbed as it were in the union of the organ of which it forms part. Each neuron, however, can be thought of relatively as having an afferent connection in the dendrites of the cell, a centre of energy in the cell-body, and an efferent connection in the axone with its collaterals and ramifications. Neurons are conceived to be in indirect contact with each other through the delicate structure termed the neuroglia, a tissue only once removed in structural development from the neurons proper. Nervous tissue, as you know, is also bound by connective tissue, and freely supplied with blood by vascular membranes. A nervous organ or main central nervous system is built up of neurons, the axones of large connections of which are myelinated fibres, the white matter of the organ, and also the axones of large connections of which are non-myelinated, the gray matter. The surface of the cerebral cortex is an example of the latter type of connection, the association and projection tracts being examples of the former. It is conceived that in the exercise of function the axones of one

set of cells or of one cell, if you please, come into direct contact with the dendrites of other cells, forming a synapsis as it is termed. As regards relation of function to structure in the cerebral hemispheres, we can think of the interlacing of the non-medullated axones and dendrites of the surface in intimate union with the different layers of cells, with their other dendrites and axones, which form the thickness of the gray matter of the cortex, as maintaining consciousness as a continuum of experience, whereas the association fibres connecting different areas of the cortex ensure the functional integrity of these areas as parts of one whole organ of conscious experience.

The largest collection of association fibres is the corpus callosum, which connects the whole of the upper vault of each hemisphere with its fellow of the opposite side. I have already said something about the rapidity with which mental operations are carried on. Conduction through the projection tracts may oftentimes be faintly perceptible to consciousness, but conduction through the association tracts has never been perceived by anyone. Still, it is a legitimate and intelligible inference based upon the evidence of analogy in other parts of the nervous system, that mental functions of different sensori-motor types or qualities should be associated with each other through tracts of myelinated fibres. This inference is also borne out by the relationship of myelination to the development of various mental functions, consciousness as bare awareness being of the most changing quality, speech forms being relatively changing and relatively stable. Common functional habits of the nervous system, automatically performed and experienced, such as movement and sensation, are the most stable, myelination being more pronounced in structure which serves the latter function than the former.

I must, however, draw attention to the difference between association psychologically understood and the use of the term "association" to describe the paths of myelinated fibres which connect the various functional areas within the cortex. Association psychologically understood refers to mental reproduction in which, out of a complex field of

presentation, appearances which are most like, or meanings most near each other, or most contiguous in point of time or space, are by a law of the mind grouped by the process of attention over against or by dissociation with those which are unlike or indifferent. Thus association, psychologically speaking, is a function of the cerebral cortex as a whole, like presentation, attention, apperception, &c., and takes place in all different areas apart from the so-called association of different areas by structural connections with each other. The latter are called association tracts because they simply connect the different areas, part of whose essential function is that of association of like, or contiguous or coincident presentations. In attempting to judge of coincidence in mental functions we are shut up finally as an objective thought to the conception of association as the most universal and most characteristic of all experiential mental operations, the inferential character of which is that of production and reproduction, as laws of mind.

The association tracts are intimately connected with the projection tracts in different areas of the cortex. I must remark also on how the latter are to be regarded. The projection tracts are the tracts of white fibres which connect centres at a higher level with centres at a lower level, and *vice versâ*, and their relation to our subject may be presented as follows:—All experience is experience of something other than that of the subjective experience. In other words, all experience depends on an external world from which nothing can be excluded which can in any sense be termed an object of thought or presentation to consciousness. But in the face of this obvious truth (and to those who would set up consciousness as the essential fact of all experience, a somewhat humiliating fact) no experience seems possible to us immediately. We have to depend on the external world, as represented in the structural arrangements of our own organism, of the inner working of which we are only conscious inferentially. For sight we depend on the eye, for hearing on the ear, for equilibrium on the vestibular and cerebellar mechanism, for touch upon the skin, for movements upon bones, joints and muscles.

But we do not even depend on *these* organs directly for either presentation or movement. All mental life seems as it were shut off from the external world by a double system of dependence; a dependence upon the external or peripheral organs of the nervous system, with their associated organic mechanism, and a dependence also upon the lower levels of the nervous system, as central to the primarily external organs. Let me point out that impressions as they are incited by the external organs in their reception of stimulation from various forms or modes of energy do not reach consciousness directly, but by a system of relays. No direct or immediate communication appears to take place between the cerebral cortex and the outside world. All mental life, and therefore mental function, is inner life by comparison with what we can appreciate of organic life objectively viewed.

I have no time to discuss what special contribution each nerve station, or, as Hughlings Jackson would say, central level, might be supposed to make to conscious life. All I can say is that the connection between inner and outer appears to be effected by what are termed the projection tracts, as the connection between different areas of the cortex are connected by the association tracts. The different systems of relays may be enumerated as follows. Thus we have the projection tracts of the pyramidal motor system having relays with the nuclei of the cranial nerves and in the anterior horns of the spinal cord. We have the motor connections between the cortex and cerebellum through the pons, and the cerebellum and the cord through the restiform bodies. The olfactory bulb has relays within its own structure. The optic tract is connected by relays in the anterior corpora quadrigemina, optic thalami and geniculate bodies. The auditory system has relays with the posterior corpora quadrigemina and parts of the pons and medulla. The visceral systems have their relays in the ganglionic nervous systems and important centres in the medulla. The somæsthetic systems have relays in the posterior horns of the spinal cord, in the nuclei of the medulla, the cerebellum, the tracts of the fillet, and tegmentum of the pons, as well as probably the gray matter of the optic thalamus. Very

roughly, these are the systems, and the projection tracts are the axones of the neuron systems, either afferent or efferent, which have their centres at the different stations enumerated. The true conception of the centre for all in the human being consists in the reciprocally united functions of the whole system acting for the promotion and regulation of the total individual life.

I must say one word on the trophic condition, or the relation of nutrition to function in the cerebral cortex. In the two main functional branches of the peripheral nervous system, sensory and motor, it is found that integrity of function is intimately related to integrity of structure. If one is deranged, the other, as a consequence, becomes deranged likewise. The maintenance of structure is essential to the exercise of function, as with other organs, but also, apparently more so than other organs, the exercise of function is essential to the integrity of structure. If any part of the structural nervous system becomes disused it quickly dies. It does not appear to be able to continue long in a relatively resting or inactive state without dissolution. But then there is another point to be carefully noted. In the human being and other animals with highly-developed brains, although the exercise of motor function appears to be controlled from the cerebral cortex, and sensory impressions have their destination there, the exercise of either motor or sensory functions does not appear to depend *primarily, but secondarily*, on integrity of structure in the cortex. Motor function and trophic condition are most intimately dependent on the lower neurons of the pyramidal systems. Sensory function and trophic condition are most intimately dependent on the most peripheral neurons of the afferent systems. On the other hand, it cannot be said that integrity of structure of the cortex is non-essential. What inference may be drawn from these facts? Do they not point to the conclusion that cerebral function is more important for integrity of structure than integrity of structure is for function. In other words, mental function holds a higher or controlling supremacy over the structure of the brain, than does the structure of the brain, including, of course, its blood and

lymph supply, over mental function. The significance of this inference is far reaching in the extreme in considering the relation of brain to consciousness, and matter to mind.

V.—SUMMARY OF CONCLUSIONS.

Let me now draw attention to the bearing of this brief survey of cerebral localisation in relation to the subjects referred to in my introductory remarks.

(1) The first point has reference to the so-called influence of suggestion, or mind-cure, as it has been termed. Modern results of research in localisation show that the mental functions of presentation, association, unification on the one hand, accompanied by emotion and voluntary attention and will on the other, the latter also accompanied by emotion, have their general areas of representation in more or less immediate connection with representations in the brain of other features of vital action, for example, the cardio-respiration, vaso-motor, visceral sensori-motor, tissue metabolism, and equilibrating functions. It cannot be believed that these important representations have as their functions merely the consciousness of the individual of his various somatic sensations and movements. The *tout ensemble* of localisation impels an inference that functions which are accompanied by consciousness have through their localised structural connections an influence over the various organic functions, of the exercise of which in the usual way no one is conscious. Now, if treatment by suggestion is based on sound principles, the structural connections of the relations of brain and mind are the concrete basis of these principles. On this basis treatment by suggestion will receive a scientific development only when these structural connections are completely understood in their related anatomical and functional character. Whether eventually more will be done in mental alienation or diseases of the nervous system by this means than in other varieties of the disease it is impossible to say. But whatever may be the results of a development of this branch of knowledge and practice, a recognition of its basis, and possible development,

point to the second conclusion I wish to bring before your notice.

(2) For the purpose of recognising the basis of knowledge in this direction we are compelled to take a broader view than that of the relation of psychology to brain physiology, but a complete survey of the problems involved forbids the exclusion of the relation of mind to brain as part of those problems. On the other hand, a broad view impels the conclusion that all branches of experience and knowledge have to be brought to bear upon the problem of the relation of mind to brain and body, and that all principles of treatment, if they have either a rational or an empirical basis, will claim a relative value according to the laws of mind and body of which they are the expression.

Let me point out a few of the facts and principles which must be remembered in a solution of the latter problem, a restatement of which will lead up to what I want to say in reference to the principle of treatment in which we are most interested.

The conceptions of mind and body are apparently antithetical conceptions. They cannot be reconciled with each other in any attempt to compare the common characters in each, for in experience they do not appear to possess common characters. Laws of the one are in a very limited sense known as laws of the other. Yet experience of mind and perception of body are part of one whole related experience.

All experience is given to us in sensations or feelings, simple or compound, and in our response to them. Subject is related as opposite to object. This is the essence of the antithesis in question. Our immediate response to the experience of the observed antithesis is a willingness to judge in relation thereto. We can judge of the antithesis not directly but indirectly, abstracting from either aspect of it. We abstract either from a sensation simple or compound, given in the object or from the subjective response thereto, which we term our own activity. The most fundamental abstraction of our experience of the external world we are able to make is guided by the measure of response we are able to oppose to that aspect of it which

resists our activity. We know that that particular aspect would overcome our activity did we continually resist it. The measure of our activity we therefore call our energy, by comparison with the energy of the universe which we say is infinite, that is, continually overpowering, while ours is finite. All knowledge termed scientific is based upon this fundamental conception, and other aspects of experience are referred to as attributes of this fundamental aspect. But, as I have said, this conception is an abstraction, and if we want to get at the truth concerning the antithesis which obliges us to make the abstraction, it would seem that we must throw this abstraction overboard.

From the standpoint of throwing this abstraction overboard we can begin to compare opposite or contrasted aspects of experience.

In experience the tendency of opposite or contrasted aspects is to form an *equilibrium* with each other. Equilibrium, a convenient term to describe the completely resting stage of the organism, implies, however, absence to experience of the particular qualities which tend to come to equilibrium. In the response of our experience to experience of the external world, equilibrium is the inevitable result. It is equilibrium we inevitably seek by means of our activity. It is that we shall always somewhere find when we do seek it, and even when we do not. On the other hand, equilibrium is that we can never present to consciousness. Equilibrium can only be known as having been by that which has apparently disturbed it, either presented feeling by contrast to our own activity, or our own activity by contrast to presented feeling. When equilibrium is reached it is no longer known as disturbed. Only that which apparently disturbs equilibrium proves its previous existence, and the proof of its existence is a departure from equilibrium.

It is from the point of equilibrium that the experience of the external world takes its start, and the antithesis, for thought as disturbed or referred equilibrium of subject and object takes its start. And in the departure from equilibrium, which is the nature of experience, say by surrender to experience of the universe, by effecting

equilibrium with it or by the contrasted experience, the subjective reference of the subject to the universe of objects, we have but contrasted aspects of one disturbed equilibrium.

In the endeavour to avoid abstractions let us consider how from the point of view of experience in their contrasted aspects to our thought, the relationship of brain and mind can be thought of first hand. Our survey will show how little advance has yet been made in the subject of localisation. We speak of the matter of the cerebral cortex, this we can never think of as experience, nor can we observe it in active function. Yet we are bound to consider it essential to mental function. In relation with matter is movement, and with matter and movement the innermost changing experiences are given with all other qualities or gifts to experience. All other qualities or gifts to experience we do experience in relation with matter and movement as fundamental, and therefore what we term necessary. These other qualities or gifts are light, sound, heat, cold, pleasure, pain and touch, which latter is presented as a compound of activity and resistance. Between these characterised as the higher qualities, equilibrium takes place by comparison with matter and movement as the lower. The higher qualities presented to experience are contrasted with the lower, but in reality we have to think they come into equilibrium in the organisation of corporeal life of which we are at one instant both subject and object.

But it is evident in describing aspects of experience I am using abstractions. I am certainly not avoiding abstractions, therefore the statement that these forms come into equilibrium in corporeal life does not express the whole knowledge of life. It only assists the thought of it. The knowledge of life *is* experience. It is the equilibrium as distinct from and including the thought of it. It is individual experience as distinct from and including the knowledge of forms and aspects of experience. As an object thought of we cannot truly think of our individual experience. The object thought of remains a thought and not the whole of our individual experience. But with this reservation we can go on thinking, and we use our abstractions

as such for what they are worth, the expressions of our thought in some of the separate forms of experience, our own activity and the occurrence of distinct sound, as in spoken speech or reflected light in written speech. This being so let us proceed to correlate in abstraction qualities of our experience as if they were in their real connection.

Equilibrium of the higher qualities and consciousness, light and sound as ether or molecular matter and movement, finds its adjustment through the delicate organisation of the vestibule and semicircular canals with the corpora quadrigemina. Equilibrium of the lower forms, mechanical matter and movement, that is between the resistance of the body and the external world, with the activity of the body, finds its adjustment between the cerebellum and the organs with which it is connected. But more. Equilibrium of both higher and lower must of necessity be effected by means of the connection between the cerebellum and the semicircular canals, along with other centres, probably the corpora striati, as I have suggested above, which control tissue metabolism. The importance of recognising the central control of tissue metabolism cannot be over-rated. As a matter of fact it is tissue metabolism over against what we might term the forces of the external world, which maintains equilibrium with those forces within our corporeal life. Only in speaking of force we enter the realm of abstraction again and forget that the essence of life is equilibrium and not force. We have already said we can form no adequate conception of equilibrium, but prove its existence from its contrasted disturbances.

But now there is another point which must not be lost sight of. We do actually experience another kind of equilibrium superimposed upon the equilibrium which we infer as the essence of our own objective life. This other kind of equilibrium is that of mental experience objectified in the reciprocal relationship of responsive communication as the highest level of consciousness. From its innermost subjective side this equilibrium is experienced in continuation with the external world, but from its outermost it is experienced in antithetical relationship with it.

In the use of language, unless the outward forms are the same, that is, equal to the inner, no communication can take place. It is a philosophical truism that no communication does take place unless the signs of experience are the same, except in point of distinctness and mere change. Distinctness and mere change mean nothing. The essence of the communication wrought by language is equilibrium of the meaning involved. Moreover, the forms of language are the forms of experience otherwise known in the external world, sight, sound, voluntary activity, therefore the equilibrium of communion is a true equilibrium in combination with outward experience of the external world. If this is so, then inner and outer are all united in language, and language reflects that which is otherwise given to our knowledge apart from abstractions. The inner and outer are continuously necessary to each other. The inner and outer are continuously changing. The inner and outer are continuously equilibrating. There is an innermost which does not change, in relation to which all the outer is antithesis. But the outer is necessary to the innermost, and consists of a necessarily changing equilibrium possessing the innermost.

But what gives a knowledge of continuation in spite of change? Must it not consist of some of the innermost which does not change, and thus we come to say that our mental conscious life is higher, and has more of reality than our outward antithetical life? But the outward antithetical life is necessary to the innermost even though higher life. For whence without it would be communion or knowledge? It is your bodily presence, activity, language that enables me to judge of your knowledge, your equilibrium, your life. It is by my language you reason, and understand that I wish so to judge of it. And thus we commune, come to understand, form an equilibrium with each other in thought.

I said at the beginning that responsive communication is the maximum of consciousness we are able to judge of. If this is so, conscious communication is the only actual experience of reality as equilibrium we possess. All other forms of experience are partial appearances of total reality,

yet all necessary and changing and equilibrating with each other in our life. As matter is one of those appearances and conscious communion is higher reality, it becomes obvious that mind and matter are not and never can be coincident or identical terms. Moreover, they are divergent in their meaning, and never can meet as logical co-relatives of each other. Brain states and states of consciousness are therefore not parallel as psychologists have thought, but divergent. Yet, if divergent, they must have had a meeting point, and if now related as necessary to each other, each necessary part in exercise of function carries with it something of what is common to both.

All facts and inferences relating to brain are accordingly subordinate to those of consciousness as an equilibrium of responsive communication.

One individual experience may represent all experience. Other persons objective to myself are the objects in relation to whom I know, for whom I know, whom I know and who know me. The highest knowledge of the relationship of conscious states to brain, will admit, will consist in a knowledge how the structural relations and functional relations in their finest experience in responsive communication are inter-related. If this is so, knowledge of this relationship in general is only just beginning. But it has begun in the equilibrium of the various forms of experience through which we attain to any experience at all, and with which we are obliged to believe the brain itself is in equilibrium with the innermost within.

Thus the relationship of brain states to states of consciousness is still a study, an enquiry. Localisation will eventually be carried up to the finest point of the individual experience, or experience in common. The most practical question in relation thereto becomes one, therefore, not of knowledge, but of method.

I hope I have said enough to emphasise once again that method for the elucidation of this relationship embodies all branches of immediate knowledge which can take its start from responsive communication viewed objectively. Physiology, psychology, logic and philosophy, with all their methods

and dependent sciences, may be requisitioned and lend their aid. In relation to these sciences we are all contributors, in our thought, and knowledge, and intercourse with each other.

But our practice outside is of a different order. In this we must come into immediate contact with the antithetical relationship of objective to subjective activity. There is no place for abstractions here, whether we desire them or not. Our dealings are directly with concrete nature as we find her.

The practice of medicine is based on a knowledge of life as a whole viewed objectively. But, on the other hand, unless the knowledge of life as a whole is viewed methodically, and held methodically by the mind, our practice in relation to life as a whole will be loose, unmethodical, slipshod, and a failure. But our knowledge of life as a whole is given in the different forms of experience, one main form being that of consciousness in responsive communication. The latter is the realm of mind practice, mind-cure, and if the practice of mind-cure is to be methodical and successful, it will be based on the intimate relation of various phases of mental function as they are related in structural connection and localisation with various organs and functions affected with disease. The key to success in treatment will consist in the known relationship of phases of mental function with those organs and functions and their influence upon them in health, for example, in a control of the known effect of anxious or too rapid thought upon the heart and respiration, or upon the digestive system, the effect of temper and emotion on tissue metabolism, or indirectly the vaso-motor system, and also the inter-relations which this intimate connection implies. Maintaining an equilibrium of responsive communication with kindred or scientifically varied temperaments will, theoretically, eventually be the highest form of mental control over the organic functions, and according to the strength of the communion so will the influence be the greater and more salutary over one and over all. If a man is known by the company he keeps, so will his health be guarded and secure or otherwise.

But, as pointed out before, mind-cure is not the only

cure. In the practice of homœopathy we have the most comprehensive method of viewing life as an objective whole. In the injunction, "Let likes be treated by likes," the likes we have to treat are presented to us in the qualities of our experience which we have seen as contrasted and inter-related, and which we know in the course of health or disease to be related in contrast and inter-relation of definite sequence. Judging from separate appearances as in the old-fashioned practice, it might be thought good practice to attempt a forcible removal of appearances which are known to be untoward and baneful. But if it be remembered that life as a whole consists in the finest equilibrium of all forms or appearances in experience, and that the equilibrium of these forms is what is viewed objectively as a whole by the practitioner of medicine, it is not surprising that his crude generalisation from appearances is to be set aside, and that in practice he must aim to influence the equilibrium of the organism as a whole, rather than one of its separate appearances. Again, the manifestations of disease in their entirety are a departure from equilibrium, of which health is a more perfect expression. But equilibrium is not wholly lost until dissolution takes place. The aim of practice, therefore, is to influence this equilibrium in its continuity and wholeness. Our response in practice to objective life is conscious, though reflected, knowledge of a resolution of the antithetical forms of experience to their equilibrium in life. Accordingly, if we wish to *influence* life, objectively, our appreciation of the objective as appearances to be influenced must disappear, or be contradicted in our minds. We therefore give a medicine, which *to all appearances taken separately* would be contra-indicated, but which *to all appearances taken together* touch most nearly the innermost spring of that which maintains and controls the equilibrium of life. For this reason we apparently contradict our knowledge of appearances when we practise homœopathically, but in reality our practice is in accordance with truth and with knowledge more complete and comprehensive than all appearances taken separately or together. We sacrifice a superficial reason which appearances present so that the more complete reason and practice

may have rightful sway. Hence the injunction, "Let likes be treated by likes," although imperfectly expressed, becomes transformed through our aid into a law of nature, "Likes are cured by likes."

