Hunterian Society

Transactions.

Session 1905-6.
TRANSACTIONS
OF THE
HUNTERIAN SOCIETY,
1905-1906.
THE
TRANSACTIONS
OF THE
HUNTERIAN SOCIETY.
1905-1906.
EIGHTY-SEVENTH SESSION.

Edited by Hugh Lett, M.B., F.R.C.S.

Ratio Societatis Uinculum.

LONDON:
Headley Brothers, 14, Bishopsgate Without, E.C.
and Ashford, Kent.
1906.
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<td>Sir William Blizard, F.R.S.</td>
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<td>1822</td>
<td>Benjamin Robinson, M.D.</td>
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<td>1824</td>
<td>William Babington, M.D., F.R.S.</td>
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<td>Benjamin Travers, F.R.S.</td>
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<td>Archibald Billing, M.D., F.R.S.</td>
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<td>John Poland</td>
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1826 Sir William Blizard, F.R.S.
1827 William Babington, M.D., F.R.S.
1828 Benjamin Robinson, M.D.
1829 Benjamin Travers, F.R.S.
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Charles Stewart, L.L.D., F.R.S., Professor of Comparative Anatomy and Physiology, and Conservator of the Hunterian Museum, Royal College of Surgeons, London, W.C.

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Canfield, Ralph M. - Massachusetts General Hospital, St. Mary’s Road, Doncaster.
English, Edgar, M.D. - The Retreat, York.
Pierce, Bedford, M.D. - Raven’s Moat, Carlisle Road, Eastbourne.
Roberts, Bransby, M.D. -
Treves, William Knight, F.R.C.S. - 32, Dalby Square, Margate.
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T., Treasurer ; L., Librarian ; Aud., Auditor.

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a indicates a Life Fellow by payment of twenty-five annual subscriptions in accordance with Law LXII.
b indicates a Life Fellow by purchase in accordance with Law LXII.

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1896 AGAR, MORLEY F. - - 68, Wimpole Street, W.
1906 AITKEN, JAMES, M.B., C.M. - The Drive, Ilford, Essex.

1856 ALLINGHAM, WILLIAM, F.R.C.S., Kingsdene, Shelley Road, Worthing ; V.P. 1869-70, C.* 1861-2, S. 1865-6, 7-8.

1903 ALLPORT, ALFRED - - 28a, Moorgate Street, E.C.
1899 ANDREWS, H. RUSSELL, M.D., B.S., Secretary, 7, Wimpole Street, W.; C.* 1903-4, S. 1905-6.


1903 ATKINSON, STANLEY BEAN, M.A., LL.M., M.B., B.Sc., Claremont, Crawley Road, Hackney, N.E.

1889 BARLOW, THOS. C. - - 88, Dalston Lane, N.E.


1906 BATHURST, W. HENRY ISAACS - Spellers, Hunsdon, Ware, and 28, High Street, Walthamstow, N.E.


1892 BEEVOR, SIR HUGH R., BART., M.D., 17, Wimpole Street, W.; V.P. 1900-1, O. 1899, C.* 1895-7, 1902-3-4.

1899 BERNSTEIN, MATTHIAS M., M.B. 51, Cazenove Road, Stamford Hill, N. C. 1906.

1897 BEST, WM. HARRIS - - "Trelyon," High Road, Ilford, Essex; C.* 1904-6.

1865 BROWN, FREDERICK GORDON, TRUSTEE, 17, Finsbury Circus, E.C.; P. 1892-3, V.P. 1881-2, C.* 1869-70, S. 1872-3-4-5-6, Aud, 1895, 1898-1906.
LIST OF FELLOWS.

1883 Brown, T. Lloyd - - - 6, Hyde Road, Hoxton, N.; C. 1889-90.


b1865 Brownfield, Matthew - - 171, East India Road, E.; V.P. 1882-3, C. 1869-70.


1906 Bumsted, Henry James, M.A., M.B., B.C., 7, High Road, Streatham.

1897 Burgess, C. Venning - - 279, Borough High Street, S.E.

1896 Burrows, Chas. Wm. G. - - Weston House, Long Lane, S.E.

1904 Busch, Josef Paul Zum, M.D., - - 135, Finsbury Pavement, E.C.

1896 Byrne, Benjamin - - Gordon House, East India Road, Poplar, E.

1900 Carson, H. W., F.R.C.S. - - 26, Welbeck Street, W.


a1858 Clapton, Edward, M.D., F.R.C.S., 41, Eltham Road, Lee, S.E.; V.P. 1872, 3, & 5, C.* 1870-1, 74.

b1864 Clapton, William, F.R.C.S. - Canterbury; V.P. 1885-6, C. 1869-70.

1904 Coghlan, Edward Francis -

1902 Colbeck, Edmund H., B.A., M.D., B.C., 55, Upper Berkeley Street, W.

a1858 Corner, Francis M., Trustee - Manor House, Poplar, E.; P. 1886, V.P. 1868-9, 1880-1, C.* 1862, 1864.

1900 Corner, Frank - - Manor House, Poplar, E.

1890 Corner, M. Cursham - - 113, Mile End Road, E.

1900 Cotman, Harold Herbert - - St. Bartholomew's Hospital, Rochester.

a1862 Couper, John, F.R.C.S. - - 80, Grosvenor Street W.; P. 1880, V.P. 1873-4, O. 1874, C.* 1867, 1881.

1889 Cressy, A. Z. Claydon - - Hayesden, Wallington, Surrey.


1902 Daly, Fred. J. Purcell - - 188, Upper Clapton Road, N.E.

1906 Davies, Hugh, M.B., B.S., F.R.C.S., 234, Trafalgar Road, Greenwich.

b1879 Davies, John, M.D. - - 87, Cambridge Gardens, W.; C. 1889.

1901 Denning, Chas. Ernest - - Epping, Essex, C. 1906.
1896 Downes, J. Lockhart, M.B., C.M., 269, Romford Road, Forest Gate, E.
1889 Dunn, Louis A., M.S., F.R.C.S. 51, Devonshire Street, Portland Place, W.; C. 1895, 1897;
1901 Evershed, Arthur R. F. - 19, Harley Street, W.
1906 Fisher, Theodore, M.D. - The Garples, Granville Road, Sidcup, Kent.
1904 Fleming, Thomas, M.D., C.M. - 42, Harley Street, W.
b1885 Fox, R. Hingston, M.D., Treasurer, 29, Weymouth Street, Portland Place, W.; V.P. 1895-7, T. 1900-6. O. 1897, C.* 1889, S. 1890-1-2-3-4.
1894 Fox, R. Fortescue, M.D. Secretary, 29, Weymouth Street, W., C.* 1897, 1904, S. 1905-6.
1888 Galloway, A. Wilton - - High Street, Epping; C.* 1898,1901-4, V.P. 1905.
b1863 Gervis, Henry, M.D. - - The Towers, Hillingdon, Uxbridge; P. 1887, V.P. 1875-6, O. 1875, C.* 1867.
1904 Gibbons, Arthur Philip, M.B. 17, Finsbury Circus, E.C.
b1876 Gilbert, Edward G., M.D. - Tunbridge Wells; V.P. 1889-90, O. 1881, C.* 1879-80, 83-86.
1893 Godding, James - - Southdene, The Avenue, Wanstead, Essex.
1887 Grant, Leonard, M.D., C.M. - - Hillside, Station Road, New Southgate, N.
1901 Grant, C. Graham - - Albert Square, 523, Commercial Road, E., and 3, Gt. Ormond Street, W.C.
a1863 Greenwood, James, M.D. - The Shrubbery, Leyton, N.E.; V.P. 1880-1, C.* 1873-4.
1893 Geogono, Walter A. - - Witham Lodge, 171, Romford Road, Stratford, E.; C. 1898.
LIST OF FELLOWS.

1896 Harris, A. Butler, M.A., M.B., B.Ch., The Shrubbery, Loughton, Essex; C. 1900.

1894 Haslett, W. J. Handfield - Halliford House Asylum, Sunbury-on-Thames.

1906 Heath, Charles J., F.R.C.S. 3, Cavendish Place, W.


1862 Hicks, G. Borlase - 149, Amhurst Road, Hackney, N.E.; V.P. 1888-9-90, C.* 1886-7.

1892 Hirsch, Chas. T. W. - Charlinch, Rectory Place, Woolwich.

1889 Hoole, Henry, M.D. - 27, Old Jewry, E.C., and The Lindens, Church Street, Epsom.

1884 Horrocks, Peter, M.D. - 42, Brook Street, Grosvenor Square, W.; V.P. 1894, C.* 1887-9, O. 1898.

1901 Hosford, John Stroud, F.R.C.S. Ed., 20, St. James’s Place, St. James’s Street, S.W.

1884 Houchin, Edmund King - Ravensworth, Cranbrook Road, Ilford, Essex, and 28, Gordon Square, W.C.; C. 1899.

Hovell, T. Mark F.R.C.S. Ed., 105, Harley Street, W.; V.P., 1895-6, C.* 1887, 1889.

1889 Humphreys, F. Rowland - 2, Chalcot Gardens, England Lane, South Hampstead, N.W.; V.P. 1901-2, C.* 1892-6, 1903-4-6, Aud. 1893-7, 1906, O. 1903.


1862 Jackson, J. Hughlings, M.D., LL.D., F.R.S., 3, Manchester Square, W.; P. 1882, V.P. 1870-1, O. 1872, C. 1866, 1883.

1884 Jackson, George H. - Ashburton, Carew Road, Eastbourne; C. 1890.

1903 Jeremy, Harold Rowe - 60, Friern Road, East Dulwich, S.E.

1903 Jordan, Alfred C., B.A., M.D., B.C., 1, Norton Folgate, E.C., and 101, Leadenhall Street, E.C.

1906 Kaye, Henry Wynyard, M.B. B.Ch., Eaglestone, Strathefner, Spa, N.B.
1898 Kearney, James - - Royal General Dispensary, 26, Bartholomew Close, E.C.; C.1902.

1897 Kelso, Wm. Henry, M.D., B.S., F.R.C.S., 17, Cavendish Place, W., C.* 1900-1, 1904.

1897 Kershaw, Wm. Henry - - 6, Southgate Road, N.

1892 Lang, William, F.R.C.S. - - 22, Cavendish Square, W.

1905 Lawry, James L. - - Tharsis Villa, Calstock, Cornwall.

1902 Lett, Hugh, M.B., Ch.B., F.R.C.S., Editorial Secretary, C. 1905-6, 48, Queen Anne Street, W.

a1860 Lichtenberg, Geo., M.D. - Springfield, 104, Croydon Road, Beckenham, V.P. 1878-9, C.* 1864-5.


1903 Manning, T. Davis, M.B., B.S., Rodwell, Weymouth.

1891 Manson, Sir Patrick, K.C.M.G., M.D., C.M., LL.D., D.Sc., F.R.S., 21, Queen Anne Street, W., V.P. 1901, O. 1894, C. 1895.

a1869 McCarthy, Jeremiah, M.A., M.B., F.R.C.S., 1, Cambridge Place, Victoria Road, Kensington, W.; V.P. 1877-8, C.* 1874-5.

1899 McDougall, W. Stewart, M.B., C.M., Benloyal, Woodcote Road, Waltham, Surrey.

1898 Michael, Gustave, M.B., C.M. 188, Commercial Road, E., and 5, Cambridge Place, Chester Gate, Regent's Park, N.W.


1894 Mitchell, Alexander, M.D., C.M., 87, Regent Street, W.

1900 Mürtz, Anton P. - - - Clareville, 48, Queen's Road, Finsbury Park, N.

1892 Oliver, John W., M.D., M.Ch. - Hackney Union Infirmary, Homerton, N.E.; C.* 1896-1903-4, V.P. 1904-5.
LIST OF FELLOWS.


1906 Parsons, Walter Brock - 29, Queen Anne Street, W.

1888 Perry, Sir E. Cooper, M.A., M.D., Guy's Hospital, S.E.; C. 1893.

1884 Pettifer, Edmund H. - 32, Stoke Newington Green, N.


1906 Parsons, Walter Brock - 29, Queen Anne Street, W.


1890 Poland, John, F.R.C.S., President, 2, Mansfield St., Cavendish Sq., W.; V.P. 1893-4, O. 1901, S. 1887-8-9-90-1-2.

1882 Potter, George W., M.D., C.M 8, King Street, Cheapside, E.C., and Keldholme, Tunbridge Wells; C. 1894-5.

1897 Preston, Francis H., M.A. - Gothic Lodge, 240, Burrag Road, Plumstead, Kent.

1870 Pye-Smith, P. H., B.A., M.D., F.R.S., 48, Brook Street, W.; P. 1885, V.P. 1879-80, O. 1879, C.* 1875-6.


1895 Rushbrooke, Thomas, M.A. - "Melrose," 93, Stamford Hill, N.

1897 Russell, Ambrose J. - 85, Edward Street, Deptford, S.E.

1903 Rigby, Hugh M., M.S., F.R.C.S. 7, Wimpole Street, W.


1896 Sargent, Hugh C. - 223, High Street, Shadwell, E.

1884 Scarth, Isaac, M.B., B.S., B.Sc. 16, Quex Road, West Hampstead, N.W.; C. 1888.


1894 Sequeira, James Harry, M.D., F.R.C.S. 63, Harley Street, W.; C.* 1898-1902-5.

1891 Shadwell, St. Clair B., M.D. - Lynhurst, Orford Road, Walthamstow, N.E.; C. 1895-6.

1888 Shaw, Lauriston E., M.D., Orator, 64, Harley Street, W.

1854 Shillitoe, Buxton, F.R.C.S. 2, Frederick Place, Old Jewry, E.C.

1906 Shillitoe, Arthur, B.S., F.R.C.S., 2, Frederick Place, Old Jewry, E.C.
LIST OF FELLOWS.

1906 SMEY, Athelstane ILiffe, M.D., B.C., 17, Finsbury Circus, E.C.


1903 Smith, Lewis Albert, M.D. - 25, Queen Anne Street, W.; C. 1906.

1875 Stevens, George J. B. - 1, Stoke Newington Green, N.; V.P. 1887-8, C. 1878-9, 1896.

1904 Stewart, J. Purves, M.A., M.D., C.M., 94, Harley Street, W.

1892 Stocker, Charles Joseph - Weston House, Richmond Gardens Forest Gate, E.

1894 Stonham, Henry Archibald - 511, Commercial Road, E.

1905 Sturge, W. Howard, M.D. - Hoddesdon, Herts.

1896 Summers, Thos. Collyer - 69, Bow Road, E.


1878 Talbot, Russell M. - Eastcliff, St. John's Road, Tunbridge Wells; C. 1882.


1880 Thorp, Henry J. - Granite Lodge, Woodbridge Road, Ipswich; V.P. 1895, C. 1892-3.

1890 Tubby, Alfred H., M.S., F.R.C.S., 68, Harley Street, W.; V.P. 1898-9, C. 1893-4-5, S. 1896-7-8, O. 1905.

1878 Wallace, Frederick - Foulden Lodge, 133, Upper Clapton Road, N.E.; V.P. 1903, C. 1881, 1886.


1887 Warner, Percy - "Rydal," Woodford Green, Essex; C. 1890, 1893.

1906 Warren, Richard, M.D., F.R.C.S., London Hospital, E.

1897 Will, J. Kennedy, M.A., M.D., C.M., Bethnal House Asylum, Cambridge Road, N.E.; C. 1906.

1906 Willey, Fred. Jos. Ingor, M.B., B.S., Finsbury Circus House, 12, Blomfield Street, E.C.

1906 Williams, Chisholm, F.R.C.S., Ed., 20, Bedford Square, W.C.

1893 Williams, George Rowland, M.D., 40, Queen Street, E.C.

1902 Williamson, Oliver, K., M.A., M.D., B.C., 55, Upper Berkeley Street, W.
LIST OF FELLOWS.

1895 Wood, Edward - - Stamford Lodge, Enfield, Middlesex.
1899 Woollacott, Francis, J., M.A., M.D., B.Ch., Park Hospital, Hither Green, Lewisham, S.E.
1896 Wornum, G. Porter - - 58, Belsize Park, Hampstead, N.W.
1901 Worth, Claud A., F.R.C.S. - - 138, Harley Street, W.
1906 Wylie, Andrew, M.D., C.M. - - 7, Harley Street, W.

[It is requested that any change of Title or Residence may be communicated to one of the Secretaries before the Annual General Meeting, in order that the list may be as correct as possible.]
# LIST OF FELLOWS.

*Arranged according to Date of Election.*

<table>
<thead>
<tr>
<th>Year</th>
<th>Name and Title</th>
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<td>Robert Barnes, M.D.</td>
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<td>Thomas Boor Crosby, M.D.</td>
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<td>Buxton Shillitoe.</td>
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<td>1855</td>
<td>Jonathan Hutchinson, LL.D., D.Sc., F.R.S.</td>
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<td>1856</td>
<td>William Allingham.</td>
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<td>1857</td>
<td>Richard Unthank Wallace, M.B.</td>
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<td>1858</td>
<td>Edward Clapton, M.D.</td>
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<td>Francis Mead Corner.</td>
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<td>1860</td>
<td>George Lightenberg, M.D.</td>
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<td>1862</td>
<td>Thomas Bryant, M.Ch.</td>
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<td>John Couper.</td>
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<td>George Borlase Hicks.</td>
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<td>John Hughlings Jackson, M.D., LL.D., F.R.S.</td>
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<td>1863</td>
<td>James Greenwood, M.D.</td>
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<td>Henry Gervis, M.D.</td>
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<td>1864</td>
<td>Edmund Henry Pettifer.</td>
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<td>William Clapton.</td>
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<td>1865</td>
<td>Frederick Gordon Brown.</td>
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<td>Matthew Brownfield.</td>
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<td>1869</td>
<td>Jeremiah McCarthy, M.A., M.B.</td>
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<td>Waren Tay.</td>
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<td>1870</td>
<td>Philip Henry Pye-Smith, B.A., M.D., F.R.S.</td>
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<td>1874</td>
<td>Richard Clement Lucas, M.B., B.S.</td>
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<td>1875</td>
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<td>Alfred Lewis Galabin, M.A., M.D.</td>
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<td>1875</td>
<td>George Ernest Herman, M.B.</td>
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<td>George Jesse Barnabas Stevens.</td>
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<td>1876</td>
<td>Edward Gillett Gilbert, M.D.</td>
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<td>Sir Stephen Mackenzie, M.D.</td>
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<td>1878</td>
<td>James Dundas Grant, M.A., M.D., C.M.</td>
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<td>Russell Main Talbot.</td>
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<td>John Davies, M.D.</td>
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<td>Charters James Symonds, M.S., M.D.</td>
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<td>Henry John Thorp.</td>
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<td>1881</td>
<td>John Poland.</td>
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<td>1882</td>
<td>George William Potter, M.D., C.M.</td>
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<td>T. Mark Hovell.</td>
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<td>Isaac Scarth, M.B., B.S.</td>
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<td>1885</td>
<td>Richard Hingston Fox, M.D.</td>
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<td>Arthur Templer Davies, B.A., M.D.</td>
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<td>1887</td>
<td>Frederick John Smith, M.A., M.D.</td>
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<td>Year</td>
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<td>Leonard Grant, M.D., C.M.</td>
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<td>Matthew Curcham Corner</td>
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<td>Alfred Herbert Tubby, M.B., M.S.</td>
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<td>1891</td>
<td>Sir Patrick Manson, K.C.M.G.</td>
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<td>M.D., C.M., LL.D., D.Sc., F.R.S.</td>
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<td>St. Clair Brockway Shadwell, M.D.</td>
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<td>1892</td>
<td>Sir Hugh Reeve Beevor, B.A., M.D.</td>
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<td>Thomas Hancock Arnold Chaplin, B.A., M.D., B.C.</td>
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<td>John William Oliver, M.D., M.Ch.</td>
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<td>William John Handfield Haslett.</td>
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<td>Alexander Mitchell, M.D., C.M.</td>
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<td>1896</td>
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<td>Charles William Grimes Burrows.</td>
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<td>Benjamin Byrne.</td>
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<td>Joseph Lockhart Downes, M.B., C.M.</td>
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<td>Arthur Butler Harris, M.A., M.B., B.Ch.</td>
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<td>Hugh Cann Sargent.</td>
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<td>Thomas Collyer Summers.</td>
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<td>George Porter Wornum.</td>
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<td>1897</td>
<td>Harold Leslie Barnard, M.B., M.S.</td>
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<td>William Harris Best.</td>
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<td>Christopher Venning Bur- gess.</td>
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<td>Herbert Vigers Hickman, M.B.</td>
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<td>William Henry Kelson, M.D., B.S.</td>
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<td>William Henry Kershaw.</td>
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<td>Francis Harrison Preston, M.A.</td>
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LIST OF FELLOWS.