Art in homœopathy does not consist in adopting the rule or finding out the adequate dose—a novice may do that by a succession of cases—but in estimating the relative importance of appearances or symptoms, those that are most like, most related, most individual, most contingent to the case in point as the finest equilibrium in nature we have ever met, and then applying the medicine which comes most near in its pathogenetic effects, also judged by the most like and most contingent of relationships.

Among the most contingent of relationships are those which reveal the profoundest disturbance of equilibrium, of which mental symptoms are perhaps the most important. Of this we were first informed by Hahnemann. In modern knowledge the various stages of tissue metabolism, the condition of the blood, vaso-motor and central circulatory equilibria, degree of innervation of various organs, have to be added to those of the mind which reflect more of the innermost of the equilibrium of the individual experience.

But mind-cure and homœopathy are not the only modes of practice suggested by a comprehensive survey of the relation of knowledge to objective forms of life. I have not time even to mention these, but would draw your attention to a paper by Dr. Whitaker, of Liverpool, entitled "Physiological Therapeutics," in which he passes them in review.

The principle which underlies all rational modes of treatment other than homœopathy, is their adaptation as qualities or gifts from experience which we are able to present to the equilibrium of the objective life as a whole, or in their detailed application to various organs and functions. They do not supersede homœopathic treatment, but supplement it, and in their relative adaptation are equally rational with it.*

* The strictly philosophical parts of this paper were omitted in reading. The discussion relates only to cerebral localisation.

Dr. NANKIVELL (from the Chair) said that this paper was on a subject of remarkable difficulty and intricacy. But Dr. Goldsbrough's arrangement of the subject had been very lucid, and it was full of the deepest interest because the brain was the organ which ruled over all the functions of the body. It was interesting to recognise that different portions of the brain came under special laws of judicious use, and that, as the biceps might be developed by judicious use, so the nerve-centres that ruled the biceps and its trophic apparatus would be invigorated simultaneously. Dr. Goldsbrough had helped them with the idea that they must not localise the brain functions over much, and that the brain must be looked upon as a whole, having plenty of interdependencies, and with no absolute independent "Home Rule" in any part. One recognised the fact, to which pathologists and physiologists had now led us up, of the specialisation of the brain as regarded movements, speech, and action, as a very comprehensive one. We were led from that to the consideration that the portions of the brain which were used in the production of thought, such as poetry or mathematics or æsthetics, were in some very marked manner specialised or localised. In the brain we had an organ in which special parts were markedly devoted to special purposes, special thoughts, special desires, and special interests; but he did not know that any physiologist had shown that the grey matter or cortex of one portion of the brain was at all practically different from that of another portion. This led very much up to the idea that thought could not be a mere brain secretion, but that the brain was really but the instrument of something higher and nobler than itself; that is to say, the mind.

Dr. MADDEN thanked Dr. Goldsbrough for having made him use his brain in an exceptionally hard way. He had been able to gather one or two definite points; one was that the functions of the brain apparently were localised in the same part in which the controlling centre for the exercise of the functions was localised, as, for instance, that speech was localised closely adjacent to the function of writing, so that the organ of speech was developed by the use of the writing hand. It was very curious to hear of its being possible to educate ourselves and even more our children to use the left hand for writing, drawing, painting, and so forth, and thus to get two speech centres, so that in the possible event of paralysis in later life speech need not be affected. He did not know whether many of the members were aware that there existed an ambidextrous society. Teachers engaged in the work

testified to a very great increase in general mental acuteness among the pupils. He noticed that Dr. Goldsbrough had pointed out that the olfactory and taste centres were probably associated in the same part of the brain with the gastric and sexual appetites and functions. This was very suggestive with regard to the localisation of lesions, and also as regarded treatment. He would suggest that one point which the paper led to, was that correctly chosen remedies would be certain to affect the brain in the part affected, whether they could localise it or not. The localisation of brain lesions seemed to be more especially of practical use in surgery.

Dr. SPEIRS ALEXANDER said that it was many years since he had listened to such a highly intellectual address as they had been privileged to hear that evening. While admitting the importance of regarding the brain as a whole, he pointed out that, unless one localised, it would be impossible to perform some of the surgical operations which were now undertaken. The substitutional function was an important point, and illustrations of it might sometimes be observed clinically. Recently he visited a patient who a good many years ago had a paralytic seizure on the right side. He supposed that they might conclude that the third left frontal convolution was involved, but in spite of that the man was able to speak almost as well as ever. He certainly hesitated a little now and then, but was able to carry on a conversation, and there was no difficulty in understanding what he said. He had been a right-handed man, but was now left-handed, and wrote with his left hand. Therefore it might be concluded that the third right frontal convolution had taken up the function of the left. The ambidextrous function proved, too, that various parts of the brain might be capable of performing abnormal functions. Probably most of the members, when students, had practised the use of the left hand in dissecting, and had found that, after a time, they were able to use it almost as well as the right. Again, with operations on the eye. Members who had taken courses in the German universities knew how teachers insisted on the use of the left hand as well as the right in operations for cataract. In this country the surgeon generally stood behind his patient, when operating on the right eye, so that he might use the right hand, but in Germany he stood in front of the patient for operation on both eyes, the left hand being used for the right eye. After a little practice it was just as easy to use the left hand as the right.

Dr. JONES thought that the most interesting point in the paper was that mind dominated brain, and that brain did not

dominate mind. He could quite understand suggestion from that point of view.

Dr. HEY wished to ask Dr. Goldsbrough whether what he said about the location of the motor areas was now accepted as correct? In a case which both he and Mr. Shaw had to deal with last summer there was a great deal of irritation of the brain apparently about the face and arm areas, and Mr. Shaw operated and found a lesion immediately behind the fissure of Rolando. Was that an anomalous case? In connection with the latter part of the paper he should like to ask the author what part (if any) he considered the brain took in the development of the body in a foetus, as in the case of an anencephalic foetus the body is usually found well developed, although there is practically no brain.

Dr. GOLDSBROUGH, in reply, said that in the case that Dr. Hey had referred to he did not remember that there was any lesion. He had only given the foundations of the subject in his paper. The subject of suggestion was in its infancy. The primary condition for the use of suggestion was surrender of the active or volitional element as localised presumably in the motor area. The consciousness of self was an active volitional element. If that were surrendered to its sensory aspect a new experience in consciousness ensued, and the subject thereof became much more sensitive to suggestion. When a person maintained his personal consciousness and controlled himself, suggestion had not much influence; but if this was surrendered to visual, auditory, or any other form of feeling, suggestion came in as a factor, the actual principle of suggestion being that with every mental function there was accompanied the possibility of its immediate reproduction. If one suggested that a person would have a certain feeling, the fact of having the suggestion in the mind implied that the exact reproduction of what was suggested was possible; but this was only possible when the active voluntary inhibitive or attentive function was, for the time being, in abeyance. They must view the brain as a whole in relation to its parts, and its parts in relation to the whole. If they wished to have a comprehensive view they must not confine themselves to one aspect or to the other. Both sides were important. There was a tendency of physiologists and surgeons to regard parts as most important.

SPRUE OR PSILOSIS.¹

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MR. PRESIDENT AND GENTLEMEN,—When I was approached the other day by the Secretary for this section of the Society with a demand for a paper, it struck me that a short account of two cases of this interesting, and rather uncommon, disease which happen to have come into my hands for treatment, might interest you and possibly help someone to recognise a future case should it come before him. If in some small measure I can accomplish this I shall have achieved my object, for my paper to-night is not a record of successful drug action, and will not point the way to further triumphs in Homœopathic Therapeutics as is usually the case at these meetings. When I said that *sprue* was a rather uncommon disease, I meant of course that, though it is frequently met with in the tropics, it is uncommon here. Comparatively few doctors who have stayed in temperate climes have seen the disease, and as it is not even mentioned in our ordinary text-books, many of us have never even heard the name. I am inclined to think, however, that it is not quite so rare in England, or at any rate in London, as this would lead one to suppose, and that on account of its absence from our text-books on medicine, and, further, because of the similarity of its symptoms with those of some other diseases, it may be sometimes overlooked. And the fact that in the last four years I should myself have had two cases seems to support this view. I must admit that at the time of my first case I was myself to be numbered amongst those physicians to whom *sprue* was nothing more than a name, and had it not been for Sir Patrick Manson I should still be in outer darkness as regards this disease. I must repeat that it is an unfortunate omission that our general text-books should be silent on this

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subject, for during our student days we believe that our books on medicine give some sort of an account of all diseases to be met with in this country. Though of late years books on tropical diseases have been published, one is not likely to study them without some particular reason, and meanwhile a patient whose case is possibly considered malignant, and not to come under the heading of tropical at all, may be allowed to die through lack of our ever having read an account of this malady.

Before proceeding to the history of my cases I should like to give you a short account of what I gather to be the chief signs and symptoms of the disease.

Sprue may be defined as a peculiar and very dangerous form of catarrhal inflammation of the whole or part of the mucous membrane of the alimentary canal, generally associated with suppression of the chologenic function of the liver. This is simple though very comprehensive, and all the symptoms are a natural sequence of this condition. It is frequent in tropical countries, European residents being most liable to its ravages, and women perhaps rather more so than men.

Manson states that the higher the general temperature of a locality the more serious is the type of the disease. Curiously enough, it may develop for the first time in temperate climes, but only in those who have previously resided in the Tropics, not necessarily for extended periods, and it frequently shows itself long after they have returned to Europe.

Its causation is uncertain, but intestinal troubles, unsuitable food, and perhaps excess of alcohol, predispose. It is very intractable and frequently terminates fatally after alternating periods of exacerbation and improvement.

Pathologically, no specific bacillus has been recognised as causative, though various members of the colon group have been found in the stools.

According to Manson the mucous membrane throughout the alimentary canal is in an inflamed, bare and eroded condition, and these changes are always present in the tongue and mouth.

This gives rise to a condition of flatulent dyspepsia—frequent pale, copious, loose, frothy, fermenting stools—with consequent wasting and anæmia.

There are two varieties of the disease, *primary* and secondary to diarrhœa, dysentery, or other intestinal complaint, but I do not think this distinction is of the least importance. Its rate of progress is very variable; it may terminate in a year or hang on for a decade.

Fleet-Surgeon Basset-Smith, who is a lecturer on tropical diseases at Haslar, makes a very strong point of the anæmia which this disease produces, and has written a very interesting paper on the blood changes connected with it. He made frequent examinations of the blood in two cases, and found that the red cells were present in only about one-fifth of the normal number.

In the case that recovered, the composition of the blood eventually returned to near the normal, whilst in the fatal case the red corpuscles sank to only one million per cmm. before death.

I have not myself seen this very marked anæmia, as it was not present in either of my cases during my attendance, but it is perhaps significant that one of my patients died of pernicious anæmia some years after the attack of sprue.

The symptoms of the disease are usually quite characteristic. On being called to a case, the first thing one notices is the intense emaciation, for one rarely sees an early case, the commencement being insidious and the condition being ascribed to simple diarrhœa. Along with the emaciation there is frequently tympanitic distention of the abdomen, and a dull, muddy appearance of the complexion. The patient complains of intense soreness of the mouth, tongue, and anus, also of the vulva should the patient be a female. You are told that there is marked diarrhœa, chiefly occurring in the early morning, between 4 a.m. and 10 a.m., and when you inspect the stool you will find it a copious, putty-coloured, frothy, evil-smelling mass, about the consistency of molasses. You will find that the patient is ravenously hungry, and you will shortly discover that his or her temper is so vile that you will wonder at almost every visit whether you had

not better pass the case on to your bitterest opponent, or at any rate give your partner a chance of displaying his best bedside manner.

The diagnosis, then, is based chiefly on the irregular morning diarrhoea, the peculiar character of the stools, the state of the buccal mucous membrane, and the progressive emaciation.

The conditions the disease is most likely to be confounded with, are syphilis and some form of abdominal malignant disease, but if we once get the possibility of *sprue* into our minds there will be but little difficulty in coming to a correct conclusion.

The *prognosis* is said to be good in recent cases who are under proper treatment and strict diet, but bad for those neglected cases of long standing, and for patients over fifty years of age.

Relapses are extremely common; in fact they constitute a feature of the clinical history.

Coming now to the *treatment*, I must say at once that the drug treatment of this disease has been extremely disappointing, and there are no universally given remedies such as obtains in most other diseases. The santonin cure, advocated by Dr. Begg, of Hankow, has received some support in the past, but is not much in favour now. He orders gr. v. of yellow santonin—it must be yellow—in 3 i. doses of olive oil, once or twice a day for a week, and repeats the prescription after two days' interval, the patient, of course, being warned of the possibility of santonin poisoning. Mild aperients, alternating with a few drops of tr. opii., is another common prescription. Major J. Penny, I.M.S., has recently stated that he has seen good results from the use of papaya and isophagol seeds—our colleague, Col. Deane, may know something of these weird plants, but I fear they are not exactly household words with us. Fleet-Surgeon Basset-Smith, from whose excellent paper I have already quoted, gives iron and arsenic with a view to combating the anæmia. This is practically all the drug treatment that has been recently recorded, and though doubtless plenty of other drugs have been given, the results obtained have not been

worth publishing. Turning to our branch of the profession, I have been sorry to find our literature strangely silent, not only on the treatment, but on the disease itself, and though there have possibly been some brochures published, I have been unable to find them. For my own part I may say that I have noticed some temporary benefit from arsenicum, and still more from the cacodylate of soda. Lycopodium, too, and carbo. veg. have helped me, but, like almost everyone else whom I have read on the subject, I have been convinced that strict dieting is the one and only chance of saving the patient's life.

As to the diet, there are two opinions as to what is best. One school sticks almost exclusively to milk and the other to meat. To take the latter first, five ounces of lightly-cooked minced beef, to which the white of egg is added, is given thrice daily, and this is afterwards followed by dry cooked rice with boiled celery given during the second week. Or the meat may be given in the form of meat juice, or as in the Salisbury diet. Most authorities, however, believe that milk diet is the sovereign cure, and with these I am in full accord. This diet I will describe fully when I come to the treatment of my own cases. I may add that Sir Patrick Manson, who is perhaps the greatest authority on the disease, believes that no other treatment can compare with the milk diet, and considers that the prognosis is rendered extremely grave in the case of a patient who cannot or who will not take milk. He always advocates the giving of a little fruit with the milk, and has a special belief in the value of strawberries. I come now to my cases:—

In the autumn of 1899 I was asked to attend Mr. S., but as I had not yet returned from my holiday the case was kindly taken for me for a short time by my friend, Dr. MacNish, who will doubtless still have a vivid remembrance of this very trying patient. I had known something of the gentleman in a social way for some years, but had not seen him recently, and his appearance now gave me a decided shock. The emaciation was so terribly evident and unexpected. He complained of weakness and diarrhoea, and his condition had been ascribed to collitis. The history I obtained was as follows:—

He was 35 years old and had travelled a great deal in the East, and had lived a very active life, being a great rider and sportsman. He had had syphilis in 1899, and also dysentery for six weeks when in China. Three years later he had another attack of dysentery, lasting for six or seven weeks, whilst in India. Six years later, in June, 1898, he suffered from chronic diarrhoea whilst in India, which lasted six months, going on till November, when he returned to England. The colder climate only increased the trouble, however, and it continued on into the next year. In spite of this condition he was married in July, 1899; since then he had got worse and more emaciated, but did not obtain medical aid till he sent for me two months later, in September.

Not anticipating the possibility of subsequent publication, my notes taken at the time were somewhat meagre, but I remarked on September 25 that he was very thin and pale, and the sphygmograph showed a weak pulse. His temperature was normal. The bowels were acting five or six times in the day, the stools being about the consistency of porridge, pale in colour, but with no shreds, blood or mucus, though very offensive. There was some flatulent distention of the abdomen. On examination *per rectum* nothing was discovered but a little tenderness. He complained of a sore burning mouth, and was very hungry and very irritable.

As our most likely medicines had already been tried without much effect, I ordered him tannigen, which had given me good results previously, in gr. viii. doses three times a day, also a mild injection of agnoz. I insisted on his remaining in bed, gave him an abdominal compress, and a diet of Benger's food and raw beef sandwiches.

On September 28 there was some slight improvement in the strength. He was always hungry and objected very much to the simple diet. I added peptonised milk, and a day or two later gave also somatose 3 i., t. d. and prescribed arsenicum 3 x. By October 14 I was induced to add a little fish and meat made into a paste.

On October 24 he was decidedly stronger and was determined to get up; indeed, I found he had been walking about his flat. Port wine and egg and milk were now added to his diet.

The bowels were now acting only twice a day, but the urine was found to contain albumen. By November 1 I began to think he was on the road to recovery; he was looking much better, the sphygmograph showed a stronger pulse, he was getting out for frequent drives, and was eating minced chicken, &c.

He was still extremely difficult to manage, and I found that he hardly ever followed the diet exactly as prescribed. He was always hungry, and would go to the cupboard and help himself to all sorts of things, and even whilst lying in bed; I found out afterwards that he would force his wife or the manservant to bring him extra food unknown to me.

He now had a relapse after doing some work, going for a walk, and smoking cigars, all against my orders.

On November 17 he was very weak again, the urine albuminous, and the sphygmogram showing tension. I now tried half an hour's gentle massage, got him back to bed, and put him on milk diet with oysters and raw beef, and prescribed acid nitric 1 x. Still he did not improve; the bowels were acting five or six times a day; I had no idea whether he was sticking to the diet or not, as he terrorised the household into silence. He would not hear of a nurse, and always refused my request for the advice of a consultant. But after clearly explaining his dangerous condition to his wife, I got her permission to act contrary to his wishes, and arranged to call in Dr. Patrick Manson, as he then was, and we had a consultation next day. Dr. Manson at once diagnosed the condition as a bad case of sprue. He ordered absolute rest in bed with flannel clothing, and the use of an abdominal compress for two hours night and morning; the temperature of the room to be kept up to 70°. Three pints of milk slightly warmed to be given during the twenty-four hours; a portion to be sipped with a spoon every two hours. As soon as the stools became solid the milk was to be increased by half a pint every two days, till six or seven pints should be taken in the twenty-four hours. No other food or drink whatever for six weeks after the motions became solid. We also insisted on the presence of a nurse.

During the next day the patient took his three pints of milk and got on fairly well, not being unbearably hungry, but he was still very irritable and difficult to manage, and his remarks to the nurse and myself were far from complimentary. The bowels only acted twice that day.

The following day, November 25, I note:—Has been very troublesome for the last twenty-four hours, trying to get more food, and has managed to obtain some rusks surreptitiously. He has had one semi-solid stool.

November 26. Patient's temper worse than ever; says he does not care what I say, he *will* have more food, and adds that his present condition is entirely due to my treatment.

Though his daily conduct had been very trying to the temper, I had, of course, made allowances for his condition, and did not take much notice of what he said, but when later on I interviewed the wife, at whose beck and call I had been for the last month, and had to listen to something in the same strain from her, I thought I was justified in relinquishing the case, and retired, if not gracefully, at any rate with very great relief to myself.

Some time afterwards the patient wrote me a long letter of apology and told me that though the after progress of his case had been extremely slow, he eventually made a complete recovery.

Last year, however, some four years after the attack, he died of pernicious anæmia.