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<tr>
<th>Year</th>
<th>Name 1</th>
<th>Name 2</th>
<th>Name 3</th>
<th>Name 4</th>
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<td>1897</td>
<td>Ambrose James Russell</td>
<td>John Kennedy Will, M.A., M.D., C.M.</td>
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<td>1898</td>
<td>Charles Edward Adams</td>
<td>M.B., B.Sc.</td>
<td>James Kearney</td>
<td>Gustave Michael, M.B., C.M.</td>
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<td>1899</td>
<td>Henry Russell Andrews</td>
<td>M.D., B.S.</td>
<td>Matthias Max Bernstein, M.B.</td>
<td>William Stewart McDougall, M.B., C.M.</td>
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<td>Henry Hoole, M.D.</td>
<td>Francis James Woollacott, M.A., M.B., B.Ch.</td>
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<td>1900</td>
<td>Herbert William Carson</td>
<td>Frank Corner</td>
<td>Harold Herbert Cotman</td>
<td>Ernst Michels, M.D.</td>
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<td>1901</td>
<td>Andrew Stark Currie, M.D.</td>
<td>Charles Ernest Denning</td>
<td>Arthur Reginald Field Evershed</td>
<td>Charles Graham Grant</td>
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<td>1902</td>
<td>Edmund Henry Colbeck, B.A., M.D., B.C.</td>
<td>Frederick James Purcell Daly</td>
<td>Hugh Lett, M.B., Ch.B.</td>
<td>Oliver Key Williamson, M.A., M.B., B.C.</td>
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<td>1903</td>
<td>Alfred Allport</td>
<td>Stanley Bean Atkinson, M.A., LL.M., M.B., B.Sc.</td>
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<td>1905</td>
<td>James Littleton Lawry</td>
<td>William Howard Sturge, M.D.</td>
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</table>
THE EIGHTY-SEVENTH ANNUAL REPORT
OF THE
COUNCIL OF THE HUNTERIAN SOCIETY.

The Council have pleasure in recording the undiminished interest that has attended the meetings of the Society during the past session.

The best thanks of the Society are due to Dr. H. Lewis Jones for his lecture on "Some new lines of work in Electro-Therapeutics": and in a special sense to Mr. Jonathan Hutchinson. Mr. Hutchinson's lecture, entitled "Reminiscences of the Hunterian Society," forms an interesting and valuable record of a striking period in the history of the Society.

Two afternoon Clinical Meetings have been held this session, in the London and Guy's Hospitals respectively: and their success encourages the Council to repeat them in future years.

Papers have been contributed by Mr. Hugh Lett, Mr. J. Tregelles Fox, Dr. W. H. Kelson, Dr. W. A. Milligan and Dr. Purves Stewart, which have led to interesting and instructive discussions, and many Fellows have brought forward valuable and interesting specimens at the Pathological evenings.

Mr. A. H. Tubby, who delivered the Hunterian Oration, chose for his subject "Recent Surgical Methods for the Treatment of certain forms of Paralysis," and set forth the result of recent work upon this subject, with many original observations and deductions.
The Session was concluded by a discussion upon Syphilis, and the thanks of the Society are due to Mr. Hutchinson, Dr. Savage, Dr. Hale White, Dr. Theodore Shennan of Edinburgh, Dr. G. F. Still, and Dr. Morgan Dockrell, for their contributions upon different aspects of this disease, and on its diagnosis and treatment.

During the past year three Fellows have been admitted, five have resigned, and one has been lost by death. The present number on the roll is 159.

Dr. Henry Isaac Fotherby died in December, 1905. His name will ever be associated with the history of the Hunterian Society, towards whose interests he had devoted an amount of labour, greater, probably, than that of any of its members since the time of its founders. He had been for fifty-one years a Fellow; he was Honorary Secretary for eleven years, from 1857 to 1867, Treasurer and Trustee for many years subsequently, and had filled almost every office in the Society, including that of President. His oration in the year 1869 gave a most valuable historical review of the first half century of the Society’s existence—a review which is often referred to. Whole volumes of the Society’s Minute Books and accounts are filled by his regular handwriting, and he compiled with great personal care and labour the Roll of the Society’s members.

The Council of the Society desires to place on record its high sense of the unsparing devotion of their late colleague to the work of scientific medicine and surgery, as represented by this Society.

REPORT OF THE HONORARY TREASURER.

I have the honour to present the accompanying statement of Account for the year 1905. It will be noted that the receipts from subscriptions show some falling off, especially from new
Fellows, only two having been received in the year. On the other hand the expenses have been large, so that there has been a loss of nearly £20 on the year's working. Owing to economy in former years, the Society is able to bear this strain on its finances, but it may be hoped that fresh accessions of members may provide a larger income for the future.

R. Hingston Fox.
# BALANCE SHEET FOR 1905.

## THE HUNTERIAN SOCIETY IN ACCOUNT WITH THE TREASURER.

<table>
<thead>
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<th>Receipts</th>
<th>£  s.  d.</th>
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<td>By Balance from 1904</td>
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<td>&quot; Subscriptions from Fellows—</td>
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<td>&quot; 93 for 1905 at £1 1s.</td>
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<td>&quot; 9 for 1905 at 10s. 6d.</td>
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<td>&quot; 2 Entrance for 1905</td>
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We, having examined the above account, together with the Vouchers, certify that it is correct, and that the Balance to the credit of the Society on 1st January, 1906, was £56 4s., which sum, in addition to balance of cheques not then presented, appears upon the Passbook of the Society’s account at the Union of London and Smith’s Bank, Lombard Street, E.C. We also certify that the Funded Property of the Society consists of £460, £2 10s. per cent. Consols, standing in the names of the Trustees.

February, 1906.

F. GORDON BROWN.
WM. ETTLES.
HUNTERIAN SOCIETY.

THE ANNUAL ORATION, 1906.

RECENT SURGICAL METHODS
IN THE
TREATMENT OF CERTAIN FORMS OF PARALYSIS.

By A. H. Tubby, M.S., F.R.C.S.: Surgeon to Westminster Hospital, and in charge of the Orthopædic Department: Consulting Surgeon to the Evelina Hospital: Surgeon to the National Orthopædic Hospital.

Permit me to thank you, Fellows of the Hunterian Society, for the honour which you have conferred upon me by appointing me Orator for the Session 1905-1906. This post has been held by many distinguished men, and therefore it is with sensations of responsibility and trepidation that the speaker attempts to engage your attention this evening.
On an anniversary such as this, there are two possibilities: the one to attempt to pay a tribute to the great work of John Hunter, the other to make an effort to catch something of the spirit of that genius, and to obey the promptings of that great man’s mind in the directions of inquiry, investigation and experiment, and their practical applications. Therefore my choice has fallen upon a subject, which, in its many aspects, has occupied the thoughts of patient workers all over the world, a subject the knowledge of which is still, we venture to hope, if not in its infancy, at least in its childhood; I mean the subject of the treatment of the various forms of paralysis. It is not possible, within the allotted time, to traverse the whole field, and therefore it has been deemed more suitable to limit the scope of this address to the treatment, from a surgical point of view, of the peripheral effects of certain nerve lesions.

It is true that some of the distal results of paralysis arising from grosser lesions, such as tumours, hæmorrhage and abscess, have yielded to treatment directed to the centrum, but until the last two decades little has been done to mitigate the peripheral effects of the finer central lesions. The classes of cases which will be used to illustrate the remarks about to follow are those arising from anterior poliomyelitis, spastic paralysis, ischaemic paralysis, and some traumatic lesions of the nerves.

We all feel acutely the limitations of treatment expressed by the words massage, electricity and apparatus, and we realise too often how inefficient such measures are to effect satisfactory results. The administration of drugs has been of no avail, and therefore workers in this field have perforce turned themselves and have asked: What can Surgery do? The modern methods of treatment which will be discussed are tendon and muscle transplantation, arthrodesis and nerve anastomosis.

Tenotomy, lengthening and shortening of tendons, are tales which have been oft told, so that we may at once pass on to discuss tendon and muscle transplantation, and to inquire into (1) The history; (2) The methods by which they are carried out; (3) To which forms and effects of paralysis they are ap-
ANNUAL ORATION.  

applicable; (4) How far have the attempts made proved successful; (5) What have been the causes of want of success, and how can such be remedied? We shall then speak of recent work in nerve anastomosis, and give some hints as to its possibilities in Surgery.

**TENDON AND MUSCLE TRANSPLANTATION.**

By tendon transplantation is meant the reinforcement of a paralysed muscle by attaching to its tendon either a part or the whole of the tendon of a healthy muscle. The history of tendon grafting, according to J. Hilton Waterman,¹ goes back to Missa, in 1770,² who, in the case of a severed extensor tendon of the middle finger, implanted the central end into the tendon of the index finger, while the peripheral end was grafted upon that of the ring finger. Velpeau³ recommended that severed tendons be grafted upon adjacent tendons which are intact, but he does not appear to have shown any cases himself, although a contemporary, named Champion, informed him that on the occasion of the removal of the little finger he had grafted its tendon to that of the ring finger. In 1874 Tillaux⁴ reported to the Paris Surgical Society a case in which, two months after division of the extensor tendons of the little and ring fingers, he had cut down and sutured the peripheral ends of each of the extensor tendons of the fingers. The procedure, however, is associated more particularly with the names of Nicoladoni, of Vienna, and afterwards of Innsbrück, and Drobnik, a general practitioner of Posen.

Just twenty-five years ago, in 1881, stimulated by the advent of antiseptic surgery, Nicoladoni, in cases of talipes calcaneus, implanted the severed central end of the peronei into the tendo Achillis. The immediate results of Nicoladoni's operation were promising, but it is said by Maydl⁵ that the anastomosis finally separated, and all the benefits of the operation were

² *Gazette Salutaire*, 1770, No. 21.
³ Velpeau, " Operative Surgery," 1839.
⁴ Report to the Paris Surgical Society, 1874.
forfeited. Other surgeons followed in his footsteps, notably von Hacke, who performed a similar operation for a like condition. His cases also relapsed, and by 1886 the operation had been abandoned by Austrian and German surgeons, to be revived by Drobnik in 1892, and simultaneously and independently by Parrish, of New York in a modified form. Drobnik introduced tendon splitting, providing a reinforcing strip without entirely suppressing the reinforcer in its normal sphere. He was also the first to turn his attention to paralysis of the upper extremities, and his was the first case of periosteal implantation—not, by the way, a success. He performed in sixteen cases partial transplantation of tendons for some of the forms of talipes, which are characterised as successes, even at the hands of so adverse a critic of the procedure as Derocque. Other workers in the same field are Milliken, of New York; Bradford, of Boston, and many other American surgeons; Mr. F. S. Eve, who I believe performed the first operations of this kind in England, and with it in this country are associated the names of Sinclair White, Montgomery, E. M. Little, and Robert Jones; Professors Hoffa and Vulpius and Lange in Germany, and Kirmisson and others in France have done good work. A great advance was that of Goldthwait, of Boston, who extended the procedure to muscles devoid of well-formed tendons, and was the first to carry out direct transplantation of a muscle by grafting the sartorius into the quadriceps. His results were very successful. Then came Lange, of Münich, who, ascribing the failure of tendon grafting in many cases to the subsequent stretching of the paralysed and degenerated tendon, revived and extended direct periosteal implantation, originally essayed without success.

6 Zeitschr. f. Chirur., Band XLIII., Section 470.
10 " Le Résultat éloigné de la Transplantation tendineuse," 1904, p. 15.
by Drobnik. Finding it not always possible to make his reinforcing tendon reach the point required to obtain an advantageous insertion, and incited by Glück’s observations, he prolonged the tendons by means of silken threads, and thus obtained attachment of the partially artificial tendon to bone at the most suitable spot.

The first application to the arm of the periosteal method of insertion was carried out by the speaker for spastic paralysis in 1901, independently of any knowledge of Lange’s work, the pronator radii teres being carried round the back of the radius, so as to assist in supination, while Mr. Robert Jones, of Liverpool, devised a method of converting the carpal flexors into carpal extensors.

The literature of the subject is now considerable, and it is not possible in this place to go fully into detail, but the name of Mainzer\(^\text{14}\) must be mentioned, for he conceived the idea of indirect transplantation, utilising the tendon of a neighbouring paralysed, or else of a functionally unimportant muscle, to fill in the gap when the reinforcing tendon was too short. In 1897, Franke led the attack on spastic paralysis.

**Methods of Tendon Transplantation.**

As a preliminary to treatment it is essential that all secondary deformities be corrected. To reduce such after tendon transplantation is a grave error, because the newly-made tendons become too much stretched in the process. It is of importance, before deciding to operate, carefully to study the case, and map out a definite plan of campaign. The electrical reactions of the muscles should be previously ascertained, movements present and absent should be carefully noted, and the muscular power remaining in the limb should be registered by means of a dynamometer. The reinforcing muscles or tendons, are as far as possible to be taken from synergic muscles, for the two obvious reasons that they are nearer, and the difficulty of after education is not so great. A reinforcing tendon should not be bent round

at an angle. As a rule opponents of the paralysed muscle are not to be selected, because if that is done the action of the reinforcing muscle is neutralised. And lastly, cases of extensive paralysis are totally unfit for any form of this operation.

**Technique.** Very many methods of splitting and transferring tendons have been devised, but to speak of them all would lead to confusion, and for the sake of clearness we may speak of Nicoladoni's operation as the old method, and Lange's periosteal insertion, with extensions by silken cords, as the new method. The older method may be either total or partial. Total consists in completely dividing a tendon, and inserting its central end bodily into another tendon, while its peripheral end is inserted into the same or yet another tendon. Thus in paralysis of the tibialis anticus the extensor proprius pollicis is divided across, and its central end implanted into the tibialis anticus, and its peripheral end is attached to the extensor longus digitorum. This is decidedly better than Nicoladoni's original operation on the tendo Achillis and peronei, where the peripheral ends of the reinforcing tendons are left free, so that the whole of the normal actions of the reinforceers are obliterated. Another way by which this undesirable result is avoided is by the partial method of Drobnik. Here a strip is made from the reinforcer, which is implanted into the weaker tendon. But it will be quite clear that unless the strip is of sufficient length, either we shall fail to obtain functional independence of the strip, or matting and cicatrisation will occur at the site of operation, and the result be negatived. The difficulty of securing a slip of satisfactory length is often great, while to prevent fusing together of the parts it is necessary to preserve and interpose as much as possible of the tendon sheaths and areolar tissue, and fix them between the strips. Vulpius, however, adheres amongst other methods to the tendon splitting method, and it is still much used. Drobnik pushed his method to an extreme by prolonging the incision from the tendon well up into the muscle, so as to form a separate muscular belly. In doing so there is a risk of dividing the nerve supply to the muscle, and causing paralysis. Two other devices are
worthy of notice, which combine the active and passive methods as described by Hoffa. A strip is taken from the reinforcing tendon, and joined to a strip from the paralysed tendon, or an exchange of strips is effected. Thus a strip from the stronger tendon, taken in a downward direction, is inserted into the weaker tendon, and a strip from the weaker one taken in an upward direction is inserted into the stronger one. The value of this interchange method is this. It neither completely suppresses the action of the healthy muscle, nor does it throw away any power which may be left in the paralysed muscle, a power which often increases when the strain on the muscular belly is eased by reinforcement. As to the material for suture, the best is fine twisted silk, previously boiled for half an hour, and soaked in biniodide of mercury solution, 1 in 1,000, for a week. It is quite evident, however, that these older methods, except in cases where one, or at the most, two muscles are affected, and a graft can be taken from a neighbouring muscle, will give place to a periosteal mode of implantation.

This method offers many advantages: the chief is that power is brought to bear directly, without any intermediary, on the part required. The tendon should be firmly sewn on to the periosteum, or through the wall of a joint capsule, cartilage and ligaments, or laid in a groove in the bone. Another point is that a reinforced paralysed tendon often degenerates and becomes slack. Lange made experiments on the cadaver, and found that in a particular instance the periosteal attachment will bear a weight of fourteen to fifteen kilogrammes, whereas an intertendinous attachment will not carry more than two to three kilogrammes. But this statement requires independent confirmation. With reference to the method of making artificial tendons by silk, Glück,15 in 1882, conducted some successful experiments, first on animals, and then on patients, in bridging gaps in tendons due to trauma or inflammation, but the procedure was not taken up systematically by surgeons, as they feared extrusion of the artificial tendon. Lange at first was also mis-

trustful, but later, when he began tendon transplantation, and found that silk sutures remained quietly embedded, he argued that if a short piece remained quiet, why should not a longer piece, and in the last five years he has done this form of operation in over two hundred cases. He lays stress upon the fact that the silk must be impregnated with an antiseptic material, for he says that it, like animal tissue, imbibes the lymph of the part, but the lymph held in its interstices is not under slight pressure, as in the lymphatic spaces, so that it does not circulate, but stagnates. Now the circulation of the living animal is part of the protective mechanism against germs, and inert silk is therefore a good nidus for germs to multiply in. If the silk be boiled in plain water only, the wound heals well, but later on abscess often develops, and the silk comes away. Kocher's experience with silk ligatures was the same, and therefore Lange recommends that the silk should be sterilised with 1 in 1,000 perchloride of mercury, which possibly is retained in the silk for months and years. At any rate, he has never seen an abscess form if the artificial tendon has remained embedded for a year. Lange uses four strands to lengthen a tendon, but in attaching two or three muscles six or eight strands are used. Sometimes the strands are from twenty to twenty-five centimetres long. The kind of silk he used is Turner-Seide, Nos. 3 to 12 (obtainable from Katsch, Schillerstrasse, Münich). He insists on drainage for the first forty-eight hours, and keeps the part absolutely at rest in plaster for six weeks. There must on no account be too much tension of the artificial tendon at any time, and movement must be allowed gradually. In Lange's article in the Handbuch der Orthopädische Chirurgie, edited by Joachimstal, pages, 341, 342 and 343, there are illustrations of sections, showing the infiltration and envelopment of the silk by tissue elements. In the centre of a transverse section the cells are seen to be round, and the part is more vascular, while peripherally the cut layers exhibit a tendinous appearance and are less vascular. He argues that the new tendon does not originate from the cut

tendon ends, but by organisation of cell elements of connective tissue surrounding the silken strands. The new material thickens under the influence of function, and in several cases it has increased from the thickness of a pen to that of a lead pencil or little finger, rather an undesirable result when tendons play in osseo-fibrous grooves.