In June, 1903, I was called to Mrs. B., who complained of pain in the stomach, flatulence, sore and ulcerated mouth, gums and tongue, frequent offensive loose stools in the night and early morning, intense irritation of anus and vagina, with loss of flesh and strength. I found that she was 72 years old. She was born in India and had spent most of her life there, and had a vivid recollection of the Mutiny. She came to England in 1882. She had had one breast removed ten years ago. She has suffered from looseness of the bowels on and off for years, and has had piles for a long time. Since her return to England she has suffered from diarrhœa, alternating with slight constipation, and was always taking mild aperients. Since November, 1902, she has been losing flesh rapidly, and the sore mouth appeared at this time with constant diarrhœa. She had always been in allopathic hands, and her last doctor took her to a consultant in Harley Street, who, on examination, said he felt something hard in the bowels, but she could not inform me what he had thought of it.

In December, 1902, diarrhœa came on badly, large, loose, pale, frothy stools, about the consistency of porridge, six or seven times on certain days and occasionally eight times in the night, always very offensive. Some six years ago she weighed eleven stone, then nine stone for some time, and now is only seven stone.

On examination she looks very emaciated, but seems active for her age. The skin somewhat muddy, though she has some colour. Right breast amputated, nothing else abnormal about the chest, abdomen soft, but contains a lot of flatus and is slightly tender. Vaginal examination caused some pain, and found the

passage contracted, but the uterus appeared normal. At the anus were large protruding piles. After a somewhat prolonged examination *per rectum* I fancied I could feel a small mass, about the size of a pigeon's egg, in the neighbourhood of the cæcum, but it was very indefinite, and on a second attempt I failed to find it.

The patient's friends had been convinced that she was suffering from malignant disease of the bowels, and were surprised and incredulous when I told them I was not at all sure that this was the correct diagnosis; that the long course of the disease, and other signs and symptoms, did not inevitably point to cancer, and that on the whole I was inclined to take a more hopeful view of the case.

I prescribed sod. cacodyl. gr. $\frac{1}{4}$ t.d., in alternation with lycopodium, also a mouth wash of nitric acid and some calendula ointment for the vagina and anus.

I put her on a diet of milk and farinaceous food, with an occasional banana when the diarrhœa was not excessive. The patient was difficult to manage. She required careful handling, and I found it was not always possible to insist on my exact diet being carried out, especially as she was living at a boarding house.

I also wrote to the Harley Street consultant who had seen her twice and asked for his opinion of the case.

He replied that he had last seen her with another doctor, and as he believed I was a homœopath he must decline to meet me or have anything to do with the matter.

Probably owing to the fact that I state my appointment to the Homœopathic Hospital in the medical directory, I have been the unfortunate recipient of one or two letters of this kind before, and I always make a point of having a knock at the writer in return, so I replied that it was quite true that in addition to the knowledge of medicine I had obtained in the medical schools, I had also acquired a further knowledge of homœopathy, and as I had found that drugs given on this principle acted better than those given on any other system, or lack of system—I felt it my duty to practise in this way till something better was discovered. After rubbing in Ringer Phillips and Lauder Brunton, I added that all this had nothing to do with the question I had first put to him and asked him again if I was to understand that he declined to give me his opinion on this case.

He answered that he had lately consulted the College of Physicians on the question of meeting homœopaths, and that they replied—"Since you could not agree as to treatment, how would the patient benefit by a meeting?"—He added that he was not influenced by any prejudice and had no objection to telling me that his diagnosis in this case was cancer of the bowels.

In reply, after thanking him for the information, I could not help adding a line to the effect that the question put to him with such overwhelming force by the College of Physicians was extremely easy to answer, seeing that consultant's opinion was often sought as to diagnosis, prognosis, necessity for operation, and on many other grounds than drug treatment, and that this claim of infallibility made for themselves by our councils and colleges, and their determination to exact slavish obedience to their tenets, had more than anything else retarded the advance of the science and art of medicine. I suppose this was as much as he could stand, as I heard no more from him.

But to return to our muttons.

Three weeks later the patient expressed herself as much better, the flatus and irritation were less, the stools reduced to two or three in the early morning, and they were sometimes formed, but the mouth was still sore and she had not put on weight. The patient wanted to go to Eastbourne for the summer, so I put her into the able hands of Dr. Croucher. On asking his opinion of the case, he said he could find no growth or evidence of malignant disease, and he considered it a case of colitis.

On September 14 the patient came back somewhat better in general health, but the diarrhœa and soreness of the mouth still continued. The symptoms had now lasted four months in spite of all treatment. The patient from being a stout woman of 11 stone was now not much over 7 stone. I examined her again and thought I detected the small nodule I had felt once before, but it was too high up and too vague to be certain about. However, the case was evidently no ordinary one of catarrh, and I began to think that I must come round to the view of malignancy. I wrote Dr. Croucher again and asked him if he had seen any reason to change his opinion before the patient left him, but he replied in the negative.

The patient was now in a Nursing Home and well looked after, though she was so irritable and exacting that the Matron often told me she would not be able to keep her.

She was chiefly having farinaceous diet with occasional stewed rice and chicken, and a little burgundy. I thought a good deal about the case and had the stools kept daily for inspection, which had not been feasible before.

At the beginning of October I suddenly remembered the case I had had four years previously, and from that moment the diagnosis was clear.

I told the patient and her friends my conviction that it was sprue, and asked to have Sir Patrick Manson. We met on October 18. He agreed with my diagnosis and put the patient on a very strict milk diet.

Three pints of milk was to be given in the twenty-four hours, a portion sipped slowly every two hours, the mouth to be washed with boric lotion after each feed. After three days a crushed banana to be added, then another, and in a week or ten days if the stools were solid, farinaceous foods might be given, and later on boiled fish.

The patient's weight was now only 7 stone, and the bowels were acting from three to eight times a day.

During the next week the actions were generally only once a day, and mostly solid, not fermented, and not so offensive. By October 22 the bowels were acting once a day, so the food was increased and a little well-boiled arrowroot added. The improvement continued slowly, the irritation of the anus and vulva had gone, but the mouth was still sore, and the patient always ravenously hungry and difficult to control, though rice, Benger, egg, and biscuit had been added to the diet, and on November 9 fish was also given.

Now, however, a relapse came on, the stools were from four to six in number and were again loose, frothy, and very offensive. The weight had gone down to 6 stone 9 lbs. The patient declining to return to milk diet, I got Sir Patrick Manson to come and support me again. He ordered a milk diet for six weeks, and though the patient told him she would rather die than carry it out, she eventually gave in. After a few days the milk was to be increased in quantity by adding to the O. iii. a further quantity of milk evaporated down to half its volume. We followed this treatment for a few days, but as it took a nurse the greater part of the day to evaporate the milk, I ordered malted milk to be added instead.

The patient had been taking at different times acid nitric, lycopod., carbo. veg., arsenicum, cacodylate of soda, and now, at her earnest desire, I tried the yellow santonin treatment.

I found great difficulty in obtaining the old yellow santonin required, none of the large London houses having any, but at last I got some from Ferris, of Bristol. I gave it in the manner prescribed by Dr. Begg, but I failed to notice any improvement that I could ascribe to its use.

A month later, at the end of November, the bowels were acting from one to three times a day, the stools were partly formed, very offensive, but not fermented. The patient now began to show signs of scurvy, green patches appearing on the legs and arms, and slight hæmorrhages elsewhere, so bananas were added to the milk. The sphygmogram showed a good pulse, though there was some tension, no albumen was present in the water. By December 11 the patient was taking four and a half pints of milk, $\frac{3}{4}$ iv. of Horlick, two raw eggs, and two bananas per diem, the bowels were acting only once or twice a day, and were quite formed.

On January 4, 1904, she was able to get downstairs to be weighed, and we found she had gained 3 lbs. She was now much more amenable, and made no trouble about the food. Sponge fingers, toast and Valentine were now given in addition to the O. v. of milk and Horlick, and by January 28 she had gained another pound. The bowels were the same, and the mouth was much less sore.

On February 3 she had gained $4\frac{1}{2}$ lbs. more, she was so much better and stronger that she had been getting out for daily drives, and I now allowed her to go for a short walk. She was quite reconciled to her diet, and her temper had wonderfully improved.

A fortnight later she had put on a further $2\frac{1}{2}$ lbs., being now 8 stone. She had not more than one or two stools a day, solid and not so offensive. The soreness of the mouth had at last quite disappeared, and she was looking well and had quite a colour.

On March 1 fish was given, but, as the bowels acted rather loosely after it, it was immediately given up. Baked apples, milk puddings, junket and eggs were being taken, however, as well as the large quantity of milk. By March 24 she had still further improved, the weight was now 8 stone 6 lbs., she was walking out daily, and complained of nothing; she liked her diet, and had no desire to change it.

At the end of last month, April 23, I noted that patient is looking very fat and well, has a good colour, and is bright and cheerful. She seems quite young for her age, and able to go about and see her friends like other people.

The bowels generally act once or twice a day, the first stool hard and formed, the second soft but formed or partly formed. She has no pain or discomfort, and complains of nothing but a little occasional flatus. She now weighs 8 stone 8 lbs.

I looked in to see her a day or two ago and found her very well and jolly. Her weight still shows an increase every time she gets on the scales, and is now just under 9 stone. She has several times had pigeon, chicken, fish, and vegetables without ill effect, in addition to her milk and farinaceous diet. The stools are quite natural and she seems perfectly cured. I think these happy terminations to two such long and tedious cases, one being a person of 73, prove that, if we can get the patient to submit to a strict milk diet, there is hope for anyone, however bad.

Dr. NANKIVELL (in the Chair) thanked Dr. Cox for his interesting and practical paper, and said that amongst the homœopathic remedies Dr. Cox had not mentioned iodine, a substance which covered very much the condition of stool described. Of course it was beside the mark to say that it covered the emaciation and wasting. He had found the use of iodine very serviceable in two cases of sprue which had been under his care. But, of course, as Dr. Cox had said, everything depended on the diet.

Dr. MADDEN said that he had come across two cases of sprue since he had been practising in Bromley. The first was a lady who had lived for some time in Ceylon and had had the disease there. The treatment was entirely by milk diet, with arsenic and strychnine. The case had been diagnosed by Sir Andrew Clark, and the lady asked him (Dr. Madden) to watch her while she went through the treatment. She made a very good recovery. Two years later she had a relapse which yielded to nothing. The same treatment and the same diet were tried, but they had absolutely no effect, and the santolin treatment was without effect. Eventually she left the neighbourhood and was cured, according to her own account, by Christian Science (!). The other case was one which he saw only last year. It was that of a missionary returned from China. The patient submitted to an entirely milk diet, and

the medicine used was arsenic and nothing else. In three months there was a satisfactory cure. He thought that they need not look upon these cases as hopeless. He entirely endorsed the superior efficacy of a milk diet.

Dr. SEARSON asked Dr. Cox on what the diagnosis in the last case depended in which he had the opinion of Sir Patrick Manson? What fish was it that produced the bad effect on the patient, and was it certain that the effect was produced by the fish? Could Dr. Cox suggest any reason for thinking that there was a strong objection to animal food in this sort of disease?

Dr. Cox, in reply, said the grounds for the diagnosis were the typical ones, the emaciation, the sore mouth, the irritation of the anus, the diarrhoea, and above all the character of the stools. The tongue showed a peculiar patchy redness here and there, and not only the tongue but also the gums and all the inside of the mouth. He believed that the fish mentioned was boiled whiting. He believed that he was correct in what he had said about the effect of giving the fish. He should certainly try iodine if he ever had another case. The milk had to be taken slowly and given in small quantities to the extent of about five or six pints a day.

SILICA CLINICALLY CONSIDERED : ITS GENERAL ACTION AND CHARACTERISTICS, &c.¹

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As the title of my paper indicates it is not my intention to take up the drug in an exhaustive manner, but by means of a few clinical cases to emphasise its characteristic symptoms and most important uses. It is a drug of great interest to all homœopaths, having been introduced into medicine by Hahnemann, and, being an excellent example of the value of potentisation, is practically unknown outside of homœopathy.

I will take first the head cases and read the notes of two cases of silica headaches.

¹ Presented to the Section of Materia Medica and Therapeutics, June 2, 1904.

Case 1.—E. H., aged 45, admitted July 10, 1901, complains of neuralgia in the head every time she gets cold. The pain affects the head and face and is always one-sided with no preference for either side. It begins in the temple, or mastoid region, and extends into the whole side of the head and face. The pain is very acute, of a throbbing character. The least cold brings it on, or going out with the head uncovered; even at night she must keep her head covered. During the headache she comes over hot and cold. The pain is diminished by warmth. She used to have cold feet nearly always, but has been better in this respect of late years. She perspires a good deal, and suffers from general weakness. Catamenia regular. Head is worse at that time.

She has suffered in this way for twenty-three years. She was ordered sil. 200, a dose at bedtime, not to take more than four doses if pain diminishes.

July 24.—Head much better. Took only four doses of the medicine. Feels much stronger, and is able to go about without anything on her head. Repeat one dose. She has not reported herself again.

It would have been more satisfactory to have had a further history of the progress of this case, but, having come to this hospital as a sort of last resource and forlorn hope, for she did not expect a cure, and having got such prompt relief, it is reasonable to suppose that any marked recurrence of her trouble would have brought her back.

Case 2.—M. P., aged 29, came under treatment October 8, 1902.

Has never been strong; complains of pain in head, and weakness. (Duration of headache 2 months.)

The headache begins in right temple and forehead, and goes all round the head. Is worse after meals; worse from cold; relieved by wrapping up.

She has a poor appetite, and gets palpitation and faintness after meals, but no pain. Bowels constipated. Catamenia regular. She has a slight cough and is losing flesh. Her head perspires at night.

She suffers from cold feet and feels the cold very much.

Family history.—Consumption on mother's side, in four brothers and two sisters.

Patient has three delicate children; no miscarriages.

Physical examination revealed nothing except a papular

eruption on the arms and trunk, leaving brownish discoloration. Sil. 30, t.d.

October 22.—Feels ever so much better; not half so much headache. S. L., b.i.d.

November 5.—No further improvement except in head. Has been taking the first medicine again for a few days and is better for it. Sil. 30, o.n.

November 14.—Improving. No headache now. Eruption better. S. L. b.i.d.

May 6, 1903.—Has been well till the last two weeks, since when headache, weakness, and palpitation have returned. Sil. 30, b.i.d.

May 27.—(Note by Dr. Lewin.) Much better. "Eczema" on leg six weeks, ? gummatous infiltration. S. L.

June 10.—Not so well. Very tired in morning. Small discharging ulcer on the leg, now covered with a dark slough. Headache gone. Bowels constipated; act once in two days. Sil. 30, b.i.d.

July 1.—Better, but leg bad again; a round depressed ulcer on inner side of left leg, ? gumma. Sil. 200, one dose.

July 8.—General improvement. Bowels daily. S. L.

Note in this case, in addition to complete relief of the headache, the disappearance of the papular eruption, and the action of the medicine on the (?) gummatous infiltration of the leg.

I now pass on to the antrum case which you have seen.

Case 3.—S. P., aged 36, admitted April 3, 1903, complaining of her face, which has been bad for twenty-three years or more. Supposed to be due to a blow from a boot twenty-three years ago, but she suffered from faceache very badly before the blow. Soon after the injury she had an operation at the Tottenham Hospital, when the bone was scraped. A few years later was operated on at the London Hospital; the bone was opened and a drainage tube put in. The swelling has never gone down since.

Twelve months ago, *i.e.*, April, 1902 (about), it began to discharge again a yellow matter. She has no pain in it now, but has had some aching. She often suffers from frontal headache, which sometimes comes on in the night. The pain has been so acute that she has more than once fainted with it. During the pain

feels as if she cannot hold up. Appetite poor; likes sour things; no cravings. She gets a sour rising from stomach after tea daily, and often brings up a quantity of clear water, which is accompanied by a turning over sensation in the stomach. This vomiting of water, as she called it, is caused by any indiscretion in diet, also by any unpleasant smell, or the smell of cooking will bring it on. Bowels regular; liable to morning diarrhoea, which begins as soon as she gets up and lasts all the morning. Cold makes her face ache.

Physical examination.—There is a great and manifest thickening of right superior maxilla; so manifest that it is at once noticed across the room, and so large as to intrude into the field of vision. It extends down to the teeth, and there is a small aperture in the irregular thickened margin of the jaw opposite the first and second bicusps. Sil. 30 n. et m.

April 25.—(Note by Dr. Lewin.) Is better; less discharge in mouth now; less bilious. S.L.

May 9.—Better; discharge has quite ceased. Gets attacks of vomiting of clear water; thinks she felt better with the medicine than the pills. Face feels all right. Sil. 30 o.n.

May 23.—Face better; no discharge; waterbrash same. Carb. V. 6 t.d.s.

July 4.—Discharge returned slightly last week; waterbrash was better till last day or two. Repeat Carbo. 6.

July 25.—Face decidedly better and smaller. No discharge at all now; feels much better in herself. Waterbrash same, with frequent pain as if something turned over inside. Carb. V. 3, t.d.s.

August 15.—Sickness slightly better. Last week some more swelling, now going off again. Sil. 30, o.n.

September 5.—Much better. Waterbrash still and pyrosis. Headache still after any excitement, as coming here. Carb. V. 3x, t.d.

November 7.—Complains of sore throat every night; goes away in the day time. Soreness and difficulty in swallowing saliva. Still waterbrash. Sil. 200, o. 7 d.

December 12.—Face much better. Stomach no better; it feels as if turned over or got twisted, so that she has to hold it, and then the water comes up. Going out into the cold aggravates. Sil. 30.

February 13, 1904.—Waterbrash no better; face getting smaller. Sil. 12, o.n.

March 12.—Bad, hard, deep cough; liable to it for years off

and on. Has had a heavy pain in the chest; could not get her breath on three occasions since here; it occurred between 3 and 6 a.m. Verbasc. 2x., t.d.s.

March 26.—Cough relieved by day, except in the morning. Pain in the chest again. Eructations of offensive flatulence. Sil. 6, b.i.d.

May 14.—Has been better. Waterbrash much better, and pyrosis also better till last week. Has had no medicine for two weeks. Repeat.

This case is of great interest, not only because of the marked improvement in a condition which most medical men would not have considered amenable to internal treatment at all, but also on account of the light it throws on the origin of chronic disease, confirming Hahnemann's teachings in a remarkable way. Modern scientific medicine would have said that the antral disease was due to infection by some evilly-disposed microbe and had nothing to do with the peculiar gastric symptoms, but the fact of the silica touching both conditions, to my mind, shows some etiological connection of a constitutional character. The curious thing is, that though the silica 30 and higher touched the one unquestionably and improved the general health in a marked degree, it had no effect on the other till given in the 12 cent. potency. The carbo. veg. was only partially homœopathic and consequently gave only partial relief. The occurrence of the hard cough, an old symptom I now think was also probably the result of the curative action of sil. 12, and would very likely have subsided under a placebo as well as with the verbascum. Moreover, the symptom "heavy pain in the chest and hardly get her breath," between 3 and 6 a.m., is probably also a clinical symptom of silica, though not produced by the higher potencies. The gastric symptoms also show the importance of bearing in mind such an unlikely medicine as silica in a gastric case, in other words of individualising every case. It reminds one strongly of the interesting case of persistent vomiting mentioned by Dr. W. T. P. Wolston, cured by silica, after being pronounced hopeless by two physicians and despaired of also by himself.

Case 4.—A. E., aged 40, Smithfield porter, admitted April 18, 1903 (first three notes by Dr. Lewin), complaining of sore feet, with very offensive discharge for two days. General dermatitis six to seven weeks; worse from cold. Bowels daily. General health good. Sil. 6, t.d.

Has suffered with his hands for twenty-three years. His father and grandfather both suffered with bad feet, a similar complaint to his, and his father's brothers and sisters also.

April 25.—Much better. Great improvement. S. L.

May 9.—Feet much better. Hands better, but painful, cracks not so deep.

May 23.—Much better. Generally gets an attack in May and November. S. L.

June 13.—Much better. Feet and hands itch and perspire. Bowels constipated at times. Sil. 30, o.n.

June 27.—Much better. A little itching at times. Bowels regular.

July 18.—Improving. Sil. 200, o. 7 d. S. L.