To which forms and effects of Paralysis are these Methods Applicable? In the treatment of the results of infantile paralysis most of the work, so far as tendon grafting is concerned, has been done on the foot. The best results have been obtained in the treatment of talipes varus and valgus. Thus in paralytic equino-varus, where there is paresis or paralysis of the dorsiflexors and the peronei, section of the tendo Achillis, and transplantation of the tibialis anticus into the base of the fifth metatarsal bone, gives a good foot; and in another case the tibialis anticus, or rather part of it, was grafted on to the peroneus tertius for varus. There was strong power of eversion, and the position was much improved. For paralytic talipes valgus the peroneus longus was transplanted into the periosteum of the scaphoid, and the peroneus brevis into the Achillis. A useful foot resulted, with a good power. Mr. F. J. Steward inserted in equino-varus one half the tendo Achillis into the peroneus longus, and the other half was lengthened; the result was reported by the operator two and a half years later as follows:

"The equinus has been completely corrected, and shows no tendency to recur. He can use both the posterior and anterior muscles well; there is still some slight varus when the foot is off the ground, but he walks with the foot flat. He has voluntary power of moving the foot outwards, which is increasing. So that the additional strength of the external muscles has enabled the patient to combat the tendency of the tibialis anticus and posticus to keep up the varus. And he has therefore no need to wear heavy expensive apparatus."

Case 1.—In a case of paralytic equino-valgus, which was associated with paralysis of the tibialis anticus, and was seen by me on May 16th, 1902, an incision three inches in length, with its centre about two inches above the ankle joint, was made on June 17th, 1902. A strip of the extensor proprius pollicis tendon was then detached, and the free end inserted into the tibialis anticus. A second incision was made obliquely across the dorsum of the foot, and the two outer tendons of the extensor communis digitorum were severed, and brought inwards, and attached to the periosteum of the internal cuneiform bone. The tendo Achillis and plantar fascia were divided at the same time. The foot was put up at a right angle, and somewhat inverted, in a Scarpa’s shoe for six weeks, and after the wound had healed massage was applied to the grafted muscles. After the date of operation he has worn a boot with an outside steel brace to prevent stretching of the grafted portions, and has had massage and electrical treatment. When the apparatus is removed, the action of the foot is excellent. He walks toe and heel on the ground, the outer border of the foot on standing presses firmly on the ground, and the inner border is raised; he has a good arch, and there is no eversion. In addition he can voluntarily invert the front part of the affected foot.

Case 2.—In another case of paralytic talipes valgus, in a child aged four years, there was good power in the peronei and extensor communis digitorum, but the tibialis anticus was paralysed. The proximal parts of the outer two tendons of the extensor communis digitorum were grafted on to the tibialis anticus. When seen on July 18th, 1902, the result was good. He could raise the inner border of the foot when he stood up; there was a distinct arch of the foot, and very little eversion was left. In talipes equinus better results are obtained by section of the tendo Achillis than by grafting. It is not advisable to divide the tendo Achillis into three parts to correct this deformity, and bring the two outer strips forward, because, when attached to the dorsiflexors, they become direct opponents of the middle strip at the back of the leg, and the result is diametrically opposed
actions, so that the procedure merely results in the formation of additional ligaments to the ankle joint. Pure talipes calcaneus is the condition for which Nicoladoni originated the modern era of tendon transplantation, but as has been already stated his cases relapsed. When we come to consider the disparity in size and power of the peronei muscles and the great muscles of the calf, we are not surprised to find that the results are not satisfactory. Fick\textsuperscript{19} states that the work done by the various muscles of the leg expressed in kilogrammeters, is as follows:

\begin{itemize}
  \item Calf muscles, gastrocnemii, and soleus \hspace{1em} 8.2
  \item Tibialis posticus \hspace{1em} 0.40
  \item Peroneus longus \hspace{1em} 0.44
  \item Flexor communis digitorum \hspace{1em} 0.37
  \item Flexor longus pollicis \hspace{1em} 0.82
\end{itemize}

\[ \text{Total} = 10.24 \]

\begin{itemize}
  \item Tibialis anticus \hspace{1em} 1.61
  \item Extensor proprius pollicis \hspace{1em} 0.39
  \item Extensor longus digitorum \hspace{1em} 0.72
  \item Peroneus brevis \hspace{1em} 0.31
  \item Peroneus tertius \hspace{1em} 0.20
\end{itemize}

\[ \text{Total} = 3.23 \]

The calf muscles are endowed with great strength, because they have to lift the whole weight of the body, where as the other muscles invert or evert or rotate the foot. Of the anterior group of muscles the tibialis anticus is much the stronger. It is therefore unreasonable to expect the peronei, when grafted into the tendon of the paralysed calf muscles, to take their place entirely. In my experience of six cases, in which I have performed this operation, the net result is that patients can extend and dorsiflex the foot when the weight is off the ground, but they have not, except in one instance, been able to raise the body on the toes.

\textsuperscript{19} Ober der Arbeitsleistung auf die Fussgelenke wirkenden Muskeln, Leipsic, 1892.
of the affected foot. So that the transplanted peronei merely become additional posterior ligaments of the ankle joint in steadying the foot. In calcaneo-valgus, where the foot is turned out, transplantation of the peronei into the tendo Achilles relieves the valgus passively.

After watching cases for several years afterwards in my practice, the best-and most satisfactory results in this branch of surgery have been obtained by Goldthwait's procedure for paralysis of the extensor muscles of the knee, where, as he pointed out, the sartorius frequently escapes. If left intact it aggravates the condition by increasing the flexion of an already bent knee, but if it be divided opposite the upper part of the patella, and then be brought forward and inserted into the periosteal covering of that bone, and thoroughly massaged afterwards, in most cases it effects the result, that the patient is able to stand with the knee firmly braced up, and in some exceptional cases the power of complete voluntary extension is gained. The latter is more likely to follow if additional muscles are transplanted. I have on several occasions used the biceps, or part of it, in addition to the sartorius, and where the biceps appeared to be much wasted the ilio-tibial band, or part of the hamstrings, has been inserted into the extensor tendon or top of the patella.

The following are illustrative cases:—

Case 3.—Grafting of the semi-membranosus tendon into the Extensor cruris. Case of Paralysis of Extensors of the Leg. E.C., aged 13, was admitted for the above condition on September 5th, 1901, and paralytic talipes equino-varus. The position of the parts was as follows:—The leg hung at a right angle at the knee, and there was no power of extension. The heel was slightly raised, and the fore-part of the foot was adducted and inverted. The plantar fascia was tense, and there was contraction of the sole of the foot. On October 17th, 1901, a curved incision was made across the upper part of the patella,

20 Clin., Sept. 14, 1904. 'Case of calcaneo-valgus; Operation January 4, 1902, peroneus longus into tendo Achilles; extensor proprius poll. into tibialis anticus.'
and along the inner margin of the thigh, extending about six inches. The sartorius was found quite atrophied, so a large slip of the semi-membranosus muscle was made, and attached at its lower end to the rectus femoris tendon. Improvement set in by December, 1901, and she was able to offer considerable resistance when an attempt was made to forcibly flex the knee. She continued to improve, and in January, 1903, she could stand firmly on the limb without support, raise the heel, advance the leg in walking, and when lying down she was able to flex and extend the leg voluntarily.

Case 4.—Partial Paralysis of Extensor cruris; Insertion of Ilio-Tibial Band into Patella; complete recovery of the power of extension of the leg. Lizzie B., aged 18, came under my care in September, 1904. She had a flail-like paralytic foot, and had lost apparently all power of extension of the leg. On October 6th, 1904, an arthrodesis of the right ankle was performed, and on January 26th, 1905, a grafting about the right knee was made. The sartorius was found to be pale and atrophied, and was useless, so that the ilio-tibial band was detached near its distal extremity, and a long strip brought forward, and extended by means of silken cords, one and a half inches long, to the patella. The cause of the paralysis was undoubtedly anterior polio-myelitis, and the limb was wasted, blue and cold, especially below the knee. She was kept on a back splint from the thigh downwards after the operation for six weeks, and then massage and electricity applied. In three months she had gained the power of extending the limb to an angle of 45°, and on May 19th, 1905, she left the hospital wearing an apparatus, which allowed of movement of the knee from the straight position to an angle of 45°. Subsequently the range of movement was increased to the normal, but a light spring was added to relieve the strain on the knee in walking. When seen on February 1st, 1906, she could voluntarily extend the limb to the fullest extent, both in sitting and standing, and walk without any instrumental support. What has happened in this case is that degenerated and apparently entirely paralysed extensor cruris muscle has had time to recover,
owing to the absence of strain on it, effected by the fixation
of the nearly non-extensible ilio-tibial band on to the patella.

Other cases which may be alluded to are, one that of a boy
aged five years, the subject of infantile paralysis in the extensors
of the left knee, who was seen on February 24th, 1902, with
almost entire loss of extension at the left knee. The sartorius,
however, had escaped, as was shown by the electrical reactions.
It was separated at its lower third, brought forward and attached
to the upper border of the patella. In three months it was
noted that when the sartorius was thrown into action, the ligamentum
patellae was tightened, and the child could stand unaided
with the knee extended, and opposed considerable force to the
passive flexion of the leg.

In another case of infantile paralysis affecting the quadriceps
extensor, and where the sartorius and biceps had escaped, the
central portion of the sartorius and a long strip from the biceps
were brought forward and anchored to the margins of the patella,
and the patient regained the power of voluntary extension of
the leg, and was able to walk with the aid of a light steel
support.

Goldthwait\(^21\) who was the first to point out that the sartorius
often escaped in paralysis of the muscles of the front of the thigh,
reports on six cases operated on by him, four with decided im-
provement, and he gives striking details of the results of his
operation in the case of a woman of twenty years of age. "At
the time of the report she has apparently a normal amount of
extension of the leg and the knee, as contrasted with an entire
inability to extend the leg before the operation. When sitting
she is able to support the leg, and hold it straight, and she is
able to bear the weight of the body on the lame leg without
artificial assistance, the leg being extended normally when a
step is taken. No apparatus for the thigh is now necessary,
but she has been doing regular house-work for the last eight
months, whereas previously to the operation she had to depend
on a crutch or stick."

\(^21\) Trans. of Amer. Ortho. Assoc., Vol. X., 97.
It is in paralysis of the extensors of the leg that Lange's method of elongating the transposed tendons of the inner and outer hamstrings finds its particular use. We gather that up to 1901 Lange had employed silken tendons in fifty-six cases, in all of which healing by first intention was obtained. The use of the silken tendons is to secure an attachment to the tubercle of the tibia instead of to the upper margin of the patella, as in Goldthwait's procedure, and Lange says that in only two of his cases were the results unsatisfactory. Several of the artificial tendons were eight inches long, and the functional results were excellent. Patients in whom the semitendinosus and biceps were made to replace the quadratus femoris often obtained almost normal powers of extension, and during the last five years Lange states that he has operated upon two hundred cases in this way, and he gives excellent illustrations of a very interesting and successful case.  

Recurrent Dislocation of the Patella. In the treatment of recurrent dislocation of the patella, due to paresis of the extensor muscles of the knee, I have in three cases been successful in correcting and completely preventing the return of the displacement by making a transverse incision an inch above the patella, dissecting the superficial tissues back, and pleating the whole width of the quadriceps tendon and muscle to a depth of half to three quarters of an inch, until the patella is firmly braced into position. On patients affected with infantile and traumatic paralysis in the upper extremity the amount of operative work performed has not been so great. The most difficult cases are those where either the lower cervical nerve roots or the brachial plexus are damaged, either during birth, as in the Erb-Duchenne type, or by the traumatism incidental to daily life.

In the year 1903 a case was described by me of injury to the fifth cervical root, resulting in paralysis of the Erb-Duchenne type about the shoulder, and the loss of the flexion power at the elbow, due to traumatism of the fifth nerve root. In this case

A. H. TUBBY, M.S., F.R.C.S.

A long strip of the outer head of the triceps was brought forward and inserted into the biceps, and the power of flexion at the elbow was restored. But efforts made to restore the deltoid by transplanting the distal part of the clavicular portion of the pectoralis major were not successful. The case was shown at the Clinical Society, and the action of the transplanted muscle in flexing the elbow was demonstrated.

And in another case of Erb-Duchenne paralysis in a boy aged 10 years, from birth-palsy, similar results were obtained.

But so far as I know all attempts to replace the deltoid by means of muscle grafting have not been effectual, although it has been suggested that a portion of the trapezius should be used for this purpose instead of the pectoralis major. In a case of paralysis of the serratus magnus, due to acute anterior poliomyelitis, and resulting in scapula alata, the distal end of the lower half of the pectoralis major was grafted by me into the serratus magnus with so much effect that the deformity disappeared, and the boy was able to advance the scapula fully, as in the thrusting movement of the upper extremity.24

Operations for dropped wrist from infantile paralysis have been devised and carried out, notably the conversion of the carpal flexors into carpal extensors, but it is highly probable that nerve transplantation will give better results in this form of paralysis than tendon grafting.

In ischaemic paralysis, or Volkmann's contraction of the upper extremity, tendon elongation has been successfully resorted to, to overcome the contraction of the wrist and fingers. It is a tedious procedure, but it is a more scientific form of treatment than shortening the bones of the fore-arm, which, if done sufficiently to relieve an advanced degree of contracture, is likely to be followed by a pseudo-paralytic condition of the muscles. It seems that if more than half an inch of the bones be taken, the muscles become useless.

Spastic paraplegia and cerebral diplegia have been attacked by surgeons. It is only within the last few years that tenotomy

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of the tendo Achillis in these cases has been sanctioned by medical opinion; but abroad further procedures have been attempted and carried out with varying results. Apart from tenotomy of contracted tendons, such as the tendo Achillis, the ham-strings and adductors, the operations for the relief of these distressing conditions are not many, although in connection with the adductor spasm mention must be made of Mr. Robert Jones's plan of excising a considerable portion of the adductor tendons and muscles, which is followed by much greater effect than tenotomy.

In the upper extremity an operation for the relief of the pronator spasm of the fore-arm was performed by the speaker by transposing the insertion of the pronator radii teres, and placing the muscle around the posterior surface of the radius, so that it may assist in supination. This was repeated by E. H. Bradford, of Boston, who three times transplanted the pronator radii teres, and in one case the ultimate benefit was great. The difficulties to be overcome are considerable. At the time of operation the chief one is the shortened condition of the muscle, with its often ill-defined and broad tendon, which renders it difficult to insert it into the radius satisfactorily. In order to overcome this trouble, I have inserted the central end of the pronator radii teres into the flexor carpi radialis, then brought the central end of the latter tendon, after section below the junction of the tendons, through the interosseous membrane, and fixed it on the outer side of the radius. Despite this improvement, the range of pronation and supination was not so great as was expected. Acting on a hint from Mr. H. A. Ballance, the interosseous membrane was split from above downwards, and the range of movement was increased. The most important part of the treatment is in the after education, and it is certain that these cases require years, and even then can only carry out the movements of pronation when the fore-arm is extended, and supination when the fore-arm is slightly flexed. It is useless to attempt this operation in very severely marked spastic con-

ditions, and equally so when the child’s mental condition is below the average of this class of case, because it is found impossible to educate them sufficiently.

For the contracted hand and fingers I have in one case adopted the following procedure in a gentleman aged twenty-six years. The carpal flexors were divided, and their tendons lengthened by means of silk attachments, and the tendons transferred to the extensor surface of the bases of the second and fifth metatarsal bones, and subsequently the tendons of the flexors sublimis and profundus digitorum, and the flexor longus pollicis, were lengthened at the wrist by the Z method. Whereas before the operation the patient’s hand was useless, he is now able to use it in dressing, and it assists the left, but cannot entirely take its place. He is now engaged as a clerk in a bank, and writes moderately with the right hand. (Example shown). The patient in writing added that “nearly every movement which I can perform now, I could not do before.”

For flexion of the knees in spastic paraplegia, Bernard Bartow, depending on the gastrocnemii to supply the flexion power, wove the semitendinosus and semimembranosus and the gracilis into one cord, and anchored this cord to the aponeurosis of the vastus internus as near to the patella tendon as possible. He records that there was some improvement. Dr. Bartow also says that not the least interesting feature in this case has been the rapid improvement of the patient’s mental condition, but the child was unable to go about without crutches ten months after the operation.

It is evident that not so much benefit can be expected from tendon transplantation in spastic paralysis as in infantile and other forms. We are often unable to differentiate the factors causing the contraction, how far it is due to gravity and position, and how far it is due to shortening of the muscles. Again we have no certain proof in most cases that the spastic process has ceased, but it is quite certain that simple tenotomies, provided that the position of the limb is sufficiently guarded for a considerable time after the operation, and tendon lengthening, result

in benefit. And in all these cases, whether it be of tenotomy, tendon lengthening or grafting, an immense amount of after education is essential.

4.—*How far have the attempts at relief aimed at by tendon and muscle transplantation succeeded?* As with all new forms of operation, great expectations of their practicability and usefulness are formed at their inception, and very often the value of an original operation consists, not in that it fulfils the object for which it is performed, but in the fact that it is a new departure, and contains the germ of originality, which in other hands blossoms out into a satisfactory, recognised and useful procedure. But it behoves us to be as brief and as concise as possible.

To take the case of paralysis of the muscles supplying the foot, it is quite clear that where a single, or at the most two, synergic muscles are paralysed, especially if they be concerned in the production of valgus and varus, the tendon transplantation yields very satisfactory results in the senses that the lost movement is frequently restored, that the position of the part is rectified, and that the patients are subsequently able to do without instrumental support. In cases of talipes calcaneus, the results have not been so successful, for the simple reason that a weak muscle has been expected to do the work of muscles more than ten times stronger, that is to say, muscles whose function is merely to invert or evert the foot have been expected to lift the whole weight of the body, and at the same time to maintain the foot in a correct attitude. The only effect, even in what may be called an improved case of talipes calcaneus treated by this method, is that the faulty position of the foot is rectified, and the ankle joint is rendered a little more stable. Such cases are best treated by a combination of tendon transplantation and arthrodesis.

The results of transference of power from the sartorius and the ham-strings are certainly very satisfactory, and in every way encouraging, not the least important point being that many patients are able to stand, and even to walk, without cumbersome apparatus about the knee.
The treatment of infantile and other forms of paralysis in the upper extremity, when it is not very extensive, and if not more than one joint is involved, and that joint either the elbow or wrist, has proved very encouraging, and even if one of these joints be hopelessly involved and the other partially, much aid is obtained by fixing the flail-like joint by arthrodesis. The admirable results of grafting a portion of the triceps into the biceps, and portions of the pectoralis major into the serratus magnus, and transference of the carpal flexors to extensors, for paralysis of these muscles, have been adverted to.

In estimating the success of these operations, it is necessary to consider how far an apparently paralysed muscle is capable of recovery if aided in various ways, such as removing the harmful effects of constant stretching and reinforcing its tendon. Even when muscles give the reaction of degeneration we have no means, so far as I know, of measuring exactly what is the extent of the degeneration, whether it is entirely distributed throughout the muscle, or is in patches, or to what degree it has proceeded. On these points accurate and original observations are required. J. Koch\(^2\) has shown that when the fatty degeneration of a paralysed muscle is scattered throughout it in small areas, a large amount of regeneration of the muscle fibres will take place in each area, but when the entire muscle has been transformed into fat, no such regeneration can take place. The process of regeneration sets in some time after the paralysis and fatty degeneration have taken place, the latest time being seven to nine months. If this be true, and the observation requires confirmation, it affords a very hopeful outlook, and a strong justification for the reinforcement of partially paralysed muscles. Looking at the question of tendon transplantation as a whole, much more successful results are obtained by insertion to the periosteum of reinforcing tendons than by mere anastomosis. By the former method the point of insertion from which the best results can be secured is obtained, and Lange's method of lengthening tendons renders effectual periosteal insertion all the more decisive.

The operative treatment of spastic paraplegia and cerebral diplegia is making but slow progress because the difficulties are so much greater, chiefly on account of the mental condition of the patient, and the character of the contracture. But when medicine has said its last word, it is surely time, and quite justifiable to try surgical procedures, which have so far met with a moderate amount of success, in that the position of the limbs has been improved, the range of movement increased, and the patient often enabled to walk upright, whereas before he grovelled. If, as has been shown above, the operations of tendon transplantation and tendon lengthening can render a useless hand useful, then such measures are to be welcomed and tried.