August 15.—Hands better. Feet well. Chronic swelling of lower lids aggravated by tea. S. L. Improvement was maintained steadily till September 19, under placebos, when he reported getting on very well.

On January 2, 1904, he came again with a slight recurrence, there having been none in November, as usual. On this date I noted scaly eruption (psoriasis guttata) on the arms, slight discharge on foot of a watery offensive character. Itching, burning precedes the discharge. Also the foot swells at night when it is coming. The swelling goes off on walking. Sil. 30, o.n. (He had had no sil. now since July 18 last.)

January 16.—Hand improving. Skin peeling off and less inflamed where cracked. Skin is softer. Swelling nearly gone. Repeat o. 2 d.

February 16.—Improving. Skin peeling off. Feet better. Sil. 1 M. Stat. S. L.

February 27.—Is much better. No itching for a week. S. L.

April 9.—Rash inclined to come out again. Hands numb for quarter of an hour first thing in the morning. Sil. 30, o.n.

April 23.—Dr. Lewin noted "better" (doubly underlined). Repeat.

The next case illustrates a very common use of silica, but, nevertheless, one which might be more generally known with advantage, since some people consider such constitutional conditions as sweaty feet incurable.

Case 5.—T. S., aged 27. Admitted June 6, 1903. Complained of great pain in the epigastrium, from which he had suffered a week. The pain was worse after food. He also complained of a feeling of tightness in the stomach, and sensation as if the ribs were pressed in. Bowels twice a day. Very languid. N.V. 6, t.d.

June 20.—Is much better. Pain only twice or three times. I now elicited the symptom, "hands and feet always perspire very freely." There is no soreness of the feet now, but used to be; sweat is offensive. Sil. 30, o.n.

July 25.—Indigestion much better. Last two weeks perspiration worse than ever. Losing flesh—7 lbs. in twelve months. Over the heel there is a large, pinkish-white, sharply defined area like a blister, but no separation of the cuticle. Also has some boils on the face. S. L.

August 15.—Feet very much relieved, and generally much better. Pimples on face for many years. S.L. ✓

August 29.—Feels much better. Feet better, not offensive and not sore. Still papules on face. Sil. 200, o. 7 d.

The last two cases are both infants; one a case of marasmus and the other of strumous glands, and illustrate the use of silica in cases of perverted nutrition. Jousset claims for silica the chief place among remedies for scrofula, and Hughes recommends it in the earliest manifestations of rickets.

Case 6.—D. H., aged 8½ months. November 5, 1902.—Has been ill two months. Wasting fast. Is always screaming. Chest "very thick" and coughs very much. She is very cross. Has been bottle-fed since birth on cow's milk and barley water, and got on very well till 6½ months old. Child is of fair clear complexion; right cheek flushed; left, pale. Vomits occasionally; bowels act twice a day. Perspiration all over. There are no signs of teeth. Chest and neck emaciated (neck most). Cannot sit up. No physical signs in lungs. Has a dry, hard cough. Sil. 200, o. 4 d., Cham. 12, 2 hrs.

November 19.—Is much better; result described as "a great magic." Less screams. Hardly any perspiration now. Ordered more Cham. o. 4 hrs.

Case 7.—M. C., aged 1¾ years. Admitted January 14, 1903. Two months ago had abscess in axilla and small glands around.

Abscess opened at St. Bartholomew's. Has now "a lump" (a mass of glands) under the left ear, which have been painted with iodine. General health good till these glands appeared. Liable to slight bronchitis while teething, sleep bad, restless nights, kicks the bedclothes off. She complains of pain in neck, probably from suppuration. Sil. marina 3, t.d.

February 4.—A great deal better. Both ears discharging; slight pain before it began. S. L.

March 18.—Lump quite gone. No discharge from ears. She has had this since birth more or less. Is very constipated at present. Head perspires in sleep; rests much better. Sil. 30, o.n.

April 15.—Much better. No sweat of head; sleep much better. Slight cough. S. L.

From these cases we may glean that the silica is a deeply-acting medicine, affecting chiefly the nervous system, osseous system, and general nutrition.

The silica patient is very sensitive and highly strung, sensitiveness of the surface of the body is a symptom which Hughes lays great stress upon. The silica patient is a chilly subject, very sensitive to cold and relieved by warmth, and warm wraps. He perspires easily, specially about the head and feet, the foot sweat being of an offensive character. These symptoms will indicate the remedy in any kind of case, acute or chronic, whatever the pathological condition may be. It is also a medicine of great value in the profuse night sweats of phthisis. The headaches of silica are mostly right-sided, and, in addition to the symptoms named, are increased by mental exertion, or due to nervous exhaustion, and it thus becomes one of the medicines for the headache of school girls. The headache of silica often begins in the nape and extends over the head, like gelsemium. Another use of silica that needs mention is in suppurative conditions. Here it may abort the process and absorb the pus, or hasten its expulsion. In a case that I did not read, there were numerous abscesses of various size, all about the head, most under the scalp, and one over each parotid and over the mastoid process. The patient had about a dozen at one time. Under *hepar*, and later silica, most of

these were absorbed, but some of them opened and then healed rapidly.

Among other conditions where I have found silica useful I may mention the sequelæ of vaccination. One such case I remember well. On my return from Australia we took on board at Cape Town a child covered with a pustular eruption which had followed vaccination, and had lasted some time. It all disappeared rapidly under silica 6.

The cure of housemaid's knee with silica is well known. The following case impressed this use of it very much upon me.

On January 14, 1896, I saw J. M., aged 30, for some other complaint, but noted at the same time that she had a housemaid's knee due to a fall on the knee five weeks previously, which is described in my notes as a flabby bursa.

On February 1 she complained of the knee being bad, and I then noted "large bursa with melon-seed bodies" and gave silica 30, o.n. When I saw it on the 17th it was nearly gone, and soon after quite went, and has not returned.

I have seen many a Meibomian cyst disappear under the action of silica, and more than one of those little globular cysts that occur in the cheek or lip.

Lastly, I will add a few words on the relationships of silica. It has many points of resemblance to belladonna, which it follows in acute suppurative conditions. Its headaches, too, resemble those of belladonna, and also the excitability of the nervous system. I regard it as the chronic of this drug, though calcarea is generally given this place. It bears a similar relation also to ignatia in neurotic states, and I have seen it do good to an old neurotic lady after ignatia had apparently done all that it could. It needs at times careful comparison with both sulphur and calcarea and hepar sulphur. Sulphur is generally the reverse of chilly, and has < from warmth and > from cold in general, but, where these modalities are not strongly marked or absent, the difficulty in differentiating the two is not always easy.

It differs from calcarea in that the patient is not fat and torpid, but thin and over sensitive. The only part of the silica

child that is fat is the abdomen. The calcarea child is over-nourished in some parts and insufficiently in others, the silica child is more generally imperfectly nourished from malassimilation.

Of all the medicines named, perhaps, hepar resembles it most closely. It has the hypersensitiveness to touch, to pain and cold, and > from warmth in general. Points of differentiation must be sought in symptoms peculiar to one or the other. On broad lines we may say that silica acts more than hepar on bone, and has more influence on nutrition.

Lastly, by way of contrast, I will mention fluoric acid, which has the opposite modalities to silica in regard to heat and cold.

I have not attempted to speak of all the conditions in which this drug has proved of service, nor even all in which I have in my small experience found it useful, but I trust I have said enough to give an outline, and form the basis of a good discussion.

Dr. WARREN said that Dr. Lambert had not mentioned the effect of silica on whitlow. He believed that the effect of silica in such acute suffering as that caused by whitlow was more than they appreciated.

Dr. NEATBY said that it was a pity that they did not have more papers like the present to direct their attention to the use of drugs which had come down to them from Hahnemann and his successors with such a great reputation. If they would individualise their drugs more, they would do more credit to homœopathy and its principles, and get more satisfaction out of their work. The discussion which followed such papers generally afforded a great many hints and aroused enthusiasm in their materia medica. Silica was a drug for which he had always had a great respect. It was a very deeply-acting remedy, and the indications for it were unusually clear. He would mention a case which was one of a class in which he had found it very useful. Towards the end of last year a patient came to him because she had a painful lump in the left breast. About six months previously her right breast had been removed for a tumour which, after examination, was declared to be cancer. When the lump appeared in her left breast, the

surgeon who had seen her previously told her that it was a recurrence of the disease, and that the breast ought to be removed at once. She then came to him to try homœopathic treatment. He could not satisfy himself that there were the usual features of recurrent carcinoma, for it was fairly freely movable and moderately well-defined. The woman was not what Dr. Lambert had called a typical silica patient. She was rather more like a calcarea one. She was pale and flabby, and had the extreme sensitiveness to cold of which they had heard, and there was a considerable amount of axillary perspiration. She also had an irritating leucorrhœal discharge, and a large, heavy, indurated uterus. The symptoms seemed to justify silica. From the time that she began to take that medicine she experienced relief, and in the course of three or four months the pain and swelling absolutely disappeared. As she had not been to see him for about two months he concluded that she was cured. Silica was the remedy which had served him best in cases in which there were pathological conditions which he should not like to define too closely, but among which were breast induration or congestion and pelvic engorgement. He could not say that he had always been able to give reasons for the use of silica; but in the case that he had described the silica was, he believed, exceptionally suitable.

Dr. SPEIRS ALEXANDER said that he felt gratified at hearing a paper of a thoroughly homœopathic character read before the Society. He had been somewhat disappointed in the action of silica in bony conditions. The secret of success in treating these, as well as all other cases, lay in a correct estimation of the concomitant symptoms, and where these were well marked and of the silica type no doubt the drug would act favourably. On looking back over the past he recalled some cases in which the results obtained from silica had been very definite. It was one of those medicines from which either no result at all or a well-marked one has to be expected. In certain cases of habitual constipation, the silica symptoms were unmistakable, and consisted in the partial protrusion, followed by retraction, of the motion. In such a case he had given it in the third decimal dilution, with permanently curative effect. That has the action of a low potency, but he had also obtained good results from high dilutions. One such case he reported in the *Monthly Homœopathic Review* in the year 1892. It was a severe case of bronchitis, in which the more usually indicated remedies had failed, and then a typhoid condition had supervened. The general condition of the patient, together with the purulent and nummular character of the sputum, pointing to silica,

that drug was administered in the thousandth dilution and seemed to produce a favourable change in the course of the illness, the patient ultimately making a good recovery. Another case in which he had obtained an equally good result was one of carbuncle at the back of the neck, which had been going on for some time, with extensive sloughing and no appearance of clearing up. After the usual drugs had been tried without success, healing took place rapidly under silica 1m.

Dr. W. ROCHE said that he was glad that Dr. Alexander had mentioned the last case. It seemed to him it illustrated the difference between the action of hepar and the action of silica. His experience was that hepar helped the formation of pus and that silica removed the pus. In past years silica had done yeoman's service and given remarkable results. He did not think that he ever recollected silica failing to check suppuration in cases of a chronic discharge of pus. He happened to have charge of a considerable collection of miserable children born under the most unhappy conditions of parentage, many of the mothers not being more than thirteen, fourteen or fifteen years of age, and these children gave him a fine field for observing the action of medicines of this kind. The effect of silica in checking head perspiration in such cases was perfectly wonderful. He never gave silica higher than 30, and he got the best results from silica 12. He had had case after case in which he had had to treat the feet for unpleasant perspiration. He had recently had a case in which he had treated a most intelligent, good-looking parlour-maid, who had had to leave three situations one after another on account of her condition, and he had cured her with silica in five or six weeks. She went to another situation and was able to remain, having had no further trouble with her feet.

Dr. JAGIELSKI said that it was astonishing how quickly good results could be obtained from silica. An allopathic acquaintance of his had turned homœopath in consequence of witnessing the wonderful effect of silica upon swollen glands. High dilutions and middle dilutions produced very good results in chronic complaints. Silica had proved very useful in cataract, chronic conjunctivitis, lachrymation, and other diseases of the eye. In the history of ophthalmology there would be found many indications in which silica was a most effective remedy.

Dr. ROBERSON DAY said that homœopaths justly regarded silica as one of their sheet anchors. If there was any drug by which they might demonstrate homœopathy before the allopath, he supposed that they would select silica. The possibility of a flint

being reduced to medicine surpassed the understanding of the allopath. In the case of the patient who had attended, it would have been more interesting if Dr. Lambert had exhibited a photograph of her before she was treated, so that they might have got an impression of the size of the tumour previous to treatment. In his department there was no medicine upon which he relied more than he did upon silica. He gave it in dilutions 6 and 12. He thought that he should be now inclined to go higher in the scale. For chronic suppuration silica was most valuable.

Dr. GRANVILLE HEY mentioned a case recently under his notice at Sydenham, in which a gentleman, a musician, had had a sinus in his side for about eleven years. He treated him with silica, and within a week the sinus showed signs of healing. The discharge ceased, but eczema broke out on the lower part of the trunk.

Dr. LEWIN said that she had treated a case of prolonged constipation in a girl of twelve. The girl had been under a celebrated allopathic physician in London, but without result. Every stool occasioned great pain. After one dose of silica c.m. and two months at Margate the child had become perfectly well.

Dr. LAMBERT, in briefly replying, said he had never come across the symptom of "receding stool" in at all a marked degree. He had had cases of constipation which had been relieved by silica because the medicine covered the whole condition. With regard to the case of carbuncle which Dr. Roche had mentioned, he did not altogether agree with the idea that one must give hepar to help pus formation, and then give silica to bring the pus away. He hardly thought that hepar would cover the symptoms of carbuncle even on pathological lines. Anthracinum had been remarkably successful for bringing about recovery in the case of boils. He did not know that it was necessary generally to go above silica 30. The reason he went higher in the mastoid case was because the 30th did not seem to touch all the symptoms.

THE MEDICINAL TREATMENT OF PAINFUL MENSTRUATION.¹

BY WILLIAM ROCHE, L.R.C.P.I., L.M., M.R.C.S.ENG.

MR. PRESIDENT, LADIES AND GENTLEMEN,—Some sense and not a little nonsense has been written about what has been called the mystery and ministry of pain, but to us as physicians, pain, save when it becomes a warning against deeper and graver ills, is but a foe to be assailed, and, if it may be, conquered. The subject of my short paper this evening, "Dysmenorrhœa and its medical treatment," has its keynote in "pain"; a function which was meant to be natural, and therefore easy, disturbed and distorted into a recurrent nightmare of constitutional upset, often marked by keen suffering. I do not intend to begin this paper with any history of the function itself, nor to refer to the merely mechanical hindrances to normal menstruation, save to emphasise the importance of early recognition of such conditions in the interests of our patients, and to prevent our running our heads against the stone wall of the impossible, to the loss of reputation, and the increasing difficulty and suffering, by delay which here, as ever, is dangerous. I would record my opinion at the outset, that far too little attention has been paid to these cases. Many mothers, thinking no doubt that some pain is probably inevitable, allow months and even years of recurrent suffering to foster and eventually establish conditions difficult to alter or relieve. Domestic remedies are relied on with usually such unsatisfactory results as to end in a resort to the time-honoured (save the mark) prescription of hot gin and water, not infrequently consumed in dangerous and demoralising quantity, or, almost worse, to some of the many sedatives now so fatally easy to obtain in tabloid or other form.

I feel sure that grave injury to both body and mind often results from these ineffective and really injurious "placebos." I have personally known many cases where almost

¹ Presented to the Section of Surgery and Gynæcology, June 29, 1904.

despair, and consequent reckless disregard of warning or restraint, has taken possession of such sufferers, and lives have been embittered and prospects blighted. No wise mother should allow such a state of things to arise or continue, and, if the relation with the family physician were what it should be, an early consultation between at least the mother and doctor would place the matter on a right footing, and lead in most instances to speedy improvement. "Ignorance" in such cases is not "bliss," and every girl should be reassured at the very outset as to the importance of self-care and restraint during the period; and, as time advances and brings intelligence and opportunity, should certainly be informed generally as to the meaning and importance of the function, and the absolute necessity for personal care and co-operation in its management.

Hardly two patients suffer alike during menstruation, and we note every gradation from cases in which suffering is slight to those in which the agony is such as to be almost unendurable. The pain also varies as to position, but is for the most part referable to the uterus, and in the worst cases almost always so referred. Pains of varying degrees of intensity may of course be felt elsewhere, but they are "added," so to speak, to the essential pain which is situated in or about the pelvic region. The first and vital question is, What is the relation of the pain to the flow of the "menstrual fluid?" and we may roughly divide such cases into two classes, "(1) Those in which there is pain and impeded discharge, (2) Those in which, while there is pain, the discharge is apparently free."

In dysmenorrhœa with impeded discharge the symptoms have been well described by Dr. Rigby, who says: "The pain precedes the discharge and reaches its height just before the discharge appears. When this has taken place the congestion diminishes, the pain abates, and perhaps disappears before the discharge ceases. This is the most common form. In many cases, however, the discharge appears first, and having lasted a short time stops suddenly, or considerably diminishes, then follows an attack of pain (more or less severe) which continues until the discharge

returns." There is an evident connection, then, between the pain and the absence or arrest of the discharge. Now arises the pertinent question, Is the pain caused by *non*-secretion, or retention of the menstrual fluid owing to some impediment to its escape? Much has been written on these two points, but investigation and experience unite in making it clear that in the majority of cases retention is the condition and difficulty. Naturally, the cavity of the uterus is very small, and capable, unless dilated, of containing a very small quantity of fluid. Experience also proves that individuals bear dilatation of the uterine cavity very differently, hence it follows that retention will produce varying degrees of pain. The so-called "membranous dysmenorrhœa" is another variety of this trouble which may cause obstruction to the flow and consequent pain. The membrane passed in shreds, or in extreme cases in an almost complete cast of the uterine interior, is no doubt the product of the previous period, hypertrophied probably in consequence of more or less severe endometritis. The pain of retention and inexpulsion is nearly always accompanied by continuous and often severe ovarian pain and tenderness.

(2) Dysmenorrhœa without impediment to the discharge. In many cases where much suffering marks the period the pain appears to be seated in or to radiate from the ovaries, those organs being congested, irritated, or even inflamed. In other cases the uterus seems to be the seat of pain, a continuous aching very similar to neuralgia elsewhere being the chief feature. This pain usually distinctly differs from the spasmodic, contractive, and intermittent pain suggestive of retention. These women who are the subjects of chronic uterine troubles naturally suffer more or less at the menstrual period. Neurotic patients, nervous and excitable, always have marked and often most troublesome attacks during menstruation, while the rheumatic diathesis undoubtedly predisposes to such suffering, and such patients are liable also to concurrent migratory pains in different parts of the body, more especially in the joints, with a loaded condition of the urine. Flatulence and hæmorrhoidal congestion are also frequently present in such cases.

Finally, those who have a congested and overloaded condition of the abdominal viscera suffer much at the menstrual period, a sedentary or too luxurious mode of life often being the exciting cause. In some of these cases a painful and troublesome form of sickness is experienced, occasionally intractable and by no means easy of arrest.

In the treatment of any case of dysmenorrhœa we must be guided by the cause of the pain, and our remedies should be such as are indicated by the constitutional aspects of the case, and such local faults as we may detect. Our first aim should be to correct any constitutional errors, such as general plethora, anæmia, chlorosis, dyspepsia, gout, rheumatism, hysteria, constipation, and those habits which lead up to depraved blood conditions and interfere with the general health. Attention to climate, food, clothing and exercise is required, and the abandoning of injurious habits or morbid excitement. Such care and re-ordering of life and habit will cure many a case with little if any medicine. In anæmic and chlorotic cases some form of iron may be needed, such as ferr. picric or iron and arsenic. With gouty or rheumatic patients alkaline salts and careful diet will be very helpful, and in some cases a visit to some home or foreign spas, as Buxton, Bath, Harrogate, Cheltenham, or Strathpeffer; or abroad—Ems, Kissengen, Contrexeville or Royat. Constipation may be remedied by hot water with a teaspoonful of saline sipped while dressing, and followed by a gentle walk before partaking of food, and massage over the abdomen. Constant current battery or a mild faradic current each morning, a tepid spinal douche, sitting with feet in warm water. Begin at 80° and reduce slightly daily until down to 60°. Thorough but gentle friction afterwards, with some food and a brisk, short walk.

Hot sitz bath, long continued in first onset of pain, with, in some cases, an ascending douche of hot iodine and water.

Rest during, and often before, the period is often both necessary and helpful.

Now as to medicines which we fortunately possess as *remedies* and not mere palliatives. It is often well to begin

with a few doses of aconite, followed by pulsatilla, where the discharge is delayed and dark. We had well known and proved medicines having marked uterine actions, such as sabina, secale, sepia, and all in suitable cases were useful, and with chamomilla and ignatia to meet and relieve nervous symptoms, rendered good service, but a really curative medicine was not known.

Our colleague, Dr. Richard Hughes, in his first edition of his "Manual of Therapeutics" published in 1869, and which I at once obtained, drew attention to what were then called the "New American Remedies" and their great value in such cases. After mentioning the general characteristics and leading indications for collinsonia, gelsemium, caulophyllum, hamamelis, actæa and xanthoxylum, he winds up his article on dysmenorrhœa as follows:—"You will observe what large use I have made of the 'American Remedies' in my recommendations for dysmenorrhœa. Indeed, I should have had little to say with confidence about its treatment did I not possess these valuable agents. The subject is touched with a very uncertain hand by Leadam and Peters, to whom they were unknown." Deeply interested in this hopeful account of the new remedies I at once obtained "Hales' New Remedies," 2nd edition, which had been published in 1867, and found it full of valuable information and suggestions about all these remedies. Caulophyllum or blue cohosh, which had long been known and used by the so-called Eclectic School of Practitioners, stood pre-eminently first. A powerful nerve sedative, causing primarily extreme depression and anxiety, left when proved such marked uterine symptoms as "sensation as if the uterus were congested, with fulness, heaviness, and tension in the hypogastric region, drawing in the groins. Menses too soon (3 days), labour-like pains. Abortion with little or no flooding. Intermittent uterine contractions. Relaxation of the os uteri. Profuse secretion of mucus from the vagina. Increases the pains of labour. Spasmodic pains in the uterus, broad ligaments, &c.;" it was clearly a drug with marked possibilities and powers. I need not say I at once put this hopeful remedy to the proof and found it

fully upheld its reputation. I began with 3x, but have found by experience that the lower dilution 1x gives best results. I find notes of some twenty-six cases of real severity, many of considerable standing, in which this was the sole remedy given, both at the time in two hour doses, and during the interval three or four times a day, and the results were striking. In most a permanent cure resulted. Lately I have been using $\frac{1}{16}$ grain of caulophyllin in all recent cases with excellent results. Stone root (*collinsonia canadensis*) was the next medicine which attracted attention, and here also the proved symptoms were such as to give prospect of considerable usefulness. In stout, plethoric patients, where constipation and often piles give trouble, the action is prompt and most satisfactory, and in several cases where somewhat distressing pruritus was a symptom, there was marked amelioration of both the pain and irritation. I have usually used 3x, and even 1x with advantage. *Gelsemium sempervirens* (yellow jessamine) has such marked power as an anti-spasmodic that it is very useful alone, or in combination, in dysmenorrhœa. Where there is intolerable pain, causing hysteric feeling and great restlessness, I have found this medicine very helpful. Either mother tincture or 1x has given the best results. *Hamamelis virginica* (witch hazel), beyond its undoubted power in controlling hæmorrhage, has a well-marked power of causing and curing tenderness always ascribed to the ovaries and ovarian region, and running down into the thighs. I know no remedy which has given better results in dysmenorrhœa with free loss and marked pain in these regions than the 3x dilution. *Actæa* or *cimicifuga* (black cohosh), has in its proving many well-marked uterine symptoms. It has also been very successfully used in dysmenorrhœa, chiefly in cases of a rheumatic or neuralgic character. I often give it during the inter-menstrual period, and caulophyllum at the time. Severe headache before the menses come on, with often spinal pain and tenderness, and very low spirits, are indications. *Xanthoxylum fraxineum* (prickly ash), is a powerful, diffusible, stimulant. The symptoms are — Moral — great despondency and irritability, a nervous, frightened feeling.

It has profuse menses, with violent pains. In low dilutions it brings on menses. In higher it relieves pain and nervous tension. Most useful in thin, weakly women.

Dr. Ghose gives ninety cases, and speaks highly of his results; the majority had profuse discharge.

OPERATIVE AND MECHANICAL TREATMENT OF DYSMENORRHOEA.¹

BY W. CLOWES PRITCHARD, B.A., M.R.C.S., L.R.C.P.

Surgeon to the Buchanan Hospital, St. Leonards.

MR. CHAIRMAN AND COLLEAGUES,—The subject before us to-night is a most fascinating one, and I suppose most of us have had many cases for treatment, either medically or surgically. The medical side of the subject you have had put before you most ably by Dr. Roche, and no doubt after what we have learned to-night, we shall in the future get still better results. Personally, I regard the homœopathic treatment of dysmenorrhœa as a great triumph for our scientific practice of medicine, and it almost makes one shudder to look back upon the old days, before our eyes were opened, when we were accustomed to give those horrible nauseating mixtures to poor long-suffering humanity, and to reap, as the reward of our assiduity (and theirs) such miserable failures.

But I must not talk of medicine, as my text this evening is surgical and not medical.

From the surgical aspect of dysmenorrhœa cases I propose, then, to divide cases into three groups, and just to touch upon them, leaving much to be brought to light by the discussion that is to follow.

Group I.—Under this head may be classed those conditions where, even after a most careful examination, no definite lesion can be found to exist either in the uterus or

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its appendages, and where there is no gross abnormality in the process of menstruation.

Group II.—Where we find some distinct abnormality on examination.

Group III.—Those cases in which there is something palpably abnormal in the process of menstruation itself.

Firstly, then, let us look at those cases in which examination fails to reveal anything abnormal except perhaps some flexion of the uterus; for classification let us term this form of dysmenorrhœa *spasmodic* or *neuralgic*.

In this class, if retroflexion exists, it must of course be remedied, and the usual method would be to correct by the sound, and then insert a suitable pessary. Flexions, however, even though they be acute, do not cause dysmenorrhœa (Matthews Duncan).

No doubt the fact that the uterus is supplied with blood laterally will explain this partially. For retroflexions, then, replacement by sound and a suitable pessary will usually relieve by raising the uterus, and so preventing a tendency to passive congestion, and also by lessening the tension on the various uterine supports.

Some authorities have contended that antelexion is a cause of dysmenorrhœa, but Vedeler has shown from a large number of cases that 37·3 per cent. of patients with dysmenorrhœa had well-marked antelexion, and 33·3 per cent. of patients without dysmenorrhœa also had well-marked antelexion.

Clinical evidence, according to Hart and Barbour, also shows that flexion is about equally common in patients with dysmenorrhœa, and in cases without dysmenorrhœa, therefore, I would say antelexions as a rule need no surgical assistance.

In this group, if we find no flexions, the *usual* history given by the patient is that the dysmenorrhœa dates from the beginning of the menstrual epoch. This form of dysmenorrhœa is often greatly relieved by massage, by the high-frequency current, and sometimes by dilatation of the internal os by Hegar's dilators, or by cycling, riding, douching, &c. Unfortunately, treatment by dilatation in a number of patients will only give temporary relief.

If the patient marries and pregnancy ensues, a permanent cure often results.

This class of dysmenorrhœa, however, I regard as belonging more to the physician than the surgeon, so I will pass on to Group II.

Group II.—Where we find some distinct abnormality, either in the uterus, its appendages, or neighbourhood. In my opinion I regard this class as pre-eminently the surgeon's sphere of action, though undoubtedly we are able to relieve, and sometimes considerably, by medicine.

Perhaps some may think I have taken too comprehensive a view in this class of the various causes of dysmenorrhœa, and I must confess I have had a difficulty in knowing what to include and what to exclude—but I am giving my views of the subject—and no doubt before the discussion, which is to follow, is ended, I shall have a clearer understanding of the subject.

(1) Firstly, then, we will briefly consider those cases in which an *undeveloped* uterus exists. These are generally to be found associated with a narrow uterine canal, and with walls unduly rigid, and the patients frequently are anæmic or chlorotic. Treatment consists in constitutional remedies, supplemented by massage, electricity, and sometimes dilatation of the cervical canal.

(2) Cases of conical cervix with pinhole os. This is a condition that is variously estimated by different authors as being a factor in the production of dysmenorrhœa. According to Vedeler the great majority menstruate painlessly, but undoubtedly many with this condition do suffer greatly at the menstrual epoch. One of these cases came under my own observation two years ago. I treated her by complete dilatation with Hegar's dilators, and watched her for four months. The benefit was very marked, and the menstrual epochs were gone through fairly comfortably, and the patient improved very considerably in her general condition. Unfortunately she left the town, and I have not heard from her since.

Dilatation, however, frequently fails to effect a cure, and in those cases I should recommend Schroeder's operation.

Fritsche's operation has been performed, but this unfortunately does not prevent the os from re-contracting, whereas Schroeder's operation is a permanent cure.

(3) *Metritis*.—The great factor in the causation of this condition, so far as it affects dysmenorrhœa, is gonorrhœa. Acute metritis produces a very severe form of dysmenorrhœa, the pain at times being excruciating.

With the metritis, endometritis is invariably associated. The treatment would consist in douching thoroughly, and then curetting; the curetting to be followed by douching and tampons.

(4) *Fibroid tumours*.—These at times produce severe dysmenorrhœa, and have been treated in various ways. At one time electrolysis was spoken of very highly, and in some cases seems to have acted well, but at times it is necessary to enucleate the offending growth in order to secure a radical cure.

(5) *Pelvic inflammation*.—This class includes:—(a) cellulitis, (b) salpingitis, (c) ovaritis, (d) pelvic peritonitis.

(a) *Pelvic cellulitis*.—This is usually of puerperal origin, arising from the inflamed uterus, but it may start from the perineum, vagina, bladder or rectum.

If this condition be uncomplicated with tubal disease, it will at times end in resolution, but frequently terminates in the formation of an abscess or abscesses. When an abscess has formed it should be evacuated per vaginam, and a complete cure is effected. In some cases it is necessary, however, to curette the endometrium, so as to prevent the further spread of bacteria from the uterus.

(b) Where this condition co-exists with pus in the tubes, before a cure can be thus effected, they must be removed—salpingectomy.

(c) *Ovaritis*.—Inflammation of the ovary is usually secondary to that of the tubes, but may occur by extension from other organs through the lymph channels or veins. This condition at times leads to most distressing symptoms, especially where there is associated with the ovaritis some prolapse; among them being severe pains locally, pains radiating over abdomen and down the thigh, pains in breast and

nipple, great discomfort from defæcation, micturition, coitus, and exercise; reflex nervous phenomena, *e.g.*, indigestion, neuralgia, hysteria, inability to walk, so that the patient is totally unfit for the battles of life. Douches, hot hip packs, the faradic current, high frequency, sometimes will ease, but it is necessary at times to remove the ovary. This is a condition which calls for a great deal of discrimination, for many patients are such nervous wrecks that to perform an oöphorectomy on them would be worse than useless. That some are cured, however, by the radical operation is beyond question. Six months ago I removed a prolapsed and slightly cystic ovary from a patient, aged 28, who had been suffering most acutely for three years and had been curetted with no improvement two years ago. For two months this patient did splendidly and got through her periods with very slight pain. Then she had a severe blow in the abdomen, almost over the seat of the old pain, with disastrous results—suffering very severe pain and with a return of most of the nervous symptoms, followed by very obstinate sleeplessness. However, I am pleased to say she has just got through another menstrual epoch quite comfortably, and is taking a considerable amount of exercise without any discomfort. Only yesterday (Monday) she informed me that she feels better and stronger than she has done for years.¹

(*d*) *Pelvic peritonitis*.—The forms of pelvic peritonitis that concern us in relation to dysmenorrhœa are those which arise from perimetritis or perisalpingitis; other varieties may practically be excluded.

In the milder forms of pelvic peritonitis, rest in bed, douching and tamponing, continued with medical treatment, as a rule suffice, but in the very acute forms—and of these by far the greater number are caused by gonococci—very drastic treatment, even to the removal of the uterus and appendages, must at times be resorted to.

Many have objected to the removal of the uterus. Arthur W. Johnstone and Lawson Tait have shown that when the tubes are taken off close to the uterus, and every

¹ Three months later—this patient can be said to be cured, having menstruated each time quite normally.

particle of the appendages removed, atrophy of the uterus ensues. But on the other hand if the uterus be left, the pelvic lymphatics are still receiving their septic supply, for the uterine infection may continue to spread to the peritoneum even after the removal of the appendages.

Might I venture to suggest the complete removal of the appendages, and a thorough curetting of the endometrium, followed by the application of carbolic acid and iodine—as being sufficient?

The last condition in this group that I wish to mention, is when the uterus is strongly *retroflexed* and retroverted. Pessaries in this condition are not curative, but excellent results are obtained from a ventro-fixation of the uterus. This operation I have performed five times, and in each case I have been well satisfied with the result.

Group III.—Where we find something radically abnormal in the process of menstruation itself. I have but one form of dysmenorrhœa to mention in this class—that of *membranous dysmenorrhœa*. This is a very interesting condition, and one that exists in a far greater number of patients than the majority of us are apt to imagine. Scanzoni says, “The expulsion of such membranes when it occurs in small pieces is very often overlooked by the patient. We have directed somewhat more attention to this point in the course of the last five months, and found that of twenty-one patients suffering from dysmenorrhœa, fourteen, or exactly two-thirds, observed the discharge of these membranous pieces during menstruation. We must, however, remark that only two of these patients complained spontaneously of this unusual phenomenon, whereas the other twelve discovered it only after we had requested them to take particular notice of it.”

Dr. John Williams found that of 419 cases of dysmenorrhœa in which the quantity and character of the menstrual fluid were noted, shreds were noticed in 305 or three-quarters of the total! Surely a most striking percentage!

Dr. Champneys, in his Harveian lectures, cites several interesting cases where patients repeatedly passed membranes without any pain at all.

However, in the great majority of cases, where membranes are passed, dysmenorrhœa exists.

The treatment of this affection appears to be somewhat ineffective, in fact some have declared it to be incurable. Surgical treatment will include *curetting*—and in respect to this Dr. Champneys advises repeated curettings shortly before a menstrual period.

Division of the cervix, which is reported to have given temporary relief—but is by some stated to be useless—and lastly,

Removal of the appendages, as in Mr. Lawson Tait's case, which was successful. This, however, is not always so, as evidenced by a case reported by Mr. Doran, who states that this operation was followed by intense dysmenorrhœa. We will end this rambling paper by quoting Dr. Champney's conclusion: "The treatment of membranous dysmenorrhœa certainly is a most unhappy problem—not even pregnancy going to full time cures it; *if* it is to be cured, and if complications are to be avoided, our attempts must be made early."

Dr. SANDBERG, in opening the discussion from the medical side, said he agreed with most of Dr. Roche's paper, especially the preliminary treatment described. They were all convinced that every case of dysmenorrhœa must be first treated by correcting any ill-health present by means of general hygienic measures. With regard to the list of remedies suggested, he could not agree with him as to the benefit of *caulophyllum*. He had tried it in numerous instances in various dilutions. Once he obtained very good results from giving it in the first decimal trituration, but they were only transitory. Perhaps the unfavourable results he had obtained were due to his not having selected the proper cases, and he would try the drug more carefully in future. He had found *collinsonia* useful to a certain extent. In cases where it was indicated, combined with hæmorrhoids, he found it alleviated the hæmorrhoidal condition, but it did not much benefit the dysmenorrhœa. He thoroughly agreed with the author as to the benefit of *gelsemium* in neuralgic cases, especially in the mother tincture; given in hot water it speedily relieved the symptoms. He had had no experience of *hamamelis*. In cases of dysmenorrhœa of a simple form, with backache and headache, and the discharge dark and clotted, he had obtained

most benefit from *actæa racemosa*, chiefly in the second decimal dilution, and he had found it advantageous to alternate it with doses of *arnica*. His experience of *viburnum* had been disappointing, as he had not obtained any real benefit from it. In simple dysmenorrhœa, where pains were experienced, which subsided after the flow became free, which was accompanied with colicky pains, chiefly over the left ovary, he had found lachesis of the greatest value. In the cases he had been able to look up in the short time at his disposal, he had found that drug of more benefit than any other. As a rule it acted when the pain was chiefly confined to the left ovarian region; in other cases, where the pain was over the right side, he had not found it of much use, but *apis* was then a valuable remedy. He had not had much experience of the medical treatment of membranous dysmenorrhœa, but the old-fashioned remedy of hot douches with borax was very useful, and possibly might be explained by the fact that borax was recommended to be administered internally for that affection.

Dr. WYNNE THOMAS, in opening the discussion from the surgical side, said that after hearing Dr. Roche's paper one would think there was no room for the surgeon left. But there were cases when, after every medicine had been tried, the patient could not be relieved of pain, and her life was still made so distressing every month that she was willing to have anything done. In treating a case surgically, it should be considered very carefully, and the cause as far as possible diagnosed. Dysmenorrhœa was induced by many causes; he thought they might be divided into uterine, extra-uterine, and general systemic. The general systemic causes he would pass over. With regard to the uterine causes, a good deal has been written in books about arrested development of the uterus. It seemed to him that if the uterus was not developed then the blood supply was naturally deficient, and he therefore did not quite see why a patient should get dysmenorrhœa because the uterus was smaller than in a full grown person. As a rule, patients did not get dysmenorrhœa until the periods came on, and if the periods were not very profuse, as they were usually not in those cases, he did not think dysmenorrhœa was a very common accompaniment of non-development of the uterus. Stenosis of the cervix was another cause. In that case the body of the uterus was of the normal size and the cervix was small, sometimes with a pin-hole os. The pin-hole os in itself was not sufficient to cause dysmenorrhœa. He recently saw a lady, aged 47, who had had no children;

seven years ago severe dysmenorrhœa commenced. Up till that time she had menstruated normally, and had had no suffering at the periods, but she developed dysmenorrhœa. On consulting a specialist, he told her it was due to the fact that she had a pin-hole os, but she naturally replied that she had had her periods for twenty years and had no trouble before. An operation was performed; the cervix was dilated, and it was discovered that she had some small fibroids. No doubt the fibroids were the cause of the dysmenorrhœa, and not the pin-hole os. Metritis and endometritis were common causes, where chronic inflammation had been going on for some time, and where, on the onset of the period, blood, which was often clotted, or shreds of membrane came away. In such cases, after treatment medically, the best plan was to dilate the cervix and thoroughly curette the inside of the womb, and under an anæsthetic to gradually dilate the opening by a metal dilator, packing the uterus with iodoform gauze. That should be left in for forty-eight hours, and after removal the patient should be douched with an antiseptic solution. With regard to tumours of the uterus, such as myomata, especially the interstitial and polypoid, which produced dysmenorrhœa by producing irregular contraction, the myomata becoming swollen at the menstrual periods, if they did not benefit from medicinal treatment, the best plan in the polypoid condition was to remove the polypus, and if the pain was very severe it might be necessary to remove the whole of the uterus and the tubes. The extra-uterine causes of ovarian disease might be either acute or chronic cystic disease, sclerosis, or enlarged and prolapsed uterus, bound down by adhesions. Such conditions were often not relieved until an operation was performed. Tubal disease must be treated in the same way. It was very necessary to carefully select the cases in which there was no inflammation outside the uterus for dilatation. In those cases where the uterus or the tubes were the cause, the dilatation might do more harm than good; it was better to open the abdomen and treat the case from that side.