5. The causes of want of success, and how such can be remedied. The causes of want of success are many and various, but by ascertaining their nature and character we shall place these operations on a more satisfactory footing. In the first place too much was expected to be accomplished; a limb extensively paralysed has been submitted to operation, and the tendons have been transplanted, where it is now evident to us that little or no improvement can be expected, and some critics, who, on hearing of such operations, expected a weak limb to be transformed into a strong one, have been emphatic in their expressions of disappointment.

If the secondary deformities of the limb are not rectified before operations on tendons be done, then the result is unsatisfactory. Deficiencies in technique, defects in perfect asepsis, are responsible for many failures. Cicatrisation at the point of division of the artificial tendon has accounted for some bad results; subsequent yielding of the tendon of the paralysed muscle has accounted for others; and the employment of too much or too little tension of the graft is again responsible for failure. If there be too little, all the power of the reinforcing tendon is expended in picking up the slack of the weak muscle; if there be too much sloughing may follow. Yielding of the new attachment of the tendon to either muscle or bone, owing to imperfect fixation, has occurred and neutralised expected
benefits. When a paralysed muscle or muscles passes over flail-like joints, as, for instance, a flail-like ankle and medio-tarsal joints, with relaxed ligaments, it is hopeless to expect any tendon, however strong it may be, to control such joints, and it is just in these cases that Royal Whitman’s operation of combined arthrodesis and tendon transplantation is so useful. Another cause of want of success is not starting with a proper plan of campaign. To take a simple example. In the case of the foot, in transferring tendons, those which go to the toes should as a rule be sacrificed to those which control the ankle and medio-tarsal joints, since the loss of the greater part of the control over the toes does not have very disastrous effects in the case of boot-wearing people. Whereas in the case of the wrist and hand, those muscles which act upon the carpus should be sacrificed to those which act upon the fingers. There are few forms of operation which require so much consideration and experience, and the very difficulty gives them a charm to thoughtful surgeons.

To use a single muscle, such as the gastrocnemius, and split it into two parts, implanting one portion to act as a dorsiflexor and the other as a plantar flexor, is manifestly wrong. No power of extension or flexion will ensue, but the foot is held stiff, as after arthrodesis.

In the case of the knee, Lange advises that all three hamstrings be transplanted to the front, the reason being that, if one alone is used, it may fail to learn to contract independently of its group, and voluntary movement is impossible, or it takes years to re-educate the muscles. In paralysis of the extensors, he depends solely on the gastrocnemius to secure flexion at the knee. But if the gastrocnemius be paralysed, the semimembranosus must be left; otherwise genu recurvatum will result. Lange hints that transplantation of the hamstrings is an improvement on even nature itself, because, while the normal quadriceps muscle extends the knee, it flexes the hip, but the artificial muscle extends both the knee and the hip. If the hamstrings are useless, the tensor vaginae and the sartorius may be used, but he criticises the use of both biceps and sartorius,
because, although they can both be made into knee extensors, they are naturally one a flexor and the other an extensor, and normally have antagonistic actions.

Other causes of failure consist in not keeping the part immobile sufficiently long after the operation. At least six weeks are required, and too much work must not at once be thrown upon the newly fashioned muscles, which rapidly become tired and exhausted, and fail to do the work which is expected of them. It is necessary to limit the action of the new muscle at first, and then gradually to enlarge its extent of action, while at the same time it should be guarded from over-stretching, and be carefully nurtured by massage and electricity.

Arthrodesis.

Arthrodesis finds its place in the treatment of infantile paralysis when a joint is hopelessly flail-like, and it has the effect of making the part stable, lessening the amount and weight of apparatus, and affording a position of steadiness, as in the case of the ankle, for the finer movements of the front part of the foot. In the latter sense Whitman²⁸ has performed arthrodesis of the ankle at the subastragaloid joint, and in necessary cases at the metatarsal joint, followed by tendon transplantation. Whitman's plan is to do a suitable arthrodesis to stiffen the deformed part. For instance, in paralysis of the tibialis anticus, he stiffens the astragalo-scaphoid joint; for atrophy of the peroneus brevis and longus he stiffens the calcaneo-cuboid joint, and for the calf muscles he fixes the ankle, or removes the astragalus, and then performs as much grafting as he thinks may be efficacious. So that in his procedure, tendon transplantation occupies a subordinate place. These operations are not designed with the object of securing perfect functional cure, but restoration of stability to such a degree as to enable the patient to discard apparatus. In the foot stability is the first essential; finer movements may be sought afterwards. Arthrodesis is not so

²⁸ Cf. Spitzy's statement as to Regeneration of Facial Muscles after eight years following Nerve Anastomosis.
suitable for the knee as for the ankle, because a long straight rod of bone in these paralysed limbs invites fracture. In this connection we must also consider what amount of after care our patient can secure. In the case of one who can be under the direct personal care of the surgeon, aided by the intelligent co-operation of nurses and patients, for a long period, tendon transplantation will probably result in securing a more mobile and useful part than can be expected with out-patients. Here the difficulties which confront the surgeon and the patient in the course of prolonged treatment are greater, and excepting perhaps in the case of the simpler forms of paralysis of the foot, the combined operations of arthrodesis and tendon transplantation are preferable to transplantation alone in hospital practice.

**Nerve Anastomosis and Transplantation.**

Operations with this object have undoubtedly grown out of the feeling that in extensive plastic operations on the tendons a considerable amount of healthy muscle material cannot be used economically or serviceably, and our regret is increased by the knowledge that the wasted muscles in infantile paralytic cases are secondarily diseased, owing to their separation from the nerve centre. If we can succeed in re-establishing the action, we ought to be able to refresh the muscle substance, so that it can do its work, since it is clearly shown experimentally that muscles which have been in a state of atrophy for eight years may be regenerated.\(^{29}\)

According to Kilvington,\(^{30}\) Fleurens crossed the two nerves supplying the upper and lower surfaces of the wing in a cock. After a time co-ordinated movements resulted. But such an experiment is inconclusive, unless some method is adopted to prevent the union between the cut peripheral and central ends of the same nerve.

The first authentic case of nerve grafting in man was by Sick and Sänger,\(^{31}\) who transferred the distal stump of a paralysed

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\(^{29}\) Ibid.


musculo-spiral nerve into the neighbouring intact median, and obtained a good result. Faure and Furet\textsuperscript{32} in 1898, sutured that portion of the nervus accessorius which supplies the trapezius into the divided facial without success. In the same year, Manasse\textsuperscript{33} performed a similar operation on five dogs; three of the experiments were successful, the regenerated fibrils being subsequently seen crossing the point of suture. In Italy, Berargo-Chiarella did the same experiment on dogs, using either the vagus or the accessory.

On May 4th, 1899, Robert Kennedy\textsuperscript{34} performed the first successful case of the Faure-Furet operation in man. The facial nerve was divided for unilateral spasmodic tic, and immediate anastomosis was made with the spinal accessory. Cushing,\textsuperscript{35} in a traumatic case of facial paralysis, transferred the proximal stem of the divided nervus accessorius \textit{in toto} into the distal facial. In six months the patient is described as being nearly normal. Cunningham,\textsuperscript{36} in dogs, crossed the musculo-spiral with the whole of the nerves supplying the flexor muscles, and isolated the junction by wrapping round the nerves at the point of suture a layer of fascia, thus preventing the tendency of some of the central fibres to join on to the distal ones in the same nerve. Seventeen months later electrical stimulation showed the union to be effective, but volitional movement was unsatisfactory. When in the same way the median and ulnar nerves were crossed, the results were good, thus illustrating the important point, that in order to obtain good co-ordination, the nerves utilised must have a synergic function, whereas if they are antagonistic, the result will be poor.

Kennedy\textsuperscript{37} crossed the musculo-spiral with the median, and the musculo-cutaneous with the ulnar, so interchanging the whole of the nerve supply of the flexors and extensors. Pre-

\textsuperscript{32} Gaz. des Hopitaux, 8 Mars., 1898.
\textsuperscript{33} Archives f. Klin. Chirur., Band LXII., 1900.
\textsuperscript{34} Phil. Transac., Series B., Vol. 194, pp. 127 to 162.
\textsuperscript{35} Jour. of Nervous and Mental Diseases, 1903, p. 357.
\textsuperscript{36} Amer. Jour. of Physiology, Vol. I., 1898.
\textsuperscript{37} " Restoration of Co-ordinate Movement after Nerve Crossing, with Interchange of Function of Cerebral Cortical Centres."
cautions were taken to avoid confluent union in a common cicatrix by interposing the internal anconeus muscle between the two sets of nerves. Co-ordinated voluntary movements were very completely restored, and a subsequent dissection showed no confluent union. Stimulation of the musculo-spiral nerve above the line of suture resulted in flexion, and *vice versa*.

Kilvington\(^{38}\) states that after cutting a nerve, it apparently unites equally well as regards function, whether the axis of the trunk be maintained, or the lower piece be given a half twist round, but the finer co-ordinate movements may not return.

Kennedy\(^{39}\) found that the cortical areas for flexion and extension were interchanged after nerve crossing, and stimulation resulted in co-ordinate muscular action. This point is of the utmost importance, not only in connection with nerve grafting, but with the cerebration of muscle transplantation. So far we have dealt with either end to end junction, lateral approximation, or crossing experiments.

Another kind of nerve anastomosis is the suture of the central end of one nerve to the peripheral ends of two or more. This has been practised on the facial, and Kennedy\(^{40}\) reports a successful case of tic in a woman on whom the operation was performed. Bréavoine\(^{41}\) gives a drawing of such a junction stained by Weigert's method, and the fibrils of the central end of the spinal accessory were seen going down, both to the distal part of the accessory and the facial.

Langley and Anderson\(^{42}\) from their experiments, concluded that (1) the central end of an efferent fibre can make functional connection with the peripheral end of any other efferent fibre of the same class, whatever be the normal action produced by the two nerve fibres; (2) efferent fibres do not make functional connection with sympathetic fibres arising from ganglia; (3) afferent fibres cannot unite with efferent or post-ganglionic fibres to produce a functional result.

\(^{38, 39, 40}\) Ibid.

\(^{41}\) Traitemnt Chirurgicale de la Paralysie Faciale d'Origine traumatique. 1901.

\(^{42}\) *Jour. of Physiol.*, Vol. XXXI., No. 5.
Kilvington experimented by making one nerve supply antagonistic muscles, *e.g.*, the internal and external popliteal nerves were divided, and the central end of the external popliteal was sutured to the peripheral end of the external popliteal and internal nerves. The results of his experiments were that a functional result was obtained in both nerves; that good co-ordination resulted, at any rate so far as regards the coarser movements, and that a better result was obtained when the supplying nerve is large. He also noted that the muscles supplied normally by the central nerve trunk preponderate, and lastly that if the nerve fibrils below the junction were counted, they were greater in number than those above, thus showing that division of nerve fibres takes place. Anastomosis of the popliteal nerves is obviously applicable to the treatment of talipes resulting from infantile paralysis.

To return to the facial nerve. Hackenbruch reports the case of a girl aged eight years, who had had facial paralysis for seven and three-quarter years. Two thirds of the spinal accessory nerve were implanted in the facial, and nine months after, the child could voluntarily draw the right angle of the mouth outwards. He also in a case of infantile paralysis implanted one third of the internal popliteal nerve into a longitudinal split in the external. Improvement commenced in three months, and Körte, at the same Congress, showed a patient in whom, one and a half years previously, he anastomosed the peripheral stump of the facial to the hypoglossal with much benefit. At the time of showing the case, the muscles of the cheek and angle of the mouth were mobile, but the action of the orbicularis palpebrarum was weak, and the frontal muscles did not move at all. He thought that the accessory was better to graft from than the hypoglossal, but on this point opinions differ.

While Messrs. Ballance and Purves Stewart have made junction of the spinal accessory and facial, yet such cases are open to the

13 Ibid.
15 Verhandlungschrift der 32nd Kongress f. Chirurgie, 1903.
criticism that at first the associated movements of the face and shoulder are marked, but later by education this difficulty is overcome.

In a case of facial paralysis due to an operation wound, I grafted the distal facial into the hypoglossal.

**Case 5. — Grafting the Distal Facial Trunk for Traumatic Facial Paralysis into the Hypoglossal.** J. P. B., male, aged 19, was admitted into Westminster Hospital on October 3rd, 1905. The patient has been a militiaman, and some months ago a large swelling appeared behind the left side of the jaw. This was opened on April 27th, 1905, and another swelling below was also opened, and it was subsequently to the operation that the palsy was found. On admission the face was seen to be paralysed on the left side. The left half of the mouth dropped; the left palpebral fissure was larger than the right; the left side of the forehead was un wrinkled; the cheek was flattened; the tongue deviated slightly to the right; the palate moved normally, the uvula being in the middle line, but food accumulated on the left side. In fact, the condition was one of complete facial paralysis. There were also epiphora and dribbling of saliva on the left side. He could not whistle, nor draw the cheek in voluntarily. On October 16th, the anastomosis was attempted. An incision was made from the tip of the mastoid process to the greater cornu of the hyoid bone, and then a dissection was undertaken to find the cut distal end of the facial nerve. This was done with much difficulty. It was traced forwards in the cheek for about half an inch. A deeper dissection was then done, to expose the hypoglossal nerve. The greater part of the digastric and of the stylo-hyoid was removed, and the hypoglossal nerve freed and brought upwards as near to the facial as possible. An incision was made with a tenotomy knife into the hypoglossal nerve, until the fatty sheath material began to exude. The distal end of the facial was then inserted into it by lateral implantation. On October 23rd, that is, a week after the operation, it was noted that the palpebral fissure was lessened in size, and the eye could now be temporarily closed.
On October 28th, the palpebral fissure was still smaller, and the patient began to move the left angle of the mouth. He was seen last on the 7th of February, 1906, when the following conditions of voluntary movement were noticed: Action of the corrugator supercilii in wrinkling the forehead, firm action of the orbicularis palpebrarum, and closure of the eye on that side, with control over the muscles of the cheek. He could also voluntarily draw the left angle of the mouth upwards to a higher degree than the right, when the latter was at rest, but in repose the left angle was slightly dropped. The left ala nasi moved simultaneously with the mouth, and there was flickering of the muscles of the chin. It was striking to observe that the tongue was more drawn over to the right side, and there was a little thickness of speech, but the patient said that when he moved his face, he was not compelled to move his tongue at the same time.

This is, I venture to think, a very successful case of nerve grafting, and it seems to me that the facio-hypoglossal anastomosis is superior in the absence of associated movement to the facio-accessory method. The reactions on February 8th were as follows: There were none to galvanism, but to Faradism A.C.C. > K.C.C.

A somewhat ingenious suggestion has been made by Foramitti. In order to prevent a nerve becoming embedded in a mass of scar tissue at the site of union, he suggests, from the results of experiments on animals, removing an artery, and sewing it round the site of union. J. K. Young reports a case of infantile paralysis, where the tibialis anticus had been paralysed for three years. The proximal extremity of the nerve supplying the anterior tibial muscle was divided, and a slit having been made in the musculo-cutaneous nerve, the cut extremities were inserted into this, and secured with fine formicised catgut. A year and a half afterwards all the muscles of the anterior tibial region gave a good response to a slowly interrupted Faradaic

current, the tibialis anticus being fainter than the others. But, unfortunately, Young gives no details as to volitional movement or the return of co-ordination. In the discussion on J. K. Young’s case, Spitzy, of Gratz, said that recent investigation showed that regeneration in quite degenerate muscles took place if connection were again made with the centre, which he instanced by a case of paralysis in the facial area, where recovery took place after eight years as the result of operation. He pointed out that the seat of co-ordination is in the brain, and that this can be re-educated, and further alluded to the two theories of regeneration, one, that it is by the growth of the axis cylinders alone downwards into the degenerated nerve that the connection is made, and the other view, which has been proved by the experiments of Messrs. Ballance and Stewart, that regeneration can take place in the distal part by the development of the cells in the sheath of Schwann. Other recent work on the subject has been done by Henriksen, Spiller, Müntz, and Bethe.

Hans Spitzy has carried out a large number of experiments on dogs, and details the various points in technique. In addition, he has carried out in children transference from the superficial branch of the obturator nerve to the anterior crural for paralysis of the extensor muscles of the thigh. Reference must be made to his papers on the subject.

I have performed four operations for infantile paralysis of the leg, and one for palsy of the fifth and sixth nerve roots.

Case 6.—Paralytic Talipes Calcaneus. Grafting of the Nerves to the Soleus and Gastrocnemius from the Internal Popliteal into the External Popliteal. Recovery. Frank R., aged 9, was admitted to Westminster Hospital on October 21st, 1905, for paralytic talipes calcaneus, with contraction of the plantar fascia. The

50 Durch Nervenanastomose gehelte facialis Lehnnung, Centralb. f. Chirur., 1904, 22.
51 Allgemeine Anatomic und Physiologie Nervensystemes, Leipsic, 1903.
ANNUAL ORATION.

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electrical reactions were as follows: All the muscles of the left leg below the knee reacted to Faradism, excepting the gastrocnemius and soleus. With regard to galvanism, so far as the gastrocnemius and soleus are concerned, A.C.C. > K.C.C., but in the remaining muscles of the leg K.C.C. > A.C.C. On November 4th, the plantar fascia was divided as a preliminary measure. As to nerve grafting, it is known that the external head of the gastrocnemius is supplied by one branch from the internal popliteal, and a separate branch supplies the internal head of the gastrocnemius and soleus. The operation on November 13th was accordingly planned on this arrangement of the nerve fibres. A median incision was made in the middle of the popliteal space, and the internal and external popliteal nerves exposed, and then the two heads of the gastrocnemii, with the nerves supplying them. These nerves were traced up into the internal popliteal trunk, and as the bundles remained visibly distinct in that trunk for a considerable distance, there was no difficulty in dissecting them off the main trunk of the internal popliteal nerve for one and a half inches. The branches to the paralysed muscles were then separated from the internal trunk, an incision made into the external trunk until white matter exuded, and the two nerve branches were inserted into the external trunk at a distance of half an inch from each other. The wound was then closed, and it healed without difficulty, the leg being put up in splints to prevent movement at the knee joint. On December 18th, the electrical reactions were as follows: None to Faradism of the gastrocnemius and soleus, and to galvanism A.C.C. > K.C.C., but the contraction was very slight. On December 29th, there was slight evidence of return of power in the calf muscles, and the tendon Achillis was felt to become slightly tense on voluntary effort. On January 9th, the electrical reactions were: To galvanism, A.C.C. > K.C.C., but very slight reaction, and to Faradism nothing, but the boy had acquired the power of extending the foot, and the tendon Achillis was distinctly felt to harden. On January 31st, the power of extension had increased, and on February 7th, the improvement in the power
of extension was very marked, a considerable effort on the part of the surgeon being required to neutralise it. It will be noted that in this case, within nine weeks of the operation, power had commenced to return in the paralysed muscles. It is striking to notice that on February 7th, the last day on which the reactions were tested, no reactions could be obtained in the gastrocnemius and soleus to Faradism or to galvanism. This shows that the only reliable tests applicable are return of movement and visible tightening of the tendon when movements are attempted, but that electrical reactions as a test of recovery are comparatively worthless.