Dr. JOHNSTONE (from the Chair) said the members would observe that in speaking of the causes of dysmenorrhœa, no one thing could be said to be a definite cause, because what might be put forward as a cause was frequently not *the* cause. For instance, dysmenorrhœa might occur only in a small percentage of cases of pin-hole os, as instanced by the case cited by Dr. Thomas. There was therefore a good deal of uncertainty as to cause. One important feature which had not been taken very much notice of by those who opened the discussion was the char-

acter of the discharge, and its relation to the pain in dysmenorrhœa. Obviously the pain must arise either in the uterus or in an adjacent organ. If disease was found in an adjacent organ, naturally the treatment must be directed to that organ; if, however, the pain was evidently seated in the uterus itself, then the probability was that the pain was due to some abnormal condition of the physiological action of the muscular fibre of the uterus. The cause of that abnormal physiological action was probably to be found in the unsuitable surroundings in which the muscular fibres found themselves during their contraction, which must necessarily occur during menstruation. He therefore suggested, as the fundamental cause of many dysmenorrhœas, that it was some poisonous or toxic material which came into direct contact with, or operated more particularly on, the muscular fibre at that period. The origin of such toxins and poisonous materials was various. There were the effects of bacterial toxins produced in the uterus, and there must be the effects also of several poisonous products, such as uric acid, which were developed in other organs and reached the uterus by means of the blood.

Dr. DYCE BROWN thought the question of the surgical or medical treatment of dysmenorrhœa would probably go on to the end of the chapter. The treatment adopted depended on whether the doctor's mind was essentially surgical or medical. It seemed to him that the weak point in the surgical aspect of the case was that a case of pin-hole os was often found where there had been no history of dysmenorrhœa up till a certain time. It seemed to him that no case could be looked upon as one of obstruction requiring a cutting or dilating operation where there had not been present from the first period of girlhood a history of dysmenorrhœa; and in the majority of cases that condition was not found. It was generally the case that, when the first period came on, the girl was in fairly good health, and the periods came on with little or no trouble; then a time of bad health developed, and dysmenorrhœa occurred. He maintained there could not be a state of obstruction in the narrow inlet into the uterus requiring operation which had not been there in the beginning, when menstruation had been going on fairly normally. Again, it was found in many cases where dysmenorrhœa was very severe, that there was no obstruction whatever, the sound going in as freely as possible. Dr. Johnstone had alluded to the importance of observing the character of the discharge. He thought Dr. Johnstone's view of the toxins was a little theoretical, but the practical point was that in nearly all cases of dysmenorrhœa clots would be found. Clots passing

through a narrow tube naturally caused pain. The question was what produced the clots. The clots should not be there, and therefore indicated a state of health which had to be rectified, but not by treating it by surgical means, such as dilating a passage that was already good enough for the discharge of the normal secretion. Again, it was found that the results of operations, taking them all round, were not successful. Dilatation certainly was not successful. After being relieved for a time, the old state returned. Cutting operations of various kinds were radically wrong in principle, and showed their wrongness by giving bad results. There might be a rare case, where the uterus was abnormal, where an operation was necessary; there were abnormalities in all organs, but it was an exception to the rule. He also maintained that the more one looked into the cause of dysmenorrhœa, the treatment of it, and the details of general dishealth, something wrong could always be found, and the general health had to be rectified. The main treatment was not at the time of the period; it was in the intermediate time, and that mode of treatment he had found in his own experience to give the most success. One cause of dysmenorrhœa in the present day was the overstrain girls were put to when they were young at school. With the idea of doing good, the girls were made to exercise and walk till they were perfectly fagged and nothing was more likely to bring on dysmenorrhœa. Dr. Johnstone alluded to the spasmodic irritation of the muscular fibre. That state should be rectified by internal treatment. It was caused by the passage of a clot along a narrow tube, which must be painful; consequently the muscular fibres resented it, contracted, and produced spasmodic pain. His view was entirely on the medical side. The results obtained were most satisfactory. The medicines he relied on most for relief of pain at the time were gelsemium, caulophyllum, and xanthoxylum. Those three medicines enabled patients to get through the period with very little pain, while between the periods the best plan was to treat the patient carefully from a constitutional point of view.

Dr. MADDEN protested against the discussion degenerating into a contest between medicine and surgery. There was unquestionably room for both in the treatment of the common complaint of dysmenorrhœa, and all they had to do was to decide upon the field which each respectively should occupy. The more able the physician was, the less seldom would he have to call in the surgeon; and every surgeon who took up the branch being discussed as a speciality, and who knew anything of homœopathy, would put

off operation until he had first tried medical treatment. They had to discover the point where the surgeon should be called in to assist the physician, and he thought that was not very difficult. There were certain manifest lesions which were not only dangerous in themselves, but which were the cause of dysmenorrhœa, and which no careful physician would wish to leave unsurgically treated in his patient. There were also neuralgic cases, possibly, or cases of simple dysmenorrhœa without manifest gross lesions, in which, after careful general treatment, and the specific use of homœopathic medicines, relief had not been found, and where a simple dilatation, either with or without curetting, had given permanent relief. He thought it was not unlikely that the relief was caused by giving a shock to the pelvic nerves; it was not necessarily due to the removal of a mechanical obstruction, but was due to a great disturbance of the pelvic nerves, which set them on a different plane of vibration. It was very noticeable in those cases that, whether they were accompanied with more or less gross lesions or not, certain periods were passed through without pain at all. It was not at all necessary that any particular lesion should be the cause of pain at every period. That was, he thought, a great argument in favour of the pain itself being in most cases a neuralgia, and not caused by mechanical means. It was also very noticeable that in a considerable number of cases the patient remained free from pain so long as she was in a particular place and going through particular exercises or occupations, and when she returned to the routine of home life the whole trouble returned. Such cases ought to give encouragement to the physicians to attempt their cure by hygienic and therapeutic measures, without surgical interference, unless there were lesions which required removal for other purposes.

Dr. NEWBERRY asked for the assistance of the members in a peculiar form of dysmenorrhœa which had puzzled him greatly. The patient, who was rather delicate, was a married woman who had two or three children, and she complained of pain in the clavicular region and sides of the neck at every menstrual period. She suffered from such utter prostration and weakness that if she had anything in her hand she was apt to let it fall suddenly. There was a weakness in both arms, chiefly the left, and she also suffered from sickness and headache at the same time. Her general condition had immensely improved, and she now got through her menstrual periods a great deal better than she used to. As Dr. Dyce Brown had said, a good deal of the pain which occurred in connection with menstruation was due to con-

stitutional conditions. He had found silica in rather a high attenuation, not less than 30, very useful in the treatment of dysmenorrhœa. He recollected one patient, a delicate girl, who was completely cured by silica. Dr. Roche had said that pulsatilla was indicated by the dark discharge. He should certainly have said it was indicated equally in the pale discharge, and lilium tig. in the dark discharge. He had not been very successful with caulophyllum, but actæa racimosa had given good results in rheumatic cases; and where there had been inflammation of the ovary, chiefly the left ovary, he had always been helped by kali bromidum. In addition to the three medicines mentioned by Dr. Dyce Brown which should be used during the time of the period, belladonna 1x., perhaps two drops repeated every twenty minutes, together with hot baths, generally tided over the most severe menstrual conditions. A good many cases of dysmenorrhœa were put down directly to a definite strain. Wherever there was a history of any definite mechanical condition which had influenced the menstruation he believed arnica would help, and he gave that drug, and many of the other medicines which had been mentioned, a good deal higher than the potency suggested. With the right medicine he believed the higher the potency the better the result would be (except perhaps with actæa rac., which he gave in five-drop doses of 1x.).

Dr. GOLDSBROUGH said that the case cited by Dr. Newbery reminded him of a case where pain was complained of in the hand in the case of an overloaded rectum. He believed such reflex pain could be obtained through the spinal cord from any part of the abdominal viscera, and he suggested that agaricus, which was useful in spinal irritation where the pain began below, passed upwards and came down the arms, might be beneficial in that case. Speaking from the medical standpoint, and as a general practitioner rather than as a specialist, he thought a thorough examination and consideration of the case from the medical standpoint usually repaid the physician, which meant a very wide observation of all the details associated with the case, very much more so than had been referred to in the papers and the discussion. If one looked into the case books of the gynæcological specialists in the hospital, and noticed the variety of details which they deemed necessary in considering such cases, some idea was obtained of the range of observation needful to deal with the case from the medical standpoint. Dr. Dyce Brown referred to the question of exercise in young girls beginning to menstruate, and whose

development at the time of puberty was going on very rapidly. He wished to refer to another aspect of that matter, namely, the brain development during that period. Dr. Burford drew his attention to the question some years ago, and suggested that mental attention during the development of a girl's life was a very important factor in the production of dysmenorrhœa. There was so much competition in girls' schools in the present day, in the endeavour to obtain good places in examinations, and so little attention paid to physical functions, that one could scarcely estimate how much harm to these functions was being done by worry and anxiety in a girl whose emotional nature should be receiving all the attention which it ought to at that time. A medicine which had not been mentioned, which was quite as valuable as *pulsatilla*, was *sepia*. *Sepia* had a very wide range of action in cases of suitable temperament. He had used it in the interval between the menstrual periods with very great benefit, especially where there was depression leading to melancholy. Scanty menstruation, with a good deal of pain during the discharge, was also an indication for *sepia*. He generally tried to treat the patient during the interval with a different and more constitutional medicine than during an attack of pain. He relied upon more palliative remedies during the attack. He supported what had been said in regard to the majority of the medicines named. Where there was irritation of the bladder and rectum, especially if the discharge was too profuse, *erigeron* was useful. *Aletris farinosa* had also served him extremely well in some cases in the interval. In cases where pain was referred to in the right ovary, he had used *lilium tig.*, but he had never heard of a case where it benefited pain in the left ovary. The left ovary seemed to resist all medicines. He had tried platinum and palladium once or twice without any effect.

Dr. NEATBY, speaking from the medical side, wished to make one or two suggestions as to methods of selecting the remedy, which he had found convenient and quick in classifying cases. In the first place, the cases could be classified with reference to the amount of discharge that took place. In a case of dysmenorrhœa with excessive menstruation, there were a certain list of remedies which at once sprang to one's mind. Amongst these were *belladonna*, *chamomilla*, *xanthoxylum*, *hamamelis*, *sabina*, *secale* and *crocus*. *Xanthoxylum* had been mentioned with commendation sometimes, and at others had been damned with faint praise. He thought it a very useful remedy where there was the combination mentioned by Dr. Hughes of great pain, especially

spasmodic pain, and excessive loss, and if, as sometimes happened, there was a crural neuralgia associated with it. On the other hand, if the patient suffered, as was unfortunately very often the case, with a deficient quantity of flow there were some remedies, but not many, and their indication in all cases was not so clear. *Caulophyllum*, *actæa*, *pulsatilla*, *sepia*, and *senecio* had been referred to. There were some remedies which did not seem to have any definite rule as to the menstrual quantity, *i.e.*, *coccus*, *gelsemium*, *silica*, and *coffea*. That was a classification which it was very easy to work out. Then there was another classification, the question whether the pain was spasmodic or congestive. The spasmodic remedies might be *chamomilla*, *coccus*, *coffea*, *gelsemium*, and *ignatia*. Those remedies, like all the others referred to, required careful differentiation. A certain amount of difference of opinion had been expressed with regard to *gelsemium*. Personally, he thought *gelsemium* in such cases was very seldom homœopathic, although it was a very fine remedy. There might be cases where it was homœopathic, where the headaches and profuse and very pale urine were characteristic; but in the majority of cases it was necessary to give it low, and often, and plenty of it, and then good results would be obtained, better almost than with any of the other palliatives short of *morphia*. It gave quick relief, with very little after effect; sometimes there was a little confused headache if too much was given; but he would not hesitate in a bad case to give 5-drop doses every half an hour for a few hours. There was also a third classification. Someone had referred to right and left side pain. The medicines for right side pain were as follows: *apis*, *belladonna*, *lycopodium* and *bryonia*. For the left side he should give *colocynth*, snake poisons, *thuja* and *ustilago*. For offensive menstrual discharge, he had obtained good results with *belladonna*, *ustilago* and *lilium*. When *caulophyllum* was being spoken of, a symptom came to his mind which he had not heard mentioned, namely, definite straining, not the straining obtained so commonly with either *nux* or *collinsonia*, but what appeared to be an almost involuntary forcing down at the vagina. The patients described a constant sense of almost involuntary forcing down, and, in spite of their trying to control it, it continued. *Caulophyllum* was very good in such cases. It required a great deal of care to select cases for surgical treatment, and in the majority of cases he thought medicinal treatment should have a long trial first. As had been mentioned already, treatment in the interval was of the highest possible importance. Some of the remedies which were most valuable at

that time were calcaria, lilium tig., silica and aurum, according to the patient's symptoms. With regard to operative measures, the more typical the spasmodic dysmenorrhœa was, the pain beginning only with the flow and not before, and coming definitely in short spasms of extreme agony, causing the patient to roll about, with comparative freedom of pain in the interval, the more successful would dilatation be. He thought it was an entire misconception to suppose that the good done by dilatation was due to the removal of an obstruction. Dr. Madden suggested that it was due to some kind of a shock to the nerve fibres, or something of that kind. He thought that was very likely the case; at any rate it often cured where there was no obstruction at all. The more the condition was spasmodic the more successful the treatment was, and the more it was inflammatory or congestive the less successful. The more the flow was preceded by pain, the less successful was dilatation likely to be. It was, however, impossible to make hard and fast rules in any case.

Dr. JOHNSTONE said that one thing learned from the discussion was that referred to in the last sentence of Dr. Neatby's remarks, namely, that there was no hard and fast rule in the treatment of dysmenorrhœa. The first object to be obtained was to determine the cause of the dysmenorrhœa, a point which was very often overlooked. It was a common thing for a physician who had a case of dysmenorrhœa brought to him, to begin treating it with medicine without a thorough examination either of the clinical symptoms or of the physical condition. He maintained that it was impossible to treat a case satisfactorily without some physical examination, a full examination in the case of married women, and a somewhat modified examination, which was always imperfect, in the case of virgins. Unless that was done, it was impossible to arrive at a correct estimate of the probable cause of the dysmenorrhœa. Once having found a probable physical cause they might start with the medical treatment, and after exhausting medicine turn to surgery. That, he thought, was the natural sequence which must be followed in the treatment of every case of dysmenorrhœa.

Dr. ROCHE, in reply, said his paper had only been written as a peg on which to hang a discussion. He was extremely gratified at the manner in which the paper had been received; and believed that the statement which had been made that each case must be carefully considered upon its own merits, was the key to the whole question.

CASES, SPECIMENS, &c., EXHIBITED AT VARIOUS MEETINGS.

CASES.

*Hæmoptysis due to Foreign Body.*¹

A. P., aged 24, came to hospital complaining of hæmoptysis, which had been occurring from time to time during the past five years. After some months' treatment she one day coughed up a large-sized pin, which subsequent experience has proved to have been the cause of the whole trouble. The pin was about the size of the usual hare-lip pin, and had a similar bulbous glass head on it.

Syphilitic New Growth (?).²

A woman, aged 34, in July, 1903, began to have pains round about the right elbow, and then found out that she had a hard swelling on the inner side of the joint and above the joint. The pains were of a shooting, neuralgic type, and she saw a doctor about it and had some weeks' treatment for it without evident benefit. About two months later she first noticed that there was a lump projecting from the chest wall to the right of the sternum and below the clavicle, and the pains also became more diffuse, and radiated up the neck and down over the pectoral region, as well as about the arm.

She has now been under our observation for four weeks, during which time treatment has been negative in its result, the swelling remaining practically stationary as regards its size.

History of patient.—Satisfactory, except for enlargement of cervical glands, probably tubercular in character.

She is married, has three children and has never had a miscarriage.

It was suggested that the lesion was probably syphilitic, and the use of potassii iodide was recommended.

Bazin's Disease ³ (with remarks).

A somewhat rare disease, first described by Bazin about 1860, who differentiated it from erythema nodosum, which it resembles.

It is an affection of the skin, consisting of indurated nodules, mainly in the legs, and which are considered to be of a scrofulo-

¹ Exhibited by Dr. A. E. HAWKES, Liverpool Branch, Nov. 12, 1903.

² Exhibited by Dr. EDMUND HUGHES, Liverpool Branch, Nov. 12, 1903.

³ Exhibited by Dr. STONHAM, December 3, 1903.

tuberculous origin. It occurs much more frequently in females than in males, mostly between the ages of 12 and 30, and usually in patients of a scrofulous or strumous diathesis. The lesions are characteristic, and are red or violaceous nodules, slightly tender, and from which the colour can be pressed momentarily by the finger. The induration can be felt to sink more or less deeply into the subcutaneous tissue. The disease may cease at this stage, or it may go on to exhibit the more characteristic phenomena of the affection. In this latter case, the centre of the node becomes yellowish; this yellowish point increases and becomes purulent, and finally breaks down, leaving a deep, clean-cut ulcer, looking very like a syphilitic ulcer. After a few days the ulceration spreads in the subcutaneous tissue, leaving the skin round the opening undermined, so that there is a central clean-cut ulcer surrounded by half an inch more or less of undermined cuticle; around this is the many-coloured areola of violaceous tint. The discharge from the ulcer is thin and sanguino-purulent. The whole leg is bluish, showing a depressed circulation in it.

The ulcerations are difficult to heal, and are apt to become chronic; the duration is most commonly from a few months to two years, but cases have been recorded which have lasted five, ten, or even fifteen years.

There is an excellent account of this disease in the fourth volume of the *London Homœopathic Hospital Reports*, by Dr. Washington Epps, who records therein two cases of his own. Calc. carb., given on account of its scrofulous origin, was found the most effectual remedy.

The case I have to show is not such a well-marked case as the first of those described by Dr. Epps and illustrated by the plate, but is sufficiently well-defined, I think, to warrant a diagnosis of Bazin's disease.

Case.—Maud Cooper, aged 19, has always had good health. She has lately been employed in a shop as a jeweller's assistant. Mother is in good health. Father alive and well. A sister has recently got over a severe illness, which was thought to be tubercular peritonitis by her doctor, though the diagnosis seems to have been a little in doubt. Another sister died at $3\frac{1}{2}$ of tubercular meningitis.

On October 14, 1903, patient came to the out-patient department of the Hospital with a lump on the right side of the neck, which she had had for four months; it had been painted with iodine without benefit. It was about the size of a filbert, and appeared to be in the tissue of the skin and subcutaneous tissues.

I considered it to be a tubercular nodule in the skin. She then drew my attention to her legs. On each leg were small indurated areas of bluish colour, slightly painful and tender, and also several small ulcerations, two or three lines in diameter, in the centre of similar indurated nodules, and which had apparently been formed by a central necrosis occurring in some of the indurations. The circulation in the skin of the legs appeared rather sluggish. The patient seemed and felt in good health, was of fresh colour, red face, and plump. The tongue clean, appetite good, and bowels regular. The catamenia usually delayed one or two weeks and moderate in quantity; somewhat severe pain comes on with the flow in the hypogastrium, and lasts one day; it is associated with vomiting several times of first food and then bile, but there is no headache. Physical examination revealed no lesion in the lungs or other organs.

She was given tuberculin 30 m. once a week, and calc. c. 6, 2 tab. ter. die.

October 20.—The skin nodule on the neck distinctly smaller. Another of the indurations on the leg has broken down, giving rise to a small circular ulcer. The other ulcers unaltered.

November 11.—Signs of fresh small ulcers coming. On suggestion of Dr. Lambert, I prescribed kali bich. 3x. mii. t.d.s., and a kali bich. lotion, given zi. of 3x. to O.i. aqua.

November 25.—No fresh nodules have appeared. The lotion irritated and made the ulceration deeper. The skin nodule in neck is smaller. Continue tuberc. 30 once a week, and kali bich. 3x. t.d.s. Leave off the kali bich. lotion.

*Locomotor Ataxia.*¹

R. M., aged 45, married, traveller; was admitted to hospital October 26, 1903, suffering from locomotor ataxia. He gave the following history. *Family*.—One brother died of paralysis. Otherwise no neuropathic history. Family generally characterised by longevity and robustness. *Personal*.—He denies syphilis, but admits risk of infection in his youth. Got wet through one and a half years ago. A few months afterwards he began to have numbness in his toes and double vision, and a staggering gait. Obligated to give up business six or seven months ago. Previously, seven or eight years ago, some delay in micturition, had to strain, and the flow was scanty. This has occurred on and off ever since. Five or six years ago had spots on his forehead, also scaly eruption on

¹ Exhibited by DR. GOLDSBROUGH, December 3, 1903.

the legs, for which he was treated by Dr. Speirs Alexander. At the beginning of his present illness he had loss of memory, and some affection of mental or speech association. *Present Symptoms*.—Is depressed. Prefers solitude. Fits of crying occasionally. Sleep good now, not at first. Headache occasionally, consisting of weight and oppression of the occiput running down the neck and back. Occasionally vertigo. Pupils contracted. Argyll Robertson symptom marked. Some nystagmus right eye, especially on looking up. Vision otherwise normal (since admission he has had some blurring of vision). Acuity of hearing diminished. He has some perversion of taste, especially for sweet things. There is numbness of the feet. Sensation of walking on wool. (Since admission has suffered much from burning in the soles of the feet at night relieved by cold, throbbing in the calves, and feeling as of garters round the knees. Also a burning sensation in the rectum while sitting, with a dull pain at the upper part of the sacrum). Romberg's sign is well marked. Ataxic gait. In walking maintains a straight line approximately. Some slight stamping. Good motor power. Knee-jerks entirely absent. Other reflexes normal. Difficulty in voiding urine in any position except standing, and then hesitation in beginning. Bowels confined. Feels as if bowel was never emptied. Has had severe pains in right hypochondrium, sinking in epigastrium. Good appetite, but no enjoyment of food. No sexual power for three or four years.

Patient was put on ign. 3 on October 29, ign. 12 on November 2, nux. 30 on the 9th, and atropine 12. The indication for the former drug was mainly determined by the mental state, for the nux. the constipation, and for the atropine the sensory symptoms developed during the past fortnight. The latter have been much relieved by the atropine. Patient's "morale" has much improved since residence in hospital. He has been instructed to aim at coördination of his locomotion by means of definite movements. For example, a regulation of the length of step, the breadth between the feet, frequency, diminishing the rate of step as much as possible, and maintaining evenness of rhythm. The result has been a considerable improvement in gait and locomotion.

*Jacksonian Epilepsy.*¹

A girl who, when she was about 7 years of age, was seized with left-sided hemiplegia, for which trouble she was treated as an out-patient at the Infirmary for Sick Children.

¹ Exhibited by Dr. EDMUND HUGHES, Liverpool Branch, December 10, 1903.

Three years later she fell down a flight of stone stairs, striking the back of her head very severely.

A week after this accident she had her first epileptic seizure, followed six months later by another. She now takes a fit on an average once a month.

The aura in this case consists of a revolving brightness before the left eye as well as a creeping sensation up the left arm from the hand. The left arm now shows the marked contractures characteristic of old-standing hemiplegia, though without noticeable wasting or loss of sensibility.

The aura, it should be remarked, is followed by a scream and convulsions confined to the left arm, after which consciousness is gradually lost.

*Multiple Cerebro-Spinal Sclerosis.*¹

Boy, aged 19, suffering from multiple cerebro-spinal sclerosis, showing the usual classical group of symptoms—action tremor, nystagmus, and staccato speech.

No family history of neurosis obtainable; electrical reactions and skin sensibility were normal.

The tremors were general throughout the limbs, and excited by the slightest call to action; the knee-jerks were unequally exaggerated, and paresis of the bladder was present.

*Dermal Horn.*²

A patient, a woman about 50 years of age, who had a very large dermal horn growing on the left side of the neck, just about clavicle. The growth had been present for fully twenty years, and was now $2\frac{1}{2}$ inches in length; its base was extremely hard and covered for about an inch with apparently normal skin, whilst the remaining inch and a half showed the characteristic hornified tissue, and the tip of this was very deeply and numerously fissured.

The patient stoutly refused to allow operative interference.

Thuja was recommended for use, locally and internally.

SPECIMENS.

*Cerebral Tumour.*³

A tumour, the size of a pigeon's egg, in the brain of a man, aged 29. The growth was situated in the posterior horn of the right lateral ventricle.

¹ Exhibited by Dr. EDMUND HUGHES, Liverpool Branch, December 10, 1903.

² Exhibited at the Liverpool Branch by Dr. A. E. HAWKES, April 14, 1904.

³ Exhibited by Dr. GOLDSBROUGH, October 1, 1903.

The chief symptoms were intense general headache, stupor, illusions of sight, alteration of the field of vision. Microscopic examination revealed the nature of the tumour to be glioma.

*Malignant Endocarditis.*¹

Heart.—Shows numerous large granulations in the mitral valve and some small ones in the aortic valve.

Spleen.—Several large infarctions—necrosing.

Kidneys.—Both containing infarcts.

*Necrosing Solid Ovarian Tumour, Malignant.*²

The symptoms resembled uterine carcinoma, and were hæmorrhage, offensive discharge, and ascites. Operation. Recovery.

*Microscopic Section of Ovarian Tumour.*³

Section by Dr. Watkins from Dr. Neatby's case of solid ovarian tumour, showing pedicle free from carcinomatous involvement.

*Tubercular Ulceration of the Ileum.*⁴

From female patient in Quin Ward, under the care of Dr. Washington Epps.

The cyst-like formation on the outside of the bowel contained gas and pus, and the wall consisted of peritoneum only.

*Tubercular Ulceration of the Larynx.*⁴

From same patient as the ulcerated bowel. Shows two small superficial ulcers on the epiglottis.

*The Wagner Static Electrical Machine.*⁵

(Remarks by Dr. Ashton.)

This particular form of machine is an American machine made in Chicago, and is to be seen on other occasions at Messrs. Smith and Wade's premises, 20, Baker Street. The machine here is quite new, and was only landed a few days ago. In this machine there are two glass plates in the centre, which are stationary; the brown plates on each side are its special characteristics. They are made of mica, embedded in a resin; and one of the strongest

¹ Exhibited by Dr. BYRES MOIR.

² Exhibited by Dr. Neatby, November 5, 1903.

³ Exhibited by Drs. EPPS and WATKINS, November 5, 1903.

⁴ Exhibited by Drs. WASHINGTON EPPS and WATKINS.

⁵ Exhibited by Dr. ASHTON, December 3, 1903.

recommendations is that the firm will guarantee them, as they say, "indefinitely," and if anything goes wrong with them within a considerable length of time, they will replace them by new mica plates, or, if you wish it, by a glass plate. If any gentleman present has headache, or any sort of depression, or is not feeling quite fit, I shall be glad if he will step onto the platform, and then tell us in half an hour whether he feels any better. The President has told me that he has undergone that form of static treatment with great success, and I can also speak personally of the beneficial nature of the treatment; in fact, one of the earliest introductions I ever had to a static machine produced that result. I had been working rather hard at St. Mary's Hospital, and happened to go to see Dr. Bolville one afternoon, and a friend came in and told us all about the new machine that would work in any sort of weather, and asked us to go and see it. We went and saw it, and I was made the victim and put on the platform. I did not feel very happy, but nothing serious occurred, and I was very much pleased to find that when I stepped off the platform I certainly felt better, and continued to feel better, and was able to do work without taking a holiday, which I had been rather looking forward to a few days before. The machine here is one of the smallest Wagner machines. It is driven by a quarter h.p. motor, the speed of which is regulated by a resistance. The current is supplied from the main down in the area of the building. One of the advantages of the machine is that it can be used for a variety of purposes. It can be used to produce the X-ray effect, and the advantage which the manufacturers claim for it is that the tube is excited in such a manner that is especially useful for screen work.

*Extra Uterine Gestation.*¹

Extra-uterine gestation, with rupture of tube, and extrusion of a two months' fetus into the abdominal cavity. Abdominal section. Recovery.

*Uterine Myoma.*¹

Uterine myoma.—Removed by abdominal section. *Tumour showing degeneration. Recovery.*

*Uterine Myoma.*¹

Uterine myoma.—Removed by abdominal section, *leaving the uterus intact. Recovery.*

¹ Exhibited by Dr. BURFORD, December 3, 1903.

*Transfusion Apparatus.*¹

A simple, portable and accurate transfusion apparatus, for use in hospital and in general practice, as employed by Dr. George Burford and Mr. James Johnstone.

The advantages of this apparatus are:—(1) It is simple in device; every part can be kept surgically clean. (2) It is ready in application, being available for immediate use, only requiring the warm water for solution. (3) It is safe and accurate in practice; the clearness of the fluid is viewed through the glass reservoir, and the thermometer enables the entering fluid to be kept at an equable temperature. (4) It is easy in employment; the operation of subcutaneous transfusion thus carried out is simplicity itself.

The apparatus is made by Messrs. Mayer and Meltzer, 71, Great Portland Street, W., who will give every information respecting it.

*Epithelioma of Uterus.*²

A uterus showing cervical epithelioma removed by vaginal hysterectomy. Recovery.

*Malignant Ovarian Tumour.*³

A solid ovarian tumour undergoing necrotic and malignant changes, removed from a woman, aged 64. Recovery.

*Meningo-Myelocèle.*³

A meningo-myelocèle removed from the sacral region. It was associated during life with talipes equinovarus and a hairfield in the loin.

*Cystic Kidney.*⁴

Cystic kidney, probably congenital in origin, removed from a young woman. Previous exploratory laparotomy had proved the other kidney healthy. Perfect recovery followed.

*Pyonephrotic Kidney.*⁴

Large pyonephrotic kidney removed from a woman. The lower part of the kidney showed malignant changes.

Perfect recovery resulted.

¹ Exhibited by Drs. BURFORD and JOHNSTONE, January 7, 1904.

² Exhibited by Dr. E. A. NEATBY, January 7, 1904.

³ Exhibited by Dr. WATKINS and Mr. KNOX SHAW.

⁴ Exhibited by Mr. DUDLEY WRIGHT, January 7, 1904.

*Renal Calculus.*¹

Renal calculus removed from the pyonephrotic kidney exhibited.

Weight of stone, 6 ozs. 40 grains.

*Gall Stone.*¹

Gall stone removed by enterostomy from the jejunum of a woman who had symptoms of intestinal obstruction for fourteen days.

The patient died two days after operation, presumably from auto-toxis, as there was nothing else to account for death.

*Renal Calculi.*¹

Several calculi removed from the left kidney of a man who had suffered for some months with a urinary fistula in the loin.

Successful result.

*Hydronephrotic Kidney.*¹

Hydronephrotic kidney, with dilated ureter, removed from a boy, aged 14 years. History of renal colic at 5 years, and recurring attacks since. The patient recovered from operation, but six weeks later a calculus became impacted in the other ureter, and required a second operation, from which he is recovering.

*Spicule of Bone.*²

A portion of bone, $\frac{1}{2}$ in. \times $\frac{1}{8}$ in., from the throat of a child 6 $\frac{1}{2}$ months, who had been fed on mutton broth!

*Sarcoma of Clitoris.*³

Sarcoma of clitoris, with microscopic section of the same.

*Uterine Myoma.*³

A uterine myoma removed for pressure symptoms. Recovery.

¹ Exhibited by Mr. DUDLEY WRIGHT, January 7, 1904.

² Exhibited by Dr. ROBERSON DAY, March 3, 1904.

³ Exhibited by Dr. E. A. NEATBY, June 29, 1904.

REPORT OF THE COUNCIL.

The Council have pleasure in reporting that the past Session has been one of a satisfactorily uniform character. In addition to Dr. H. Nankivell's Presidential address on "Some Present-Day Therapeutics," there have been seventeen papers read, and one discussion initiated.

Four new names have been added to the roll of the Society, and two members have resigned. For the first time for many years there has been no death among the members, but two corresponding members, Dr. Mahendra L'al Sircar, of Calcutta, and Dr. Noack, of Lyons, have passed away during the year. Since the last Annual Assembly, homœopathy has lost an active supporter in Dr. Robert Cooper, who though not a member at the time of his death had been so from 1869 to 1896.

In order to commemorate the Sixtieth Anniversary of the Foundation of the Society, the Council have recommended that a number of representative homœopathic medical men from America and the Continent be elected corresponding members.

The Treasurer's Report and balance sheet show a satisfactory financial position.

THE BRITISH HOMOEOPATHIC SOCIETY.

Cr.

BALANCE SHEET—SESSION 1903-1904.

Dr.

RECEIPTS.		EXPENDITURE.	
	£ s. d.		£ s. d.
To Balance in Hand ..	129 9 5	By Rent ..	25 0 0
„ Dividends on Consols ..	4 19 4	„ Printing, less advertising ..	117 7 3
„ Subscriptions ..	205 16 0	„ Reporting ..	35 14 0
„ Half cost of Plates ..	3 7 9	„ Honorarium to Editor ..	10 10 0
		„ Library ..	2 12 0
		„ Postage and Stationery ..	9 11 5
		„ Cheques returned ..	3 3 0
		„ Refreshments ..	5 10 0
		„ Indexing Account ..	38 5 0
		„ Petty Cash ..	5 17 0
			<u>£248 9 8</u>
		„ Balance ..	95 2 10
			<u>£343 12 6</u>

£348 12 6

J. G. BLACKLEY, *Treasurer.*

H. E. DEANE, *Auditor.*
June 28, 1904.

SOCIETY NEWS.

NEW CORRESPONDING MEMBERS.

At the Second Meeting of the Annual Assembly the following American and foreign distinguished representatives of Homœopathy were elected corresponding members of the Society :— Dr. Ghose (Calcutta); Dr. Klauber (Vienna); Dr. Schepens, père (Ghent); Dr. Seutin (Brussels); Dr. Tessier (Paris); Dr. Voorhoeve (The Hague); Professor Lombroso (Turin); Dr. Olivé (Barcelona); Dr. Batault (Geneva); Professor Soares de Meirelles (Rio de Janeiro); Dr. Sutherland (Boston); Dr. Bartlett (Philadelphia); Dr. Conrad Wesselhoeft (Boston); Dr. Arndt (San Francisco); Dr. Allen (Chicago); Dr. W. H. King (New York); Dr. Kent (Chicago); Dr. Copeland (Ann Arbor); Dr. Shears (Chicago); Dr. G. R. Roberts (New York); Dr. Gatchell (Chicago).

OFFICERS FOR THE SESSION, 1904-5.

The following Officers were elected for 1904-5 :—

President : Dr. James Johnstone.

Vice-Presidents : Dr. A. E. Hawkes, Dr. Speirs Alexander.

Treasurer : Dr. Galley Blackley.

The following were elected to form the Council :—Dr. Johnstone, Dr. Hawkes, Dr. Alexander, Dr. Blackley, Dr. H. Nankivell, Dr. Byres Moir, Dr. Burford, Dr. E. A. Neatby, Dr. MacNish, Dr. Watkins and Dr. Searson.

OFFICERS ELECTED BY THE COUNCIL.

At a meeting of the Council held in July, the following officers were chosen :—

Secretaries ¹: Mr. Knox Shaw, Dr. E. A. Neatby.

Editor : Dr. Goldsbrough.

Librarian :

¹ As Mr. Knox Shaw is desirous of relinquishing the Secretarial duties of the Society, these duties will henceforth devolve upon Dr. Edwin A. Neatby. Mr. Knox Shaw's name is retained in the Secretariat in order that his valued co-operation may be given in the deliberations of the Council. All communications relative to the business of the Society should be sent to Dr. Neatby, 82, Wimpole Street, London, W.

Secretaries of Sections.

General Medicine and Pathology.—Dr. MacNish.
Materia Medica and Therapeutics : Dr. Stonham.
Surgery and Gynaecology : Dr. Speirs Alexander.

OFFICERS FOR 1904-5 (LIVERPOOL BRANCH).

President : Dr. Thomas Simpson.
Vice-President : Dr. J. W. Ellis.
Secretary and Treasurer : Dr. James Watson.
Representative on Council : Dr. A. E. Hawkes.

 OBITUARY.
Dr. Dudgeon.

ON going to press, intelligence has been received of the death of the veteran Fellow and Past President of the Society, Robert Ellis Dudgeon, which took place on September 8, in the eighty-fifth year of his age. Some account of the work of Dr. Dudgeon in connection with the Society, and an expression of the sense of loss his death will create among the Fellows and Members, will appear in the January number of the Journal.

 BOOK RECEIVED.

A Sketch of the Treatment of Cholera, by MAHENDRA L'AL SIRCAR, C.I.E., M.D., D.L. A second edition, revised and enlarged, pp. 146. (Calcutta: Anglo-Sanskrit Press, 1904.)

At the time of the author's death this book was not quite ready for publication, but it has since been brought out by his son, Dr. A. L. Sircar. It forms an excellent monograph on cholera, and the present edition gives all up-to-date facts and treatment of the disease. The book is divided into two chapters, dealing

respectively with (1) the etiology (including bacteriology), morbid anatomy and pathology, diagnosis and prognosis (pp. 1-50), and (2) the treatment, divided into old-school treatment (pp. 51-64) and new-school treatment (pp. 65-146).

As regards a plan for homœopathic treatment, the disease is divided into five stages: (1) Premonitory, (2) full development, (3) collapse, (4) reaction, (5) sequelæ. Remedies are given, with an analysis of their indications for each stage, and cures are cited. At the end of the book a list of remedies, arranged alphabetically and in different sizes of type, according to their importance, with the dilutions recommended, is given; also another list arranged according to the stages of the disease in which they are used. It can scarcely be thought that the equipment of any physician called upon to undertake the treatment of cholera would be complete unless it included this monograph, based upon a knowledge of homœopathy and an experience of the disease in its endemic home.

SUMMARY OF PHARMACODYNAMICS AND THERAPEUTICS.

*Extracted from Exchange Journals by the Editor, in collaboration
with T. G. Stonham, M.D., and C. J. Wilkinson, M.R.C.S.*

Antimony and Lead. Mixed Poisoning.—A compositor, aged 29, about a year after the introduction of the linotype machine into his works, experienced pains in the limbs, tenderness of the fingers, constipation and excessive sweating. For three and a half years his symptoms were not attributed to fumes from a trough containing molten linotype metal—a mixture of tin, antimony and lead. Absence from work brought about relief of symptoms which returned when work was resumed. He entered hospital with a degree of tenderness in palms and fingers, which made work impossible. The hands were damp and the palms and fingers were of a faint pink colour. On the thenar and hypothenar eminences were minute pale papules. Microscopic examination of the skin showed congestion, but no leucocytosis. The epithelium was irregularly affected, the stratum lucidum being remarkably thickened, the cells of the rete actively proliferating, and the prickle cell stratum enlarged. The epithelial ridges were enlarged laterally, and there was cavernous dilatation of the intra-epithelial portion of the sudoriparous ducts. This condition was attributed to antimony. There were tremors and constipation and lead in the urine, as the result of absorption of the latter metal.—(*Lancet*, July 23. *British Journal of Dermatology*, July, 1904).—C. J. W.

Arsenic in Graves' Disease.—Dr. T. D. Nicholson, of Clifton, reports several cases of exophthalmic goitre treated with arsenic. (1) A typical case in a man whose symptoms were tachycardia, exophthalmos, enlarged thyroid, tremor, emaciation, anxiety, chronic diarrhoea, responded to the 3x. trit. gr. ii. t.d., extended over six months. He then resumed work as a telegraphist. After that progress was slow but sure under the 2x. trit. (2) A

single woman of 40 had the disease seventeen years. She was pale, thin, restless, irritable. Pulse 84, but frequent tachycardia. Thyroid enlargement, tremor, anæmia, irregular menstruation. Ars. 3x. trit. at first and afterwards 2x. trit. was given for twelve weeks with progressive improvement. She felt well at the end of the time except the thyroid swelling. (3) A domestic servant, aged 20, was anæmic, had thirst, palpitation and thyroid swelling. In six weeks under ars. alb. 3x. she was well again. (4) Mrs. R., aged 29, had suffered five years with enlarged thyroid, choking, frequent palpitation and constant throbbing. Ars. alb. 2x. was given steadily for six months with entire relief. (5) A shoemaker, aged 42, had been unable to work for months past owing to restlessness, irritability, prominence of eyes, pain and coldness in præcordia, rapid pulse, with thirst for beer. Under ars. 2x. 2 grs. t.d. he rapidly improved, and in a few weeks resumed work. Dr. Nicholson points to all the above symptoms as indicating arsenic.—(*Monthly Homœopathic Review*, July, p. 390).—Ed.