Case 7.—Complete Paralysis of Gastrocnemius and Soleus; Talipes Calcaneus; Nerve Grafting; Recovery. Willie T., aged 9, was admitted to Westminster Hospital on May 19th, 1905. He had infantile paralysis when aged two and a half, but recovery took place except in the gastrocnemius and soleus, and in the right erector spine. He could dorsiflex and evert the ankle, but inversion movements are not quite as powerful as normal, and he was totally unable to extend the ankle. He had been treated at Queen's Square by massage and electricity for three months, and had worn leg irons for three years. At Westminster Hospital efforts were made to improve him by massage and electricity, but no results followed. On June 5th, the muscular branches of the gastrocnemius and the soleus were dissected out, and stimulated by sterilised electrodes. A precisely similar operation was carried out as in the previous case, but for a considerable time no effect was noticed. On September 13th, he was tested electrically by Dr. Purves Stewart, and no reaction to either Faradism or galvanism was found. On October 1st, it was noticed that voluntary extension of the ankle had appeared, but he could not extend the foot beyond a right angle. In this case four and a half months elapsed before any sign of voluntary power was seen. Since then the power has increased, and exceeds that of the previous case. On standing with the whole weight of the body on the foot, he can raise the heel half an inch off the ground.
The remaining two cases of operations on the leg for infantile paralysis were as follows:

**Case 8.**—*Paralytic Talipes Equino-varus.* Insertion of External Popliteal into the Internal Popliteal Nerve. W. H., aged 5, suffered from paralytic talipes equino-varus. The tibialis anticus and posticus on the right side were divided, and on July 31st, twenty days after this operation, the external popliteal nerve was divided across, and its distal end inserted into the internal. On October 25th, it was noted that no definite recovery of the affected peronei had taken place, and so far the result is not satisfactory. But he is under observation, and the case will be reported on later.

In a similar case I also inserted the external popliteal into the internal popliteal, on July 3rd, 1905. In this instance the peripheral and central ends of the external popliteal were inserted into the internal popliteal for talipes varus, and this boy, on February 7th, began to show a flicker of movement in the evertors of the foot, seven months after the operation.

I may also refer to a case of Erb-Duchenne paralysis of the fifth and sixth nerve roots in a child aged two and a half, where I inserted on October 24th, 1905, the outer cord of the brachial plexus into the middle cord. So far no results have followed, except that the general use of the parts, especially the fore-arm and the extensors of the wrist, is greater, but the results are too indefinite to quote.

Thus, in six cases of nerve grafting during the past year, three have proved successful, and an additional one is beginning to show signs of recovery. Two of the successful cases were shown at a Meeting of this Society in October.

In nerve grafting, it is evident that there must be a grave risk of the mingling of fibres of antagonistic muscles, so that little co-ordinate movement of a fine nature can result. It all depends upon the question of division of fibres. If a cut nerve fibre in the proximal end divides, and one branch goes down the main trunk of the original nerve, and the other down the nerve which has been grafted in, then antagonism must
result; but if the two branches of a cut nerve fibre go down in one trunk, then antagonism will not take place. Kilvington has suggested that it is better to divide the reinforcing nerve completely across, and to insert the distal part of the reinforcing nerve and the distal part of the nerve to be reinforced into the central end of the reinforcer.

Surgical interference in paralysis of the brachial plexus is a very difficult matter, but Wilfred Harris and Warren Low read a paper insisting upon the importance of accurate muscular analysis in lesions of the brachial plexus, and they have proved by experience and experiment that in Erb-Duchenne paralysis, the sixth nerve root is usually unaffected.

Sufficient has been said to show that nerve anastomosis is well within the range of operative therapeutics. In Spitzy's operation, up to the time of writing in 1905, only fifty per cent. of cures or improvements had been recorded. We have to consider how far the operation is justified. It seems a bold procedure to cut a paralysed nerve, and implant its peripheral end into a sound nerve, and a still bolder procedure to cut a slip from a healthy and important nerve. We wish to know what is the effect of these procedures on healthy muscles, and Körte alluded, in his case of implantation of the paralysed facial nerve into the hypoglossal, to a slight atrophy of the tongue, so that we must weigh carefully the chance of injuring a sound nerve. The next point we must know is whether the muscle which has been again brought to life by this operation can learn to functionate independently. The drawback of some of the facio-accessory anastomoses has been the appearance of movement simultaneously in the trapezius and the face. What is required is to create independent muscle function, so as to be able to obtain truly co-ordinate movements. I venture to suggest that great care should be taken to ascertain in any nerve the exact position of the nerve bundles supplying certain muscles, and groups of muscles. This appears to me an essential step.

In conclusion, we feel that in attacking paralytic affections, either by tendon grafting, muscle transplantation, or nerve anastomosis, we are confronted by most intricate problems, but the early results, considering the comparative failure of all the preceding measures, seem to justify a very careful and well considered trial in suitable cases.
OCTOBER 11th, 1905.

Dr. H. Lewis Jones delivered the first Hunterian Society's Lecture on

"SOME NEW LINES OF WORK IN ELECTROTHERAPEUTICS."

After alluding to the increased facilities for the use of electricity, he gave a brief sketch of the growth of electro-therapeutics, beginning with the work of Duchenne, Remak, and Erb. He also pointed out the great advances made possible by the introduction of public supplies of current for electric lighting, and showed that the Edison-Swan lamp had rendered possible the surgical exploring lamp, which had been particularly advantageous for cystoscopy, and for the illumination of the antrum. The importance of the therapeutic uses of the Röntgen rays was also insisted on. He pointed out that as more serious conditions of disease came under the care of the medical electrician, and as the methods became more precise, so the work would tend to fall less into the hands of unqualified electricians. He thought that high frequency currents and the light bath were destined to lose the prominence that they had recently enjoyed. Electrolysis had done good service for many years in the treatment of naevi, etc., but recent work had opened up a far wider field for electrolytic applications, viz., the introduction of chemical substances into the body for local medication. The writings of Professor Leduc, of Nantes, on "The Ions in Medicine" had led Dr. Lewis Jones to treat some cases of rodent ulcer and lupus by the electrolytic introduction of zinc ions, using for the purpose
a one per cent. solution of zinc chloride. The results of this treatment were extraordinarily encouraging; two cases at least being perfectly healed by a single application, and remaining so up to the present time after the lapse of from six to nine months. His results on lupus had not been so successful, but they were sufficiently good to encourage him to persevere in the attempt to treat that disease by electrolytic applications. The electrolytic introduction of substances differed from subcutaneous injection, because the latter conveyed the injected substances into the lymphatic spaces, while the former forced the ions into intimate union with the protoplasm of the actual cells.

[A full report of this Lecture appeared in the Lancet, October 28th, 1905.]

OCTOBER 25th.—Clinical Evening, at the London Hospital.

SPLENOPEXY FOR MOBILITY OF THE SPLEEN.
METAL TOY REMOVED FROM ÖSOPHAGUS.

Mr. H. M. Rigby showed (1) a patient on whom he had performed the operation of splenopexy on account of excessive mobility of the spleen. The severe dragging pain complained of had been relieved by the operation; (2) a small metal bicycle 1½ in. by 1 in., which had been impacted in the ösophagus of a child of five, removed by ösophagotomy. An X ray photograph was shown.

TINEA OF EIGHT YEARS' DURATION.

Mr. Bashford, for Dr. Sequeira, showed a case of Tinea of unknown nature, of eight years duration and remarkable distribution, with an ulcer at the umbilicus of two years duration. A mycelium of unknown nature had been isolated from the skin, and a diphtheroid bacillus from the ulcerated surface.
CONGENITAL DISLOCATION OF HIP; HIP DISEASE WITH ANKYLOSIS; BILATERAL COXA VARA.

Mr. T. H. Openshaw showed (1) a case of unilateral congenital dislocation of the hip treated most successfully by "Lorenz's" method; (2) a case of old hip disease with ankylosis in flexed and adducted position, on which he intended to perform Gant's operation; (3) a case of bilateral coxa vara.

RIEDEL'S LOBES.

Dr. Bertrand Dawson showed two patients with well-marked Riedel's lobes. In both cases the liver was affected by gummatous disease, due to congenital syphilis in one case, and to acquired syphilis in the other.

ACUTE CEREBELLAR ATAXY; TUBERCULOUS PERITONITIS.

Dr. Robert Hutchison showed (1) a child with a peculiar nervous condition, for which he suggested the diagnosis of acute cerebellar ataxy, resulting from polio-encephalitis affecting the cerebellum; (2) a child with tuberculous peritonitis.

COLON FROM CASE OF CHRONIC LEAD POISONING.

Dr. Lewis Smith showed a portion of the colon, removed post mortem, from a case of chronic lead poisoning. There was marked pigmentation of the mucous membrane, due to deposit of lead. A microscopical section was shown.

SUCCESSFUL OPERATION FOR ANTRAL SUPPURATION, ALSO FOR TEMPORO-SPHENOIDAL ABSCESS.

Mr. Hunter Tod showed two patients in whom radical operation on the frontal sinus followed by free drainage had brought about complete cure of old standing antral suppuration, and a patient on whom he had operated successfully for a temporo-sphenoidal abscess.
NOVEMBER 8th, 1905.—Pathological Evening.

FRACTURE THROUGH THE ANATOMICAL NECK OF THE HUMERUS.

Mr. John Poland showed two specimens:

The first was a unique specimen of fracture through the anatomical neck of the humerus, with dislocation, in a woman of 56. Mr. Poland saw the patient six months after the accident, and removed the head of the bone, replacing the upper end of the neck in the glenoid cavity. Good movement resulted, a false joint being formed. X ray photographs were shown.

SWELLING OF UPPER END OF TIBIA.

The second case was that of a girl of 8, who came to Mr. Poland six months after an accident, with swelling of the upper end of the tibia. X rays showed great thickening of the upper third of the tibia with no involvement of the knee joint. The diagnoses suggested were sarcoma, tubercular disease and traumatic effusion of blood. Mr. Poland operated, evacuating a cavity which contained about five ounces of soft pulpy material and prune juice fluid. Good healing resulted, and the leg is now, three years after the operation, in good condition. Myeloid cells were found, but Mr. Poland thought that they were phagocytes and not indicative of sarcoma.

Dr. Zum Busch showed three specimens:

SMALL CYSTS FROM INGUINAL HERNIA.

(1) Several small cysts filled with blood removed during an operation on an inguinal hernia containing an ovary and fallopian tube. The cysts were connected with the round ligament,
and Dr. Zum Busch considered that they were analogous to the similar structures sometimes found on the spermatic cord.

**IMPACTED GALL-STONE.**

(2) An impacted gall-stone removed after four days' intestinal obstruction.

**GALL-STONE FROM CYSTIC DUCT.**

(3) A single gall-stone removed from the cystic duct of a man. This gall-stone, which consisted of pure cholesterin, was of most unusual character, being made up of crystalline flakes and plates.

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**NEW METHOD OF EMBEDDING PATHOLOGICAL SPECIMENS.**

Dr. C. H. Miller, introduced by the President, demonstrated a new method, or new modification of embedding pathological specimens in flat glass capsules filled with gelatine. The specimens were first washed in running water, then soaked in forty per cent. formalin for at least a week, then put into seventy per cent. spirit for two days, and then into equal parts of glycerine and water. After this treatment a fresh surface was made, and the specimen put into forty per cent. spirit for at least a week, and then embedded slowly in warm gelatine.

 Numerous specimens embedded in this manner were shown, the natural colours being preserved.

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**The President and Dr. C. H. Miller showed:**

(1) *A rheumatic heart with adherent pericardium and disease of the mitral, tricuspid and aortic valves.*

(2) *Hæmorrhage into a glioma.*

(3) *Septic tubercular ulcer of the larynx with broncho-pneumonia.*

(4) *Spleen showing secondary deposits (carcinoma).*

(5) *Tubercular spleen.*
NOVEMBER 22nd, 1905.—Clinical Evening.

Dr. Williamson showed three patients:

MITRAL STENOSIS.

(1) A woman of 37 with mitral stenosis. There was a murmur heard over the pulmonary area, diastolic in time, conducted towards the right. The pulse was not "water-hammer." Dr. Williamson considered that the murmur was due to pulmonary regurgitation.

The President and Dr. Lewis Smith considered that the murmur heard over the pulmonary area was systolic in time, and the President thought it was due to pulmonary stenosis.

PULMONARY STENOSIS.

(2) A girl of 19 with pulmonary stenosis, probably congenital. Dr. Lewis Smith agreed with the diagnosis of pulmonary stenosis.

The President considered that the case was one of aortic stenosis with mitral incompetence.

MEDIASTINAL GROWTH INVADING THE LUNG.

(3) A man of 54, cachectic and wasted, complaining of cough and general weakness. Breath sounds over the right lung were diminished. The diagnosis was "mediastinal growth invading the lung and pressing on the right bronchus." The President suggested that the signs might be due to chronic thickening of the pleura, arguing that absence of pleural effusion was unusual in cases of mediastinal growths.

COLOURED REPRESENTATIONS OF FUNDI.

Dr. W. J. M. Ettles showed two card specimens with coloured representations of the fundi.

(1) A man whose vision had deteriorated gradually during the last three years. When first seen by Dr. Ettles, in September
last, his vision in right eye was only 1-60th, while in the left eye he had perception of light only. He had to be led about and was almost blind, on account of extensive choroiditis. The patient denied having had syphilis, but had had a chronic sore throat and skin eruptions. Subconjunctival injections were given of four minims of 1-5000th solution of cyanide of mercury, with four minims of 1 per cent. solution of acoin, increased later to ten minims of the mercurial solution. The vision gradually improved, and he can now read 6-24ths, i.e., it has increased fifteen fold. During the last twenty days there has been little further improvement, and the treatment is being supplemented by weekly intragluteal injections of ten minims of Col. Lambton's grey cream, which consists of one grain of metallic mercury.

(2) A patient who complained of difficulty of seeing with the right eye since an accident sixteen months previously. A tumbler thrown at him struck the right eye, which became suffused with blood. There was also extensive chemosis and orbital discolouration. The vision in the right eye was 6-24ths, and in the left 6-6ths. There was no error of refraction. He had diplopia owing to paralysis of the right external rectus and right superior oblique. Two fine linear ruptures could be seen in the lower half of the right fundus, and atrophy of the lower part of the disc. The perimeter showed the lower half of the retina to be blind. The line of demarcation was quite sharply defined, so that he had monocular horizontal hemianopia. Taking into consideration the trauma, orbital hæmorrhage, isolated paralysis, hemianopia and atrophy of the lower half of the disc, Dr. Ettles thought that the case was one of fracture of the bony wall of the orbit, involving the sphenoidal fissure and optic canal. The localised periostitis involved the fourth and sixth nerves. The condition of the optic nerve seemed to be more likely to be due to a localised retro-bulbar neuritis than to thrombosis.

Dr. Lewis Smith showed:

(1) A female patient who exhibited the following conditions.
CLINICAL EVENING.

i. Extensive lupus of the face greatly improved by the Finsen treatment.

ii. Tubercle of the left apex.

iii. Transposition of viscera.

iv. Mitral stenosis and a diastolic murmur heard over the aortic area.

v. Pericarditis.

PART OF LARGE INTESTINE AFTER PYREXIA.

(2) Part of the large intestine of a girl of 14 who had four weeks of pyrexia, followed by two weeks of apyrexial period and then again two weeks with temperature 104-106°, ending in death. The Widal test was performed three times with negative result. Post mortem the lower four feet of the small intestine showed numerous clean healing ulcers, while in the large intestines were multiple small sloughing ulcers. Dr. Lewis Smith drew attention to the following:

(a) The Widal reaction was negative three times in a fairly typical case of enteric fever.

(b) The colon is frequently affected in enteric fever.

(c) A relapse means re-infection.

(d) Relapses are sometimes fatal.

Mr. Farrant, introduced by Mr. Tubby, showed:

GANGRENE WITH THROMBOSIS.

(1) A patient aged 29, whose right foot was amputated in November 1904, on account of gangrene with thrombosis of popliteal anterior and posterior tibial arteries. There is a similar condition now in the other leg with coldness of the foot. Nothing could be found in the heart or urine to account for it.

Dr. Michels said that he had seen endarteritis obliterans recently in three Polish Jews, who were all young and inveterate cigarette smokers.

Mr. Hugh Lett advised amputation in the lower third of the thigh rather than in the leg.
FIBROUS-ANKYLOSIS OF THE KNEE.

(2) Fibrous-ankylosis of knee after what appeared to be monarticular acute rheumatism.

The President, Dr. Lewis Smith and Mr. Lett all thought it was gonorrheal.

NERVE-GRAFTING.

(3) A case of nerve-grafting, the hypoglossal being used to innervate all the facial muscles after division of the facial nerve in evacuating a tubercular abscess. The patient began to recover some facial movement in one month.

IMPLANTATION OF NERVE FIBRES.

(4) Implantation of some fibres of the internal popliteal nerve into the paralysed external popliteal of a boy with infantile paralysis. The soleus and gastrocnemius muscles had been completely paralysed. The boy can now extend his ankle.

ULCER ON NOSE FOR THREE YEARS.

Dr. F. R. Humphreys showed a woman of 55 who had had a small ulcer on the nose for three years. She had lately developed a somewhat similar spot on the lower eyelid.

DECEMBER 13th, 1905.

Mr. J. Tregelles Fox read a paper on

"THE LARGE INTESTINE: ITS MECHANISM AND MANAGEMENT."

The writer brought before the Leeds and West Riding Medico-Chirurgical Society an original theory of the Human Alimentary Canal (April 1904). The present paper applied the same theory to the normal and abnormal action of the large intestine, with special reference to the rôle of the so-called sigmoid flexure, and to the common complaint, constipation.
The former paper was briefly epitomised and quoted from. The human alimentary canal consists of five retort-like divisions connecting in series. There are analogies and homologies running through these, and the series culminates in its middle segment—the important, long drawn out and coiled up "retort" of the small intestine, the most organic and vital portion, and most nearly correspondent with that of the animal kingdom. The first and second retorts (mouth-gullet and stomach) are more complex, specialised to man, and brought into relation to volition. So are the last two, which together make up the large intestine. It is a pity the small intestine has not a name for itself like colon, to mark the great difference in their functions. In each of these retort-like segments, at any rate in the four, the contents are periodically advanced into the next, by a mechanism to which the writer gave the name of ecbolism, over and above the peristaltic action usually described.

The elements proper to each such action, beginning with deglutition and ending with defæcation were set forth, so far as known. Analogy was traced to the systole and diastole of the heart, uterus and other hollow viscera, with their normal rhythm and abnormal conditions—obstruction, regurgitation, dilatation and hypertrophy, atrophy, spasm, etc.

A typical diurnal revolution or cycle of the human alimentary canal was described, and its innumerable modifications to suit all sorts and conditions of men alluded to.

The large intestine he divided at the end of the descending colon into two retort-like divisions, though in this case there is no valvular opening connecting them, the sharp turn of the sigmoid and the downward course of the colon being sufficient to prevent regurgitation when the sigmoid ecbolism takes place. The cæcum, ascending, transverse and descending colon form one division—retort No. 4—gradually diminishing in calibre. The sigmoid and rectum form another, and the last in series, No. 5, for Treves and others have shown that the sigmoid or omegaloop as Treves named it, has no natural dividing line from the first portion of the "rectum," and they should act together.
The leading thought was hazarded that in the sigmoid flexure, or omegaloop, lies the "key of the bowels" (as that of digestion is the stomach), its normal action being the test of the proper performance of all the proximal parts above, the guarantee of that of the short distal remainder below. What are the normal functions of the large intestine and its various divisions? They appear to be very little known; even the site of the sigmoid being in dispute! Departures from the normal action of a functional character are not so well understood as malformations and gross lesions. According to the writer's view, there should normally be an ecbolism of the cæcum-cum-colon in the early morning hours, perhaps to awaken the sleeper; also once or twice later during the active work of the day, charging the sigmoid which should fire off, not into, but through the rectum, before or after breakfast, and probably again in the afternoon or evening.

In discussing the causes of the frequent departures from this healthy rhythm (besides those due to coarse lesions and faulty chemistry of diet, digestion or metabolism), the writer propounded the view that the common opinion that chronic obstruction leads to dilatation is incorrect. From observations, clinical and pathological, and from the analogy of the heart, it would seem that mere mechanical obstruction, unless absolute or suddenly induced, leads to hypertrophy and contraction of the parts above; on the other hand atony and dilatation result from nervous inhibition of ecbolism, as in cases of ulceration, irritation reflected from inflamed viscera, etc. Very often, however, these two opposite conditions are both present, as in cases of ulceration and stricture, or pressure from an inflamed ovary; and accordingly parts of the tube are frequently dilated, parts contracted by spasm or permanent hypertrophy.

In conclusion, after pointing out the remarkable course and very extensive relations of the large intestine—of great significance to the various neighbouring vital organs, physiologically and pathologically—the writer strongly urged the recognition of simple dilatation in the large intestine, which occurs in four situations: (1) It undoubtedly occurs in the rectum, especially
in women. This passage should normally be empty, and has no more right to be choked than the oesophagus. (2) The cæcum is frequently distended—a chief cause of appendicitis. (3) The transverse colon may be dilated and prolapsed, and the symptoms which scybala and mucuous colitis produce in this situation may be put down to the stomach, pylorus or gall bladder. (4) Lastly, there is the atonic prolapsed sigmoid, occupying the pelvis, congested and jammed down by straining efforts, even causing “anteflexion of the rectum.” Let not the frequency with which the sigmoid is found in the pelvis post mortem be hastily taken as proving that this is its normal site.¹

Any of these may be found, not only in cases of gross organic disease, being commonly due to nervous atony or inhibition from the occupations of civilisation, faulty heart, unsuitable food, the abuse of drugs, or their disuse when necessary, etc.

The writer desired operating surgeons and pathologists to record accurate observations of the position and condition of the sigmoid, etc., in conjunction with normal function or symptoms of disorder, to confirm or confute his theory.

SURGICAL TREATMENT OF COLITIS.

Mr. Hugh Lett read a paper on the surgical treatment of colitis.² He discussed the relative merits of four operations.

(1) Right inguinal colotomy with establishment of an artificial anus on the right side, and subsequent irrigation of the colon. Disadvantages of this method of treatment are

(a) Absence of control over motions.
(b) Irritation of the skin from the action of liquid faeces.
(c) The necessity of a second operation to close the artificial anus.
(d) The difficulty of deciding when this may be performed.

¹ The French name, “Ilio-pelvienne,” is fair if taken as a description of its extent, beginning in the iliac fosse and ending in the pelvis (third piece of saerum), but as M. Testut truly observes, “The name sigmoid is convenient as it does not prejudice the question of its site.”

² This paper was published in Treatment. Feb. 1906.
(2) Ileo-sigmoidostomy, the short circuiting operation. The chief advantage of this method is that there is no artificial anus.

(3) Kader-Gibson valvular caecostomy. After this operation irrigation of the large intestine can be carried out freely, there is no escape of faeces, and the valvular opening tends to close spontaneously.

(4) Appendicostomy. If the appendix is healthy this operation is easy and safe, and the opening can be closed without difficulty, but only a small tube can be passed for irrigating purposes. If the appendix is diseased, the operation may be one of great difficulty, and even impossible.

He emphasised the fact that mucous colitis often comes to an end when the constipation is cured.

Mr. Hugh M. Eigby considered that ileo-sigmoidostomy had a great future before it. He described three cases in which he had performed the operation with success on account of obstruction. He drew attention to cases which presented all the signs of acute obstruction, although there is no mechanical obstruction to the passage of faeces along the large intestine. In these cases of inhibition of the large intestine, operative treatment seemed to be of little use.

Dr. Michels had performed ileo-colostomy in three or four cases, and had not seen diarrhoea follow the operation. He had had great difficulty in closing the artificial anus in one case of right-sided colotomy, on account of contraction of the occluded part of the large intestine.

Dr. Fortescue Fox discussed slight cases of colitis occurring in patients who are liable to catarrh. He considered that they were associated with abnormal conditions of the peripheral circulation. He insisted on the importance of the genu-pectoral position during the giving of large enemata. He agreed that the cure of colitis often followed that of constipation.

Dr. Milligan related the history of a female patient who had suffered from alternating constipation and diarrhoea for fifteen
years. For the last six months an occasional dose of bismuth had ensured normal action of the bowels.

The President welcomed Dr. Tregelles Fox's attractive new ideas, but questioned their value as a material help in practice. He disputed the value of rest for the colon, and the accuracy of the generally accepted explanation of strecoral ulcers. Typhoid ulcers heal without rest, in spite of being constantly bathed in feces. He referred to two cases of colitis under his own care, which had improved steadily after appendicostomy. He had found that irrigation with cyllin caused great irritation of the colon.

JANUARY 10th, 1906.—Pathological Evening.

APPENDIX WITH DERMOID ATTACHED.

Dr. Zum Busch showed a specimen removed on account of pain four months after removal of the appendages. Both tubes were full of pus and both ovaries contained abscesses. The specimen removed four months later consisted of a long, fairly healthy appendix, attached to the tip of which was a small dermoid, the size of a cherry, containing fat, hair and bone. Dr. Zum Busch asked for opinions as to the origin of the dermoid.

Dr. H. Russell Andrews thought that the presence of non-epiblastic tissue, e.g., bone, proved the connection of the dermoid with the ovary. Dr. Richard Warren concurred in this opinion.

CARCINOMA OF THE CERVIX.

Dr. H. Russell Andrews showed a large hydrosalpinx removed with a rather advanced carcinoma of the cervix. Abdominal hysterectomy with removal of the upper third of the vagina was done.
JANUARY 24th, 1906.

Mr. Jonathan Hutchinson delivered the second Hunterian Society's Lecture on

"SOME REMINISCENCES OF THE HUNTERIAN SOCIETY."

Mr. President and Gentlemen,

I purpose this evening nothing more than some personal reminiscences of the Hunterian Society. Its history has been given more than once in our Annual Orations, and by those better qualified for the task. I shall not advert to it, but shall ask your indulgence for nothing better or more systematic than a few fragmentary records which have survived in an old man's memory.

My godfather at the Hunterian was Edward Cock. Chancing to call on him one morning to ask him to revise what I had written respecting a case of his in the hospital, he, observing, I suppose that I had some youthful zeal, remarked "You ought to belong to the Hunterian; let me propose you." I assented joyfully, and the thing was done. This was in 1855, and Dr. Lever was the president with whom I shook hands on admission to the membership.

Mr. Curling followed him next year, and then came in succession Dr. Barlow (of Guy’s), Mr. Solly, Dr. Little of orthopaedic fame, Mr. Walne, an early ovariotomist, Dr. Risdon Bennett and Mr. George Critchett. In the course of fifteen years from my election, I was president myself. My immediate predecessor was one who had been my fast friend from my first coming to London, Dr. Bevill Peacock. It was the duty of the President, the concluding one, I think, of his year of office, to take the chair at the Annual Dinner. Dr. Peacock when the day came was not well, and at only a day's warning he devolved the duty
upon the president elect. It was, I think, my first experience of chairmanship at public dinners, and I remember that I was very nervous. Next year I was elected for a second term of office, and as this would have given the festival the same chairman three years running, the Council in self-defence suggested that an outsider should be enlisted for the middle one, and Professor Owen very kindly consented to be my substitute, to my great relief. My successor in the chair was Dr. Dennis de Berdt Hovell, a man well qualified for social duties, and who took them con amore. I remembered that he composed some verses for the occasion of the dinner, and delivered them with much spirit. A considerable part of the Oration which he had given six years previously was, I believe, in blank verse. It must not be supposed because I mention his attainments in this direction that Dr. Berdt Hovell was lukewarm as regards his profession. Far from it! He was a sound practitioner, an original thinker, and one well able to defend his opinions.

At the time which we are dealing with, the two large Borough hospitals, Guy’s and St. Thomas’s, stood by side side at the foot of London Bridge, and probably nine-tenths of those who held appointments in them resided in the City. The latter statement is true also of the London Hospital, and Broad Street, St. Helen’s Place and Finsbury Square were then as much thronged with consultants as Harley Street and Brook Street are in the present day. The Hunterian Society had its rooms in Blomfield Street, Finsbury Circus, a very central position within three minutes walk of the homes of perhaps a good half of the consulting profession of the metropolis. Almost without exception those who held appointments at any one of these hospitals just named were enrolled as its members, and most of them attended its meetings regularly. Although there was no fine for non-attendance, most held it a point of honour to present themselves. The Pathological Society was only a promising infant under the careful nursing of Dr. Bentley, Dr. Peacock and Mr. Nathaniel Ward. The Clinical was not yet thought of, nor were any of the now numerous societies for special objects. The Royal
Medical and Chirurgical was in its zenith, but it was thought that very high merit was requisite in order that a paper should be acceptable there, and the modesty of youth and other motives prevented many from offering their contributions at its shrine. The old Medical Society from which, if I remember rightly, the Hunterian was in some sense an offshoot, had lost much of the savour of its early days, and was to some extent eyed askance by many leaders in the profession. It has since, I am glad to know, experienced a noble renaissance.

There was thus an almost clear field for the Hunterian, whose boast it was that it admitted no reporters, and thus endeavoured to discourage talking for reputation's sake. As nothing was published excepting meagre ten line notices in the Annual Report, no one had his feelings wounded by the rejection of his paper. It was a semi-private society, and its members met for mutual instruction, and interchange of opinion without ulterior objects. A young man was sure of a kind reception, and as men such as Addison, Barlow, Herbert Davies, Peacock, John Hilton, Edward Cock, Blizard Curling and John Birkett, were almost certain to be present, his views could not fail to receive judicious criticism.

Dr. Cooke—"old Dr. Cooke" as we, not without some sentiment of affection, always called him—was in my day the father of the Hunterian Society, and always regarded its prosperity with affectionate interest. He rarely missed a meeting, and the Annual Dinner would have been a blank without Dr. Cooke. He also exercised much private hospitality, and that not exclusively at his own home (which was in Trinity Square near the town), but also at a charming little village inn at Rainham, on the Thames, with the landlord of which he had influence. To this place he delighted to invite a select company and to give them what he called a fish dinner. The whitebait had been caught on the spot that afternoon, and was cooked to perfection. We always had to listen to a very long grace before we began, but it was well followed up. Dr. Cooke loved his profession; in his youth he had translated Morgagni.
Dr. Cooke was a Dissenter, and the senior deacon at the Weigh-house Chapel during a large part of the time that the Rev. Thomas Binney was the renowned minister there. Dr. Cooke was, as he well might be, fond of his pastor, and took him under his most especial care. It was his supreme care to keep Mr. Binney in good health, and never to let him complain of illness. Such complaint was, he well knew, but too likely to result in a plea to be excused the morning service. When this plea was made without warning, Dr. Cooke would on occasion take the service himself. I have been myself present when he did so, with much dignity and efficiency. It was, however, his most sedulous endeavour to escape the necessity for providing a substitute for Mr. Binney. The morning salutation used to be “Well, Mr. Binney, I am so glad to see you looking so well this morning”; to which the reply was, I am told, on one occasion, “Ah, Dr. Cooke, you ought to know that every man walketh in a vain show; I am not well at all.”

Mr. Binney not unfrequently acted as Chaplain at our Hunterian dinners. At a later period this post was, I think, more than once taken by an almost equally well-known man, the Rev. Mr. Rogers. Both were men of humour, and allowed themselves some liberty in their after dinner speeches, Mr. Rogers, I am bound to say, going much further in this direction than his dissenting brother. He was a man of sterling character, out-spoken in speech, and in memory of an incautious outburst, had acquired the cognomen of “Hang Theology Rogers.”

Old Dr. Cooke had two sons in the profession, both of whom were past middle age when I was young. Neither of them was so regular in attendance at the meetings of the Hunterian Society as their father, but both were eminently reputable practitioners. Dr. Robert Humphreys Cooke, of Stoke Newington, was the one whom I knew best. We were both of us very fond of poetry, and when we met in consultation I fear part of the half-hour was taken up in the interchange of opinions. We both of us eagerly devoured “The Ring and the Book” as it came out in successive volumes, and both were in the habit of reading it
aloud at home. We were meeting, as I well remember, repeatedly, in a case of tetanus from injury to the thumb, at the time that the third volume had come into our hands. One of us remarked, "I said to my wife this morning 'That passage might have been written by Shakespeare.'" The other replied "That is exactly what I said to my wife." On comparing notes, we found that we had picked out the same passage. Dr. Humphreys Cooke was, I believe in more than one direction an accomplished man.

Dr. Archibald Billing occupied the chair of our Society in the year that I was born, and it was therefore hardly to be expected that I should ever know him personally. He was, however, at the time that he attained the presidential honour only thirty-seven years of age, and as he lived to be ninety, there was opportunity for what I have to relate. He had been elected physician to the London Hospital in 1822, and he did not resign that post till 1845. He had, however, been engaged in teaching there five years before he came upon the staff. There is a tradition that he was the first in London to give courses of clinical lectures literally with the patient before the class. He published his principles of medicine in 1831. It ran to six editions, being, I think, finally superseded by Williams’s "Principles."

It would appear that he resigned his hospital appointment at the age of fifty-four, and as there was, I believe, no rule at that time compelling resignation, it must, it is to be feared, be admitted that he set the bad example which has been but too frequently followed of late of giving up hospital teaching whilst in the prime of life, and precisely when best fitted by wealth of experience to discharge such duty efficiently. Why Billing resigned so early is not recorded. Possibly after all, although a zealous clinical teacher, his gift lay rather in the exposition of principles than in practical observation. It is also possible that his interests were passing into other channels. He was at the time an artist connoisseur, and keen collector, and in 1867 he published a large illustrated work on the science of gems, precious stones, etc. Billing's career at the London Hospital,
and also at this Society, was over some years before mine commenced. I met him, however, repeatedly in private. He was much gratified with my knowledge of his writings, and sent me a copy of his work on gems. I remember him well as a tall man, very thin, of erect and dignified bearing, and with well modelled features of the Roman type. His whole aspect reminded me of the poet, Wordsworth, whom also, although twenty years Billing's senior, I had seen. There was, however, little of Wordsworthian sentimentality about Billing; he was outspoken and incisive and practical. I well remember that in the course of much almost paternal advice which he kindly gave me, he said that it was useless self-sacrifice to attempt to draw a sharp line of distinction between medical and surgical cases. "I assure you," he said, "that a good half of Sir Benjamin Brodie's practice is medical, and the same of most surgeons, and you will not find that physicians are a whit more particular." Such advice seemed to me at the time little less than scandalous. Young men are usually purists, and I was one of the strictest. As years went on, however, I began to think more leniently, and realised that the distinction was one very difficult to draw, that there were many mixed cases, and but few in which ingenuity might not succeed in finding a surgical element. Thus in the end I came to adopt a more reasonable precept, that upon which I suspect that most who now hear me are in the habit of acting. It was this, that whenever I thought that the patient's interests would be advanced by a change of his adviser, I would, whether his ailment were medical or surgical, make the transfer. That the latter part of Dr. Billing's statement was true I soon had abundant evidence. Physicians not only went about armed with exploring needles, but sometimes with catheters, and held themselves quite competent to diagnose primary syphilis, and to prescribe for it. On one occasion a sort of climax was reached. I had sent a young baronet to a leading physician of the day, because he had, in addition to the gonorrhoea for which I was prescribing, some chest symptom. He returned with a letter in due course, telling me that there were no physical signs, but
in addition to this, I found that he had given my patient a prescription for Hewlett's mixture, and had assured him that it was a much better thing than what I was giving. My friend, I am sure, did not intend to be discourteous. His conduct arose simply from an irrepressible desire to put knowledge to use. But he had no business to know that there was such a thing as Hewlett's mixture. I must apologise for this digression, and return to my theme.

Professor Owen's association with the Society came through Dr. Cooke—he was never himself a member. In early life Dr. Cooke had, I believe, in some way befriended Owen, and the latter, entertaining a grateful memory, was ever after willing to do what Dr. Cooke asked. Hence his almost regular attendance at our Annual Dinners. At these he very frequently had to reply to the toast of the guests. This toast came, of course, at the end of the feast, after men had well drunk, and Owen's speech was looked forward to as the event of the evening. No one left the table until it had been given. The Professor was not eloquent, and he spoke slowly and almost with hesitation, but he told a story well and always succeeded in making his details lead up to the point. He always sat down amid an outburst of genuine applause. Most certainly I have never seen Owen a pin the worse for wine, but often the better for it, and the image of his figure as he used to stand, knuckles on table, necktie half way on the wrong side of neck, and face wreathed with geniality is still vividly with me. As has been already said, he was kind enough on a special occasion to take the chair as my deputy at one of these dinners.

During the early years of my membership we had papers from Mr. Hilton, Dr. Oldham, Mr. Birkett, Dr. Hicks, Dr. Hubert Davies. Dr. Robert Barnes, now probably our oldest member, was one whose sagacious expositions were always listened to with great respect. Dr. Barnes was our president in 1874. Dr. Peacock, Mr. Bryant, Mr. Durham, Mr. Gowlard, Mr. Critchett, also Mr. Nathaniel Ward, Dr. Daldy and others, were frequent and even welcome contributors. I must not, however
weary you by the citation of names, although it is a source of much pleasure to myself to recall them. Now and then an amusing incident would occur. I well remember the hum of suppressed laughter which passed through the room one evening, when a member who was fond of new pathological terms, placed a bottle of ropy urine on the table, and gravely suggested that his patient probably had a gumma of the kidney.

I should much have liked, were it in my power, to have brought before you some brief reminiscences of the many excellent papers and discussions to which I listened during the years that I was a regular attendant at the meetings of the Hunterian Society. The Society, as I have said, disallowed of reporting, and I have consequently not been able to refer to any published records. It happens, I know not why and perhaps the confession is not very creditable—that I remember my own papers much better than those of my co-members. Probably they made a deeper impression at the time and have been more frequently recapitulated since. Of the communications made by others I preserve only the vague impression that they were often very instructive, and that I both enjoyed the meetings and profited much from them, but I cannot go into detail. They live in my memory like the recollection of a feast, that it was good and nutritious, but of what precisely it consisted I cannot say. It is impossible for me to exaggerate the extent of my indebtedness to the Hunterian and Pathological Societies, and I find it difficult to say to which I owe most. I was an absolutely regular attender at both. They were my schools, not so much of debate as of thought-ful criticism and fruitful suggestions.

SYMPHILIS A SLOW-STAGED FEVER.

I have already mentioned two papers of my own which excited some interest and attention at our meetings, and if you will indulge me so far I should like to refer to a third. In many papers from time to time I brought questions related to syphilis and its treatment, but by far the principal one in my estimation was that in which I claimed for that disease a place amongst
the specific fevers, alleging that its early stages were quite definite, of limited duration, and self terminable. The debate on this paper extended, if I remember rightly, over two evenings, and on the second Mr. Acton, Mr. Henry Lee and other West End authorities did us the honour to come into the City and give us the advantage of their criticism. It was not without some surprise that I found that views which had seemed to my own mind quite obvious were regarded by others not only as novel, but as very questionable. Nor had I to defend only my deductions; my facts were also called in question. One authority, I well remember, said that he doubted much whether it was true that the secondary eruption which I had called the exanthem stage was usually arranged with bilateral symmetry, since he had usually seen it on one arm or one leg. The fact was that at that time it was thought almost a rudeness to ask a patient to strip, and the demand "Everything off but your trousers" was seldom heard. Surgeons, and dermatologists too, were but too often content to make a diagnosis by inspection of a little bit of one arm or one leg, and to receive with implicit confidence whatever a patient liked to say about the rest of his person.

The paper referred to was read in 1856. It was not till some years later (1874) that I advocated in another communication the small dose and long course treatment of syphilis. I do not feel sure that the desirability of beginning treatment very early, and of anticipating and preventing secondary symptoms was ever made the subject of a special communication to the Hunterian. It came, I think, after I had ceased to read papers there. In 1874 I left the City, and thenceforward my attendance at the Hunterian was only irregular.

The recent discovery of a protozoa as the cause of syphilis has, it is needless to say, given confirmation to the doctrine which places the disease in the same category as variola. It is a discovery which we all hail, as a most important one, and as likely to give exactitude to our knowledge in many directions. At the same time, it is fair to claim that it had been anticipated by deductive conjecture, and that for the last thirty years our
doctrines and our treatment have been alike based on the assumption of its existence. Although, however, Schandinn’s splendid discovery has been to a large extent discounted, we may yet, I repeat, accept it with gratitude as likely to conduce to further knowledge. It has already furnished proof to those who doubted the identity of the so-called yaws and framboesia with syphilis. It may in the future, in the hands of competent men, make the early diagnosis of chancre more certain and thus encourage the early resort to mercury.

It reflects the greatest credit upon those who, during the last quarter of a century, have supported the Hunterian Society, that it still maintains its high character and a considerable share of prosperity. This has been in spite of the fact that nineteen out of twenty of the class of practitioners who attended its meetings fifty years ago, have left the city, and migrated to the west. Of hospital consultants, teachers in Medical Schools, and even foremost specialists, there are scarcely any left. The exodus to the West has been complete. Like the events of the present election there are certain fairly obvious explanations, but to carry on the parallel, there is much in both which is inexplicable. We can see reasons for many migrating, but why should all have gone?

OVARIOTOMY AND MR. WALNE.

In the year 1858 I brought before the Society my first ovariotomy case, and not long afterwards a second, both of them successful. This operation was, however, by no means a novelty to our then members. Mr. Henry Walne, who had been our President two years before I joined it, had operated twelve years before I did, and had had three successful cases, and I am under the impression that Mr. Borlase Childs had also done some operations, but not with like success. I remember Mr. Walne well—a tall man of dignified bearing, and silent, retiring manner. He lived in Guildford Street, and was Consulting Surgeon to the German Hospital, and a Fellow of the College of Surgeons, but he had I believe, no other hospital appointment. Why he
gave up ovariotomy I do not know, but I do not think that he published any cases later than 1844. I well recollect the kind interest which he took in my case, and his approval of my advocacy of the practice of keeping the end of the pedicle out of the abdominal cavity. Not long afterwards, I brought before the Society the clamp, which I had devised as a means of securing this end, and this instrument was immediately adopted both by Baker Brown and Spencer Wells, although since the practice of abdominal cleanliness, and asepsis has been understood, the clamp has been abandoned, yet it was, I believe, the means of securing repute for the operation. Sir Spencer Wells used it during a long series of his earlier years, and having for a time abandoned it, felt compelled to return to it.

THE LOCAL ORIGIN OF CANCER AND PLEA FOR EARLY SURGICAL TREATMENT.

It was the session of 1860 when Dr. Risdon Bennett (afterwards Sir James) was our President, that I read a paper on the local origin of Cancer. The gist of my argument was by no means to claim that cancer depended solely on local causes, but rather to assert strongly that local causes were very influential, and that in most cases there was a prolonged local stage, during which a liberal excision might prove a complete success. Those familiar with present day doctrines can have but little conception of the opposition which this simple statement then evoked. The deeply-rooted creed was that cancer was always constitutional, and always ineradicable. If a patient remained well after an operation then the disease was not cancer. Sir Benjamin Brodie had written strongly against the removal of affected glands as useless, and one of the signs for which most waited in order to be safe in diagnosis was implication of glands. No attempts were made at early diagnosis for the reason that no special importance was thought to attach to early recognition. In the adjourned discussion which followed my paper, I do not recollect that I had any approvers. All were critics. I had
claimed a large majority of Cancers as belonging both for diagnosis and treatment to the surgeon, and had urged that it was far better to err now and then by the removal of that which could not be proved to be cancerous, than to run wholesale risk of allowing the disease to become established by waiting for symptoms to develop. Operations in that day were regarded very differently from what they are in our own, and it was held to be a valid objection to the views urged that not only were they at variance with sound pathological doctrine, but would be likely to lead to much useless employment of the knife.

It is not without some little pride that I note that not only are the opinions expressed in this paper now universally acted upon, but that pathological investigations have corroborated the views put forward as to the nature of the cancerous process and its local commencement. It was not till some years later that the discussion took place at the Pathological Society which did so much to popularise these opinions, and to bring within the reach of successful surgery and permanent cure so many sufferers from this fell disease.

THE PATHOLOGICAL AND NEW SYDENHAM SOCIETIES.

Two of the Societies which were young in the middle of the last century were in some sense the offspring of the Hunterian, although neither were in any way connected. The Pathological, which had its inception, I believe, in the brain of Dr. Bentley, a Borough man and a Hunterian, had in its first list of officers the names of Nathaniel Ward, Dr. Peacock, and others.

The New Sydenham now in its forty-fourth year, was begun by Dr. Sedgwick Saunders, Dr. Peacock, Mr. Hilton, Mr. Solly and others, and its first meeting took place in Dr. Peacock's dining-room in Finsbury Square under, I think, Mr. Hilton's chairmanship.

We had not the honour of giving the first president to either of these Societies. The same distinguished West End physician, Dr. C. J. B. Williams, was in 1847 elected first President of the
Pathological, and was also first President of the New Sydenham. The second President of the Pathological Mr. Aston Key, was, however, a City man, and one of us. Of Mr. Key I can tell you nothing from personal knowledge, for he died of cholera in the year that I came to London. He had been President of this Society in 1832, and had delivered the Oration in the previous year.

The following is a list of some of the papers read before the Hunterian Society during the period to which chiefly my reminiscences refer. It was kindly compiled for me by my friend, Dr. Fortescue Fox, after my paper had been read. It may afford a suitable matter of fact appendix to what I have written, and may possibly be of use in fixing certain dates. Dr. Fox, and not myself, is responsible for the selection of the papers mentioned. Not by any means all those read during the period are given. Dr. Barnes, Dr. Hughlings Jackson and myself are the only survivors.

SELECTIONS OF TITLES OF SOME OF THE HUNTERIAN SOCIETY PAPERS, BETWEEN 1855 and 1879.

1855-6.  Mr. Hutchinson on The Dyspepsia preceding and attending Phthisis. A summary of conclusions is given and it is added "The experience of the members did not coincide with the views brought forward."

Therapeutic Uses of Chlorate of Potash.
Mr. Birkett on Excision of the Joints, and on Femoral Hernia.
Dr. Peacock on the Treatment of Typhus Fever by large and frequently repeated doses of Quinine.
Dr. Barlow on Diseased Kidneys simulating Obstructed Bowels.


Mr. Hutchinson. Transmission of Syphilis from the Fœtus to its Mother.
Dr. Barlow. The Bugbear of Inflammation.
Dr. Peacock. Some Forms of Remittent Fever.
SOME REMINISCENCES OF THE SOCIETY.

Mr. Hutchinson. The Treatment of Obstruction of the Bowels.
Also in

1858-9. A successful case of Ovariotomy, with some practical details of the operation.

1858-9. Dr. Peacock. Cases of Chronic Pleurisy opening through the Lungs, also Supposed Antagonism of Consumption and Ague.

Dr. Barlow. Treatment of Diseases of the Heart.

Mr. Hutchinson. The Influence of Hereditary Syphilis on the Teeth, and Results of Plastic Perineal Operations for the Cure of Prolapsus Uteri.

[Mr. Hutchinson's case of ovariotomy was his third case, and the first in which a clamp was used. "The incision healed by the first intention," and the patient left her bed on the tenth day.]


1860-61. Dr. Peacock, A Case of bronzed skin with Supra-renal Capsular Disease.

Mr. Hutchinson, Diseases of the Skin considered as symptoms; Cancer considered as a local disease, and Diseases usually called Scrofulous, in relation to their causes.


Dr. Peacock, Notes of Hospitals in the North of Italy, and on Pellagra.

1864-5. Mr. Hutchinson, Four Cases of Leucoderma.

Dr. Sutton, Fibroid Degeneration of the Lung.

1865-6. Mr. Hutchinson on the Diagnosis of Congenital Syphilis by the Condition of the Teeth, and two papers on the Medical Aspects of Constitutional Syphilis.

Dr. Davies on the Blister Treatment of Rheumatic Fever.

Dr. H. Jackson on the Influence of Tobacco Smoking in producing or predisposing to Disease of the Nervous System.

Dr. Bright on Diphtheria.

Dr. Peacock on The Construction of Hospitals in North Europe.

1866-7. Mr. Hutchinson on The Symptoms of Compression of the Brain.

Dr. Barlow on The Pathology of Chorea.

1867-8. Dr. H. Jackson, Diagnosis of Coma.

Dr. Peacock on Inorganic Cardiac Murmurs.

1868-9. Mr. Hutchinson on General Pathology as illustrated by Diseases of the Eye and on Certain forms of Skin Disease.

1869-70. Mr. Hutchinson on Diatheses, or Dislocation of the Lens into the Fundus, and on Cancer of the Calvaria.
1870-71. Dr. Peacock, *Medical Institutions of the United States and Canada*, also on *Lisbon and Leprosy*, which led to a discussion on the causes of Leprosy.

1874. Mr. Hutchinson on *Rheumatism a Neurosis*, a statement of reasons for believing that the phenomena of rheumatism are mostly of nervous origin.

1875. Dr. H. Jackson, *Temporary Mental Disorders after Epileptic Seizures*.

1876. Mr. Hutchinson, *Colles’ Law, and on the communication of Syphilis from the Fetus to its Mother*.

1879. Dr. B. W. Richardson, *Abstinence from Alcohol in Health and Disease*.

Mr. Hutchinson introduced a discussion on *Syphilis in its relation to Diseases of the Nervous System*.

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**FEBRUARY 28th, 1906.**

Dr. W. H. Kelson read a paper on “Some Throat Affections,” giving a short account of Mycosis of the Tonsils, Vincent’s Angina, Erysipelatous Inflammation of the Fauces, Chronic Pharyngitis, and a condition which resembled secondary syphilitic disease of the throat, but did not yield to antisyphilitic remedies. He discussed the relative importance of local and general treatment in affections of the throat.

A full report will be found in *The Lancet* for July 7th, 1906.

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Dr. Purves Stewart read a paper entitled

“**WHAT IS THE EARLIEST STAGE AT WHICH WE CAN DIAGNOSE TABES DORSALIS?**”

A well-advanced case of tabes can generally be recognised at a glance—one might almost say with a telescope—when we see the patient lurching along with his ataxic gait, lifting his feet too high, flourishing them in the air, and banging them down
with a stamp on the ground. Such a patient, besides his ataxia, has, ordinarily, Argyll-Robertson pupils and absence of knee-jerks and the diagnosis presents no difficulty.

But it is of importance to recognise tabetic disease at a much earlier stage, long before the patient has become obviously ataxic; since experience shows us that early diagnosis and appropriate treatment can do something towards arresting the progress of the disease.

Let us consider the initial symptoms of tabes. These are very variable. Different patients are attacked in entirely different ways.

Perhaps the commonest initial symptom is the so-called lightning-pain, sudden, intense, paroxysmal, usually in the legs, and often mistaken for rheumatism or sciatica. Or the patient may start off with various abnormal sensations, such as a girdle or cuirass-feeling round the trunk, or indistinctness of sensation in the soles of the feet as if he were walking on wool or rubber. Or he may simply complain of difficulty of micturition (such patients have been known to be treated for stricture) or of sexual impotence. Transient ocular palsies, especially a sudden ptosis, should always make us suspicious. Or the patient may complain of intense abdominal pain and vomiting—a gastric or other crisis.

Unsteadiness of walking, which is always most marked in the dark or when the eyes are shut, is usually a good deal later in onset than any of the symptoms already mentioned.

But for the diagnosis of tabes we require not merely symptoms, however suggestive; we must have physical signs which we can verify for ourselves.

Certain forms of cutaneous anaesthesia to touch, and still more to pain, are valuable constructive evidence of tabes, since these patches often correspond to well recognised root-areas, especially along the inner sides of the hands and arms, round the trunk, etc. Cutaneous hyperesthesia of a broad zone round the trunk is sometimes very marked, and causes the patient intense pain while dressing or undressing. Analgesia to pin-pricks on the
glans penis is a fairly early symptom, but obviously not always convenient to search for; it is sometimes associated with a loss of testicular pain on pressure. Biernacki's sign is loss of the normal sensation of pain on pressing the ulnar nerve behind the elbow.

Coming now to objective physical signs, it is usually accepted that the three cardinal signs of tabes are—ataxy, Argyll-Robertson pupil, absence of deep jerks, e.g., knee jerks; and if any two of these are present, the presumption in favour of tabes is very strong.

The ataxy of tabes in slight cases, is brought out best by making the patient stand with feet together and eyes shut. His shoes and socks should be off. We then notice frequent irregular contractions of the tendons on the dorsum of the foot, indicating that co-ordination for the act of standing is already imperfect. In more advanced cases, the patient actually sways and falls (the typical Romberg sign).

The pupils in tabes are rarely normal. Often they are unequal and not circular in outline. Sometimes they are very small, and they lose their reaction to light whilst retaining their power of contraction during convergence (Argyll-Robertson phenomenon). This Argyll-Robertson pupil, even if unilateral, is a most valuable diagnostic sign. It occurs only in two diseases—tabes and general paralysis of the insane—and if a patient has Argyll-Robertson pupils we may say that he is a candidate for one or other of these diseases.

Diminution or loss of knee-jerks is a fairly early sign of tabes. What is perhaps not sufficiently realised is that loss of ankle-jerks is equally important, and often precedes the loss of knee-jerks.

Lastly, amongst the earliest and most constant phenomena in tabes is the remarkable abnormality which we find in the cerebro-spinal fluid obtained by lumbar puncture. Normal cerebro-spinal fluid contains hardly any cellular elements, even in a centrifuged deposit. But in tabes and in general paralysis of the insane we find a large number of mononuclear leucocytes.
EXTRA-UTERINE PREGNANCY.

—constituting a lymphocytosis—which are easily stained by methylene blue.

I need not weary you by describing the technique of lumbar puncture. The procedure is simple in skilled hands. And it causes little or no discomfort to the tabetic patient. In a case of doubtful tabes the information obtained from the cerebro-spinal fluid can hardly be over-estimated. I have examined the cerebro-spinal fluid over a recent series of twenty-one tabetics, and in every case lymphocytosis was present. One patient had no other sign beyond Argyll-Robertson pupils and lightning pains. His knee-jerks and ankle-jerks were brisk, and he was not ataxic.

We may therefore add one more to our cardinal signs of tabes. viz., lymphocytosis of the cerebro-spinal fluid.

Dr. W. A. Milligan read a paper on

"THE DIAGNOSIS OF EARLY EXTRA-UTERINE PREGNANCY."

This paper, which was subsequently published in full in the Journal of Obstetrics and Gynaecology of the British Empire, June 1906, was based on an observation of fifty cases. As an aetiological factor, previous sterility was not regarded as being of much importance. In discussing the question of the history of the patient's menstruation, attention was called to the fact that in a great many cases no history of "missing a period" was given.

It was extremely important to note that an hemorrhagic discharge was nearly always present, and that this discharge differed from the ordinary monthly discharge, in colour, persistence, etc.

In the examination of the patient per vaginam, it was of first importance clearly to define the uterus and then make out that there was some extra-uterine swelling. In determining this, it was sometimes necessary to employ an anaesthetic.
The various conditions that have to be diagnosed from an extra-uterine gestation were then discussed, and the absolute importance pointed out that every fact in the history and physical examination of a doubtful case be taken into account and thoroughly investigated.

March 14th, 1906.—Clinical Afternoon at Guy's Hospital.

DR. FREDERICK TAYLOR showed:

SPASTIC DIPLEGIA.

1. A case of spastic diplegia in a child of 2½. The legs had been weak and more or less rigid since the age of nine months, when fits occurred. There was obvious defect of mental development. The legs were spastic, adducted and crossed, muscles not wasted. The rigidity occurred in an extended position. The arms were weak and moved jerkily. The lesion was probably cortical, and perhaps congenital.

MUSCULAR ATROPHY.

2. A case of muscular atrophy in a man aged 38, coming on gradually at about 25. The gluteal and thigh muscles, especially the adductors, were much wasted, while those of the legs, trunk and arms appeared to be normal. On rising from a recumbent position the patient "climbs up himself." No history of syphilis. An elder brother is said to have been similarly affected. The condition resembled pseudo-hypertrophic paralysis, but there was no hardness of the muscles. The knee jerks were absent.

SYRINGOMYELIA.

DR. NEWTON PITT showed a woman aged 44 with syringomyelia of insidious onset. It began twenty years ago with weakness in the left arm, and subsequently cramp and numbness in the
left leg. There was loss of power in the left shoulder twelve months ago. No pain, left hand claw-shaped, wasting of thenar and hypothenar and interossei muscles. Left knee jerk absent. Sensation of heat and cold affected.

Dr. Herbert French, for Dr. Hale White, showed:

**MYASTHENIA GRAVIS.**

1. A woman of 23 with myasthenia gravis of four months duration. The external recti and levatoris palpebrarum muscles are soon tired and cease to act, and speech becomes mumbling. She swallows with difficulty.

**SPLENO-MEDULLARY LEUKÆMIA.**

2. A case of spleno-medullary leukæmia in a woman of 45. She had been subjected to X-ray treatment under which the white corpuscles fell from 400,000 per c.m. to 17,000.

**PSEUDO-LEUKÆMIA.**

Dr. Walker for Dr. Beddard showed a case of pseudo-leukæmia in a child of 3. The spleen was enlarged nearly to Poupart's ligament, and there was slight enlargement of some lymphatic glands. The blood contained 2,000,000 red cells, and 7,500 white, myelocytes from 5 per cent to 14 per cent.

**CARCINOMA OF THE BREAST AND SARCOMA OF THE TESTICLE.**

Mr. Lucas showed a case of carcinoma of the breast, also a case of (?) Sarcoma of the testicle of two years' history, probably an endothelioma.

**TUBERCULOUS DISEASE OF THE HIP JOINT.**

Mr. Charters Symonds sent two cases of tuberculous disease of the hip joint. The joints had been excised some years ago and shortening of from four to six inches had resulted.
MULTIPLE ARTHRITIS.

Mr. Arbuthnot Lane sent a case of multiple arthritis in a child of about 3 years. The symptoms corresponded closely with those of Still’s disease. There was considerable glandular enlargement.

Mr. H. P. Rowlands for Mr. Lane showed:

SENILE MULTIPLE CYSTIC DISEASE.

1. A man of 51 with senile multiple cystic disease of the epididymis. An early stage of the same disease was present on the other side.

TUBERCULOUS SYNOVITIS.

2. A man of 25 with old tuberculous synovitis of the left knee, commencing at six years of age. There was no bone disease. There was fair movement, but flexion and partial posterior dislocation of the tibia.

SARCOMA OF THE TIBIA.

3. A young woman in whom sarcoma of the tibia had been diagnosed. It appeared to be a case of spontaneous fracture of the tibia and fibula which occurred two years ago. No treatment was applied and oedema had been present ever since.

SYPHILITIC GUMMATA OF TRICEPS MUSCLES.

Also for Mr. Dunn a case of syphilitic gummata of both triceps muscles in an old sailor.

SHRINKING OF THE CONJUNCTIVA.

Mr. A. W. Ormond showed a case of essential shrinking of the conjunctiva in a boy of 17, of one and a half years’ duration. Vision was very defective especially that of the right eye. Left eye 6-36ths with + 5 D sph. The cornea of the right eye is invaded by thickened conjunctiva. There is scarring under
the upper lid, the left eye is similarly but less affected. No history of pemphigus. The eyes had not been seen under an acute attack.

MARCH 28th, 1906.—Pathological Evening.

MELANOTIC GROWTH OF LIVER.

The President showed a large melanotic growth of the liver, from a woman of 35, one of whose eyes had been removed at Moorfields a few months before her death.

Dr. Russell Andrews showed:

FOUR COMPLETE ABORTIONS.

1. Four complete abortions, the earliest being not more than a ten days’ pregnancy, showing the different stages in the development of the decidua capsulans.

OVARIAN TERATOMA.

Dr. Russell Andrews showed an ovarian teratoma removed from a child of 12, containing fat, hair, skin, cartilage, glandular tissue, resembling that of the large intestine, etc.

Dr. Zum Busch showed:

MELANOTIC SARCOMA OF RECTUM.

1. A melanotic sarcoma of the rectum removed from a woman of 32, who was quite well two years after the operation. Microscopically it was seen to be alveolar in structure, the septa containing much pigment.
PATHOLOGICAL EVENING.

RUDIMENTARY UTERINE HORN AND FALLOPIAN TUBE.

2. A rudimentary uterine horn and Fallopian tube both filled with blood removed from a woman who had complained of constant pain after her first confinement.

LOCAL ARTHRITIS.

Dr. Fortescue Fox showed a specimen of local arthritis from a man aged 80. There were various varieties of local arthritis affecting one or two, or at most a very few joints. It generally occurred in the latter half of life, and was most commonly met with at the base of the right thumb. This he had described and figured in a paper read before this Society in 1895 (vide Trans. 1895-6, p. 145); and the specimen now exhibited was, so far as he knew, the first specimen that had been described. The patient was a healthy subject, of gouty ancestry, and eventually died of widespread neuritis. Both thumbs were affected, but the left slightly, and there was some enlargement, and probably similar degenerative change, in the corresponding joints in the feet. The right first metacarpal bone showed at the proximal extremity complete destruction of the articular cartilage and some irregular bony out-growth on the anterior aspect. Slight eburnation was present in one place. The corresponding surface of the trapezium bone was also denuded of cartilage, and showed irregular excavations anteriorly, and bony outgrowths. The lateral margins of the joint were heavily lipped with bony deposit. It was interesting to notice that the contiguous facets, articulating with the trapezoid and scaphoid bones, exhibited no degenerative change, showing the purely local character of the affection.

Thumb-base arthritis was met with in women as often as in men. There was often a history of family gout, but acute gout was seldom met with in these patients. If untreated, thumb-base arthritis led to the characteristic dislocation forwards of the metacarpal bone and compensatory dislocation backwards of
the first phalanx, the former displacement giving rise to the "cupped palm," described in the paper referred to. Dr. Fox showed X-ray photographs exhibiting this position of the bones.

Local arthritis, of which this thumb-base arthritis was a good example, occurred only in joints exposed to traumatism, and therefore more commonly on the right side of the body. It was best treated by rest, and applications of heat and counter-irritation—the blister and actual cautery being especially useful. Both in etiology and in treatment it was widely different from generalised or constitutional arthritis.

APRIL 11th, 1906.—Ordinary Meeting.

JOHN POLAND, Esq., F.R.C.S., IN THE CHAIR.

DISCUSSION ON "SYPHILIS."

The Chairman.—Gentlemen, In the absence of the President to-night, I have been asked to announce that the subject for discussion this evening is Syphilis. I know that I only express the feelings of Fellows and others who are present when I say how much we appreciate Mr. Jonathan Hutchinson's consent to open the discussion. We all feel that he is the greatest authority on this subject, and he told me only a few moments ago that it is fifty years since he first read a paper or opened a discussion on the same subject. That will show how wide his knowledge is, and I cannot but express the gratitude of the Fellows of the Society at the honour which he has done them by coming here to-night. We have also various other speakers. There is Dr. Savage, and I need not say how well known he is to all of us, and how much we shall appreciate all that he has got to say. We have also Dr. Purves Stewart, who is perhaps equally well known to the younger members as to the Fellows of the Society.
And last, but not least, we have Dr. Hale White, who has brought down some specimens, which will represent that magnificent pathological school, as I may call it, of Guy’s Hospital, which is only second, I take it, to that of the College of Surgeons. Dr. Hale White will represent the pathological teaching of Guy’s Hospital, and especially with regard to the subject in hand. I suppose we all know that Sir Samuel Wilks was the pioneer of the recognition of visceral syphilis.

I will ask Mr. Jonathan Hutchinson to give us his paper.

Mr. Jonathan Hutchinson, F.R.S.: Mr. Chairman and Gentlemen,—In the ten years ending in 1875 the mortality registered in England and Wales as having been caused by syphilis up to that period had been steadily increasing. This may have been partly due to the recognition of visceral syphilis as a cause of death, about which but little was known in the early part of that century. With the year 1875, however, the highest point was reached, and since that date there has been, with some variations, a steady decline. Thus in 1875 the mortality for all ages was 2,140, whilst in 1904, instead of being two thousand, it was only 1,834; Making allowance for the increased population in the later period, the figure ought to have been 3,000. So you see it has declined from what ought to have been 3,000 to 1,800. The figures as regards congenital syphilis are of the same tenour. The deaths in 1875 from congenital syphilis were 1,554, and in 1894 they were only 1,229—an actual diminution. Whereas, allowing for the population increase, instead of being 1,229 the figure ought to have been 1,888. So I think we begin our discussion with comfortable spirits, in that we are not having to attack a growing evil, but one which is already on the decline.

Concurrently with these statistical results, a general impression has, I believe, been gaining ground to the effect that syphilis is becoming a milder disease, and greater confidence is felt in the efficiency of treatment to control its effects. That these results are not due to any real change in the malady itself, or
DISCUSSION ON SYPHILIS.

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to any hypothetical immunity which has been acquired by the race, is made evident by the fact that up to the date mentioned there had been a steady increase, that is to say up to 1875, and then commenced a diminution. We are left, then, with the conclusion that the victory has been gained by better knowledge of the nature of the malady, and by the introduction of better methods of treatment. The specific powers of mercury would appear to have been recognised very soon after the introduction of syphilis into Europe, even in the days of Don Quixote, that is to say, only a century subsequent to the appearance of the disease in Europe, it was considered a question of archeological interest who was the first who used salivations for the "French evil."

From that time to the present, with varying vicissitudes, it has maintained its reputation, and under modern methods of use is probably much stronger and more nearly universal now than ever it was. The non-mercurial school is now a very small and a very silent one; yet there cannot be the slightest doubt the disease will get well without recourse to specific treatment. Anyone who will read the narratives recorded by Judd (who was an army surgeon) and his compeers about 1835 to 1838, will be astonished at what is there recorded as to the speedy and complete disappearance of symptoms without mercury, and under quite simple treatment. The army surgeons of that date were strong in their opposition to the mercurial treatment, or many of them. Dr. Drysdale took up the running in a book which he wrote.

In Christiania, as is well known, they used to denounce mercury as the "devilish" remedy. There can be no doubt that the introduction of iodide of potassium, which Judd was one of the first to use, has done much to establish securely the throne of its consort drug. We know precisely when mercury is useful, and when iodide is useful, and we know when to substitute one for the other, and when to use them in combination. If, however, we may assert that the verdict of the present day is almost unanimous that mercury in some form ought to be used, there
is still some difference of opinion as to its most convenient and effectual mode of employment; nor are we quite agreed as to how soon it should be commenced, or how long it should be continued. If we go back a century, all the sores of the genitals of venereal origin were treated by vigorous courses of mercury by most surgeons. Under these circumstances probably many cases of syphilis were suppressed in their very earliest stage.

Then came the recognition that many of these sores do not lead to real syphilis, and the rule was to believe that secondary symptoms ought to be allowed to appear before such a serious measure was justified. Probably, however, all along experienced specialists, such as Mr. Acton, Mr. Henry Lee, and others, often felt themselves justified by the condition of the chancre in forming a positive opinion and acting upon it. As a rule, however, until fifty years ago or later, it was denounced as culpable self-confidence to begin mercury before the rash appeared. It is remarkable that these days coincide with the apparent increase in the mortality to which I have adverted, the comparatively non-mercurial time. When, however, the small dose plan was introduced and the avoidance of ptyalism was advocated, mercurial treatment was robbed of its terrors, and the professional mind was prepared for the further step which favoured the earliest possible resort to it, with the view to entire suppression of the secondary stage. Attempts at this anticipatory suppression are now the order of the day; and I observe with pleasure that that excellent authority, Mr. Ernest Lane, who for some time wrote vigorously against it, has recently avowed himself a convert to the practice of beginning mercury as soon as you feel sure what the chancre is. And recollect well, it was said not nearly half a century ago that a man deserved transporting if he would give treatment before he saw secondary symptoms.

The view that salivation ought to be carefully avoided was a very important step. There is not the least reason to believe that those who have had their mouths made sore are in the least less prone to relapses than those who have not, whilst in
many instances the occurrence of ptyalism, by interrupting the course of treatment, very definitely adds to the risks as regards the future. The object of treatment in the early stages is to kill the parasite in the blood, and to prevent the occurrence of secondary lesions.

To accomplish this, as much mercury as can be borne without inconvenience should be introduced into the blood. The entire absence of all manifestations may usually be taken to show that these objects are being attained; but the immunity must be absolute, and must be maintained. If otherwise, the remedy must be pushed to any extent. Diarrhoea and salivation are the two inconveniences which it is necessary to avoid.

I wish to assert, in the most explicit terms, as the result of long experience, that everything that mercury can do can be conveniently effected by the small-dose grey powder pill. In competition with other methods the question is not as to efficiency, but as to convenience. They are all efficient if you get enough mercury into the blood; but which is the most convenient? Now and then, but very rarely indeed, a case may occur in which the tendency to diarrhoea may seriously interfere with the treatment, and it may then be well to resort to inunction or the vapour bath. In my own practice, however, the necessity for such substitutes hardly ever occurs; care as to diet and the increase in the dose of Dover's powder is all that is needed. Dover's powder is probably more efficient for this purpose than the opium alone. Calomel vapour bath and inunction treatment are both very efficient modes for the use of mercury. L. Parker and Mr. Henry Lea were very successful with it. It is, however, troublesome and more or less expensive—charges to which the inunction plan is at least equally exposed. It is desirable that in the treatment for such a disease as syphilis, which is common, which occurs in all classes, and comes under the care of all sections of the profession, measures should be such as are easy of employment. Not infrequently there is the further necessity that the patient shall be enabled to keep his illness secret. If the measures adopted are expensive, or if they involve frequent absences
from home, they are almost certain to be interrupted or prematurely laid aside. It was considerations of this kind which gave to the small-dose grey powder pill its rapid victory.

I am very much puzzled as to how I ought to bring this subject before the meeting. My duty is to introduce the discussion, and for that I ought to advert to a great number of topics. And I think the most convenient plan for doing so will be for me, at this stage, to read a number of conclusions which I have prepared for the end of the paper. But the time is limited, and I must not occupy so much as I had prepared for. So I will read these bare propositions so as to throw the subject widely before the meeting, and perhaps say a few words as to each.

My propositions which I have to advance are the following:—
1. That it is now almost universally acknowledged that mercury ought invariably to be given in the primary and secondary stages of syphilis.

2. That the earlier it is begun the better, provided the diagnosis be certain.

3. That it is possible to entirely prevent the development of secondary symptoms, and also to entirely anticipate them. This I have advocated for the last twenty-five years, and I am very much interested to see that it is now advanced by a surgeon in Brussels, who claims it as his own plan, namely, the "abortive treatment of syphilis"; I call it the "suppression treatment of syphilis." He advocates it as a novelty that the attempt should be made to entirely prevent the development of secondary symptoms. He wishes to do it by the injection plan. There is no great difference between the injection and the pill, except as to which is the more convenient. So the earlier the treatment is begun the better, provided the diagnosis be certain.

4. That it is possible to entirely prevent the development of secondary symptoms; it is probable that the suppression of the secondary stage is efficient to a very considerable extent in preventing tertiary manifestations. My theory is that the tertiary symptoms are developed in the actual site of the preceding secondary ones.
6. That many chancres are sufficiently well characterised to justify the commencement of treatment at once.

7. That the administration of mercury should be so managed as to avoid diarrhoea and ptyalism, and, this being attained, as much should be given as the patient can bear.

8. That continuous treatment is much preferable to interrupted courses.

9. That the remedy should be continued over a long series of months, at least twelve.

10. That the object of treatment in the primary and secondary stages is to kill the parasite.

11. That tertiary manifestations of all kinds are most prone to occur when early treatment has been delayed or been inadequate.

12. That for general use, one-grain grey powder pill, properly guarded and with proper precautions as to diet, is by far the most convenient mode of giving mercury.

13. That there is good reason to believe that syphilis is becoming less prevalent and less severe throughout Britain, and that this is largely attributable to the widespread adoption of the long-continued small dose method of treatment.

14. That the inunction and calomel methods are both efficacious, but troublesome and expensive, and consequently there is much risk of their being laid aside prematurely and leaving them off too soon. But with pills patients can go on for any length of time that they are advised.

15. That the intramuscular injection, whilst open in a greater degree to the objections just mentioned—that it is troublesome and expensive—is very dangerous, except in the hands of experts, and that it should be wholly reserved for patients under special conditions. Those special conditions are chiefly in the army. Army surgeons think that they can keep their patients under better control, the surgeon making the injections into the buttock, and that it is more effectual than merely recommending them to take pills. It may be so with them; my protest is against the introduction of the injection treatment as the ordinary
method of practice. On the first point, that it is very uncertain and very dangerous, one of the strongest advocates of it, Julian, of the Hospital for Syphilis in Paris, writes strongly that it is to be regretted exceedingly that this injection treatment should be practised by those who are not skilled at it. It requires the utmost skill and practice to do it safely, and cases are continually turning up of deaths from salivation by it. By injection salivation cannot be stopped. If the patient begins to salivate when you are giving mercury by pill, you can stop your pill. But if you put mercury into a muscle, there it remains, unless the surgeon practises an excision operation, excising the portion of muscle into which he has put the remedy. That has been necessary in certain cases, and only the other day the case of a poor woman was recorded, who, with very few small injections had salivation, and nothing could stop it. The surgeon had to stand by his patient and know it must get worse every day, and it went on until she died; nothing could remedy it. I submit that is a very strong objection to the injection plan, and I deny it is one whit better than giving pills by the mouth as regards its ultimate result. Probably the date at which the mercurial treatment is commenced is of greater importance than the mode of administration or the length of the course; that is, to begin it early, and suppress the disease at the beginning.

16. The secondary phenomena are probably the direct forerunners of the tertiary ones, and they should be prevented if possible.

17. Tertiary symptoms of all kinds are most prone to occur when the early treatment has been delayed or is inadequate. In them the destruction of the parasite is no longer the object of treatment, it is no longer existent, and inasmuch as they are often single, very rarely indeed general, often restricted to one organ or to one tissue, there is no reason to regard them as of blood origin, whether toxic or otherwise.

That they may conveniently be grouped into three groups: the inflammatory form, the degenerative form, and the gummatous form.

18. That for all forms of gummatous growth in the tertiary stage
iodide of potassium internally and the use of such preparations as iodoform, iodol, or chinosol may be regarded as specific, and that cures effected by them are often permanent. I may just relate one little fact in reference to this permanent cure of tertiary symptoms by iodide. A young man came under care at the Polyclinic six or seven years ago with large tumours of his liver. He was sent with the suggestion that he had hydatid tumours. He had two as big as cricket balls side by side. He was the subject of congenital syphilis, and I found that he had lost his palate, was getting deaf, and had keratitis. We prescribed iodide of potassium and made him attend week by week so as to be able to trace the diminution of these large tumours. You could see them when his abdomen was laid bare, and they steadily diminished, and finally disappeared under iodide. The other day, in preparation for this lecture, I asked him to come up and let me examine his state. He has had no treatment for five years, and his liver is now of the normal size, with no trace of gumma remaining, and there has been no relapse of tertiary symptoms. The poor fellow is deaf from inherited syphilis, and one of his sisters suffers from it. I think that is a good proof of the efficiency of iodide of potassium in removing very large gummata, and of the fact that very often the iodide of potassium cure is a permanent one, and that there is no relapse at all.

19. That degenerative changes are rarely arrested by specifics, and amongst them I would chiefly class the occurrence of tabes after syphilis, and that probably is not gummatous, but rather of the nature of degeneration. And, except at the very earliest stage, perhaps, it would seem to be that specifics are of very little use.

20. That all conditions attended by inflammatory changes, such as general paralysis of the insane, should be treated by small doses of mercury, which should be continued permanently. I have to advocate the practice of a lifelong course. In the presence of Dr. Savage I ought to speak with great diffidence, but from the class of cases I have seen, my belief is—and I believe I see them at a rather different stage to what some of my friends
do—that in general paralysis if you begin mercury in the very early stage it will be cured. I tell my patients they must go on with it as long as they live, they must take mercury in small doses all their lives if they wish to remain free, and I believe a certain number do so.

In many forms of tertiary disease of a gummatous or inflammatory type, the presence of tuberculosis complicates the case. If I may again stop for a minute I would like to relate a very interesting fact which has quite recently come under my notice in the last few weeks, which justifies this assertion that tuberculosis sometimes complicates tertiary syphilis. I have long held that what we call syphilitic lupus, and which my dermatological friends say I have no right to call lupus, as it is a serpiginous lupus, I believe is a combination of a tuberculous constitution with the syphilis, and that it is really allied to the lupus which is due to the presence of the tubercle bacillus.

I have related that a gentleman whom I had treated for primary syphilis six years ago had a recurrent chancre in the site of the previous chancre. There could be no doubt about it; it was exactly where the original one was, and as hard as cartilage, a characteristic example of recurred chancre. He had nothing else the matter with him. As it was at the free edge of the prepuce it seemed to me a capital opportunity to get the specimen for microscopical examination, and I wanted to know whether the spirochete pallida was in it or not. So we had him circumcised, and I sent the whole of his prepuce to the Clinical Research Department at Guy's Hospital for examination. Mr. Targett was kind enough to make a most careful examination of it, and he said there was practically no reason to consider it syphilitic, it was a characteristic specimen of tuberculosis. I have shown the sections of it to others, who verify Mr. Targett's assertion that the relapsed chancre is definitely characteristic of tuberculosis, the arrangement of the giant cells and the general appearance being exactly like that of miliary tuberculosis. I turn to my records of other cases of recurred chancre, and amongst them I have found one in which the patient had three recurred
chancres, which became indurated again many years afterwards, and in which I had noted "I much suspect this man is the subject of pulmonary phthisis"; and that goes in favour of the belief that tubercular conditions may occur in connection with syphilis. But, of course, I must not conclude too much from one case.

21. Next with regard to marriage and inheritance. If a patient is wishful to marry, mercurial treatment should be continued for two years from the date of the chancre. If the treatment has been continued for that time it is safe for the man to marry. But a much longer period is necessary in the case of a woman. A few cases have occurred in which inheritance has been reported although the interval was much longer than two years, during which treatment had been pursued, but they are very exceptional. It is an open question whether, when transmission occurs in the tertiary stage, any modification in the infant ensues; that is to say, whether there can be an inheritance from a parent in the tertiary stage which shall not evoke exactly the ordinary role—the rash and the snuffles, and so on, but whether the patient shall develop other phenomena more nearly allied to the tertiary stage. I have no facts which will justify me in giving an opinion. There is abundant evidence that a parent suffering from tertiary disease may yet have quite healthy children. There is no reason for believing that syphilis can be transmitted to the third generation. Upon that I am strong, and I would give details if time allowed, but I do not think I can this evening. The fact that in syphilitic families, when one or two or more of the elder children have shown signs when the younger ones are free, is strongly against the idea that the virus can linger for indefinite periods in the blood. The fact that younger children in syphilitic families are free from syphilitic taint, but are well grown and robust, is opposed to the belief that the disease when incapable of transmitting its characteristic symptoms may yet cause