Arsenicum-Iodide in Neurasthenia.—Dr. W. F. Baker, in a paper read before the Germantown Homœopathic Medical Society, advocates the use of iodide of arsenic in general neurasthenia. He considers the dual action of the arsenic and the iodine renders this drug a particularly potent one for checking waste and increasing nutrition; and the readiness with which it also affects the nervous system, and its power of arresting sclerosis, especially of the cerebral vessels, combine to suggest it as a remedy for many forms of neurasthenia. He thinks the varieties of neurasthenia for which it is most adapted are: (1) cases of pure neurasthenia associated with malnutrition of the body and where the chief symptoms are referable to the brain and its functions; (2) the neurasthenia of convalescence from acute infectious fevers; (3) neurasthenia resulting from the cardio-vascular changes of advanced sclerosis where the nervous system is deprived of its proper nourishment; (4) the neurasthenia of interstitial nephritis; (5) the neurasthenia of wasting diseases, *e.g.*, phthisis. He recommends the 2x. trituration in doses of 1 gr. repeated every three hours, and insists that the preparation should be freshly prepared. He prefers to dispense dry capsules filled with fresh trituration and kept in dark bottles.—(*The Hahnemannian Monthly*, May, 1904).—T. G. S.

Baptisia in Spasmodic Stricture of the Œsophagus.—A man, aged 70, well till six months previously, noticed that

occasionally his food would not go down. He grew worse till practically every mouthful of food came back and was ejected before it reached the stomach. Different sized bougies were passed with ease, so that a diagnosis of œsophageal spasm was arrived at. Many medicines were tried in vain. Finding that Hoyne's "Clinical Therapeutics" gave several such cases that were successfully treated by baptisia 12—30, baptisia 3 was given in this case. The result was marvellous, for in two days the patient was enabled to swallow food and drink, and soon ate as usual.—*Hahnemannian Monthly*, May, 1904.)—T. G. S.

Bufo in Epilepsy.—Dr. S. Van der Bergh records the case of a young girl who began to menstruate in her thirteenth year, and remained in good health till her fifteenth year, but since then had suffered from attacks of epilepsy, which had been going on for two years. They always came by night, usually about the monthly period, and occasionally also between the periods. For a few days before the attack there was dulness in the brain and a passive pain in the left temple. Bufo 3, two drops daily, caused a diminution first in the frequency and then in the violence of the attacks. The remedy was continued for four months, and then, as for a month no symptoms appeared, it was stopped. She continued free for a year, and then she again began to have the premonitory pain in the left temple. This symptom yielded quickly to two-drop doses of bufo given daily, and no subsequent attacks occurred. Dr. Van der Bergh remarks that in the pathogenesis of bufo there is strongly-pronounced sexual excitation, and that the remedy also causes the patient to lose all modesty, and is excited to masturbation, which self-indulgence is followed by convulsions, which have some similarity to epileptic attacks. The convulsion is usually followed by a deep sleep. The aura generally proceeds from the sexual organs, but may also from the solar plexus. According to Lippe, bufo is especially indicated when the attacks appear at night, and, according to Allen, is suitable in attacks occurring at the monthly period.—(*The Homœopathic Recorder*, Sept., 1903.)—T. G. S.

Carboneum Sulphuratum. *Poisonings.*—Vasquek has shown at Prague two cases of poisoning by sulpho-carbide from among the workmen in an ill-ventilated vulcanising room. The symptoms were motor enfeeblement of lower extremities, paræsthesia, and mental depression. Examination revealed polyneuritis, tremor in hands and head, increased vaso-motor reflex (which was present

in the muscles also), muscular weakness, tactile anæsthesia of the skin, paræsthesia and increased patellar reflex. One case exhibited the pseudo-spastic paresis of Nouue. Vasquek also reported two further cases in which respiratory retardation of the pulse occurred with orthostatic tachycardia (Erb's symptom). This last symptom he regards as new in the records of sulpho-carbide poisoning. —(*Med. Press and Circular*, August 3, 1904.)—C. J. W.

Chimaphila in Urinary Disorder.—F. Kopp records an instance in which chimaphila 1x. m i. quarter die relieved the case of a lad of 16 who was suffering from scanty and frequent urination, accompanied by scalding, smarting and pressing pains. He had been suffering ten days, and had previously taken terebinth, uva ursi, buchu, and acid nitro-mur. without relief. Improvement set in on beginning the chimaphila. In seven days he was nearly cured, and in fourteen quite. (*Homœopathic World*, July, p. 319).—Ed.

Iris in Sudden Vertigo (? Meniere's Disease.)—Mrs. K., aged 72, in good general health, has suffered for eight years with fulness, ringing and roaring in both ears. Hearing diminished, but tympani normal. For a number of months she had had frequent attacks of vertigo so severe that she would fall to the floor and be utterly unable to move. The oncome was like a sudden flash or shock, the noises were almost maddening, nausea and bilious vomiting were intense, and kept up from ten to twelve hours, flicking before the eyes like a bead curtain hung before them. Last attack continued twenty-four hours. Iris 30 was prescribed, about ten doses in a week. On the eleventh day the noises ceased. There were no subsequent attacks of vertigo in two years.—(Dr. Philip Rice in *The Medical Advance*, May, 1904).—Ed.

Kreasotum. *Indications.*—Dr. C. M. Bager sums up the characteristic indications for kreasote as the following: (1) Hot excoriating discharges (tears, menses, saliva, urine, leucorrhœa); (2) Burning, smarting sensations anywhere; (3) Easy and profuse bleedings, hæmorrhages from wounds, mucous membranes, gums, &c.; (4) Excessive fœtor (mouth, menses, leucorrhœa); (5) Tume-faction, puffiness, gangrene (of affected parts, lungs, ulcers, &c.). —(*Homœopathic Recorder*, July, p. 289).—Ed.

Natrum Muriaticum in a Case of Pulmonary Tuberculosis.—Dr. Harvey Farrington, of Chicago, records this case:—A man, aged 38, had for a year and a half complained of cough,

night sweats, and the usual symptoms of pulmonary tuberculosis, and the allopathic physician who had treated him for a year and examined his sputum every week invariably found tubercle bacilli. A stay in New Mexico benefited, but on his return to Chicago he became as bad as ever. He then consulted Dr. Farrington, who found the following condition:—Headache, right side of head and behind eyeballs. Cough hard and racking, worse in the morning after waking. Expectoration thick, yellowish and heavy, “seems to come from the stomach.” Soreness and aching in the muscles and joints since a chill two weeks previously. Weak, all-gone sensation in the stomach in the morning on waking, at 10 a.m., and at 4 p.m. Poor appetite; thirst for cold water. Desire for salt; is very fond of it. Pain in the right chest. Physical examination reveals an area of consolidation about as large as the palm of the hand, to the outer side of the nipple, surrounded by mucous râles, and some suspicious areas near the right apex. Extreme nervousness; is easily startled; trembles. Suffers from a good deal of palpitation. Melancholy; irritable; when once aroused his temper becomes uncontrollable. Losing flesh rapidly. He had malaria for five years, which was suppressed two years ago with quinine. Before he succeeded in accomplishing this the chills returned every spring. They were quotidian in type, appeared at 4 p.m., and were accompanied with dull, frontal headache, and thirst. All the sufferings were relieved by the sweat. On June 13 a single dose of *natrum muriaticum* 1000 (Boericke and Tafel) was given with a liberal supply of placebo. Improvement in the general condition commenced in a few days, and an old otorrhœa that he thought was cured began again. On August 12 the *natrum muriaticum* was repeated, and again on October 30. Improvement continued, but in November he had a little hæmorrhage. On November 20 another dose of *natrum muriaticum*, this time Fincke’s cm., was given. This was the last dose. On February 22 he reported himself as feeling as well as ever he did, and in March report of bacteriological examination of sputum gave negative results. All the old symptoms had vanished, but the otorrhœa continued.—(*North American Journal of Homœopathy*, May, 1904).—T. G. S.

Prophylactic Remedies.—Dr. W. Ide Pierce, in a lecture at the New York Homœopathic College, brought forward the subject of prophylaxis and the use of medicines which from his own experience he could speak of as reliable prophylactics in certain diseases. These were belladonna for scarlet fever. Apis

for diphtheria. Baryta carb. for quinsy. Graphites for erysipelas. Cocculus, apomorphia and petroleum for sea sickness. Staphisagria for styas. All of these medicines, except the apomorphia and petroleum, were given in the 30th potency, and he considers this the best for all prophylactic medicines. He potentised the drugs himself according to the directions of Hahnemann. (*Hahnemannian Monthly*, June, 1904.)—T. G. S.

Psorinum in Furunculosis.—Dr. Beck, of Monthey, Switzerland, relates a case of inveterate furunculosis occurring in a lady, and which had troubled her for more than twenty years. The boils were on the anterior aspect of the body, sometimes on the chest, sometimes on the abdomen. They were large, usually isolated, from 2 to 4 centimetres in diameter, including the induration of the skin which formed their base. Their development lasted from four to eight weeks, and sometimes a new set began before the last had fully healed. In order to diminish the painful drawing and twitching in the skin, the patient had gradually come to stoop over forwards, and this, together with the contraction of the cicatrices, had so drawn her together that she could not maintain an erect posture without effort.

Sulphur, silica, hepar, arnica, terebinthina, thuja, &c., had all been used in vain, as well as allopathic treatment. It was at last discovered that when a child she had been infected with scabies by her nurse, and had been cured of it by the inunction of sulphur ointment. She was given a single dose of 5 centigrammes of psorinum 3c. There was no aggravation. The furuncles healed quickly, and she had no more; and a report from her three years later showed they had not returned. (*Homœopathic Recorder*, January, 1904.)—T. G. S.

Sepia in Herpes Circinatus.—A widow, 56 years old, of vigorous constitution, a blonde, and of sanguine temperament, suffered from herpes circinatus on the right side of the face. The eruption had spread over the nose, cheek, and upper lip. She had had no other cutaneous eruption, and had been otherwise well. She was given six powders of sepia 15, and was directed to dissolve one powder in water every day and take the solution in three portions morning, noon, and evening. At first there was no change, and the remedy was repeated, but then the herpes gradually disappeared and had not returned in the course of a year. (*The American Physician*, May, 1904.)—T. G. S.

Snake Venoms.—Sir T. Fraser and Major Elliot, I.M.S., have reported to the Royal Society the results of investigations into the toxic actions of the venoms from *Enhydrina valakadien* and *Enhydris curtus*, two sea-snakes of Madras.

They find the lethal dose of *Enhydrina* to be as low as .00009 gramme per kilogramme of body-weight in the rat, which leads them to characterise it as "the most lethal of all substances the lethal power of which has been determined." They find the dyspnoea more urgent under sea-snake venom than under cobra-venom, and note lid-rise of the lower lid (the result of paralysis of the depressor muscle, probably central) as common to the two classes of venom. *Enhydrina* appears to have no direct action on the walls of the arterioles, and (in contrast to *naja*) has no direct action on the vagal cardio-inhibitory centre. This leaves the heart free to express a feeble tonic action of the venom. There is no apparent action on the vaso-motor centre. Death is due to central respiratory interference, but (in contrast to the action of cobra-venom) some degree of motor nerve-end paresis is a constant and presumably necessary factor in producing it.—*The Lancet*, July 16, 1904.)—C. J. W.

Spigelia in Headache.—Dr. F. M. Hamblin, of Baltimore, records this case:—Miss B., aged 38, suffering from chronic melancholia, was subject to very severe headaches. They were of neuralgic character. At the acme there was bilious vomiting. The pain was burning and tearing, and any noise or jar would cause the patient, who usually sat impassive and indifferent, to groan in her agony. Stormy weather aggravated. At every change to dampness the pain would begin in the occiput, run over the head, and settle invariably in the left eye. Spigelia 3 and 6 did not relieve. Finally, in a more than usually severe attack, Spigelia 200 was given. In fifteen minutes the patient was sleeping quietly, and subsequent headaches never failed to be controlled by the drug in the same potency.—(*American Medical Monthly*, October, 1903.)—T. G. S.

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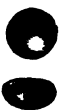


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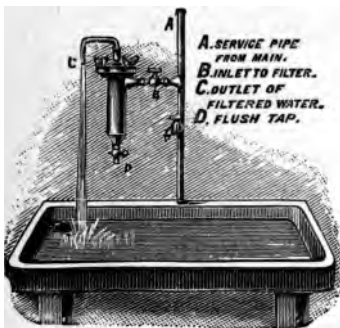
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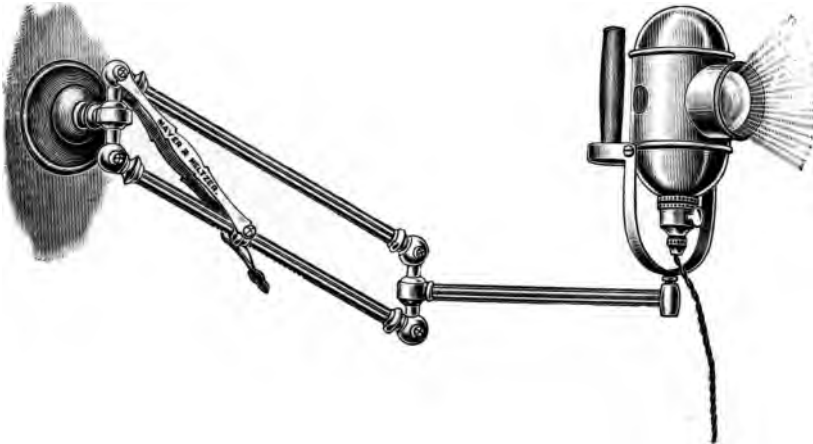
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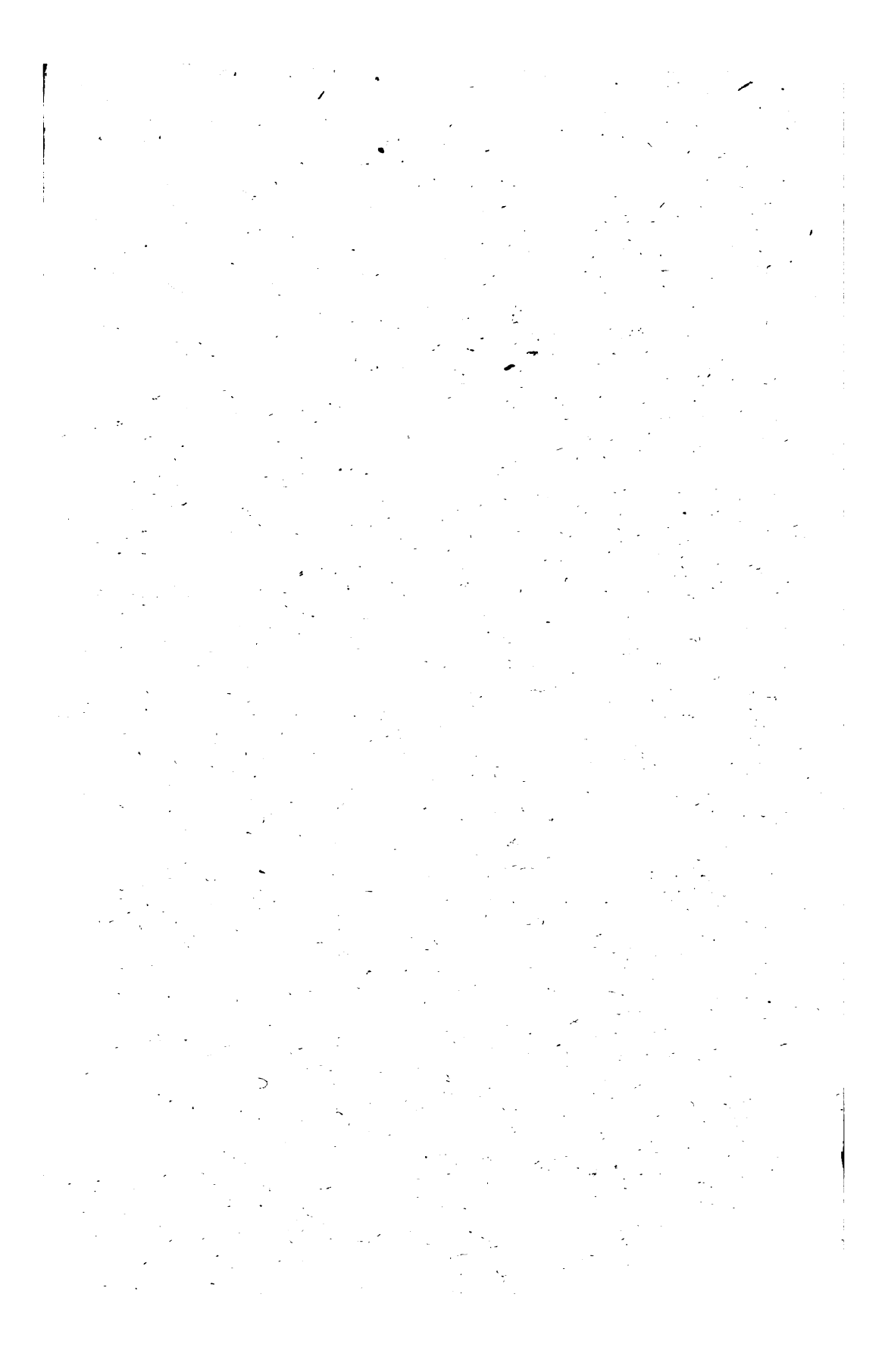
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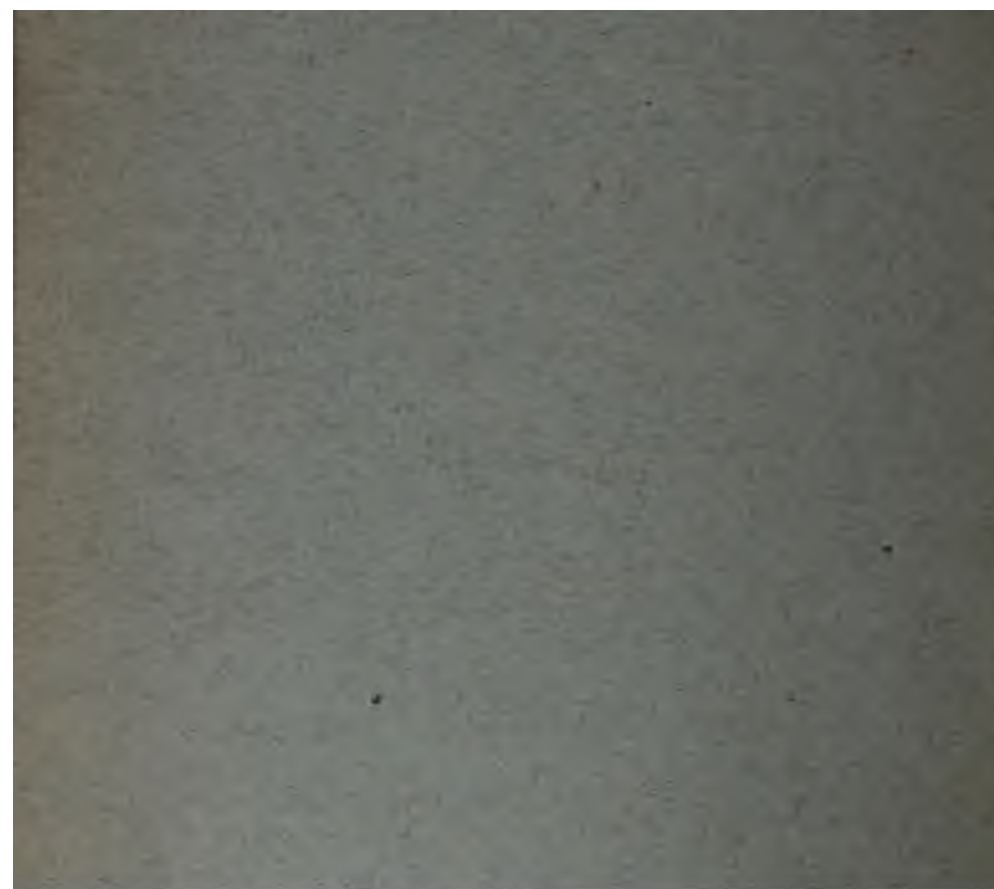
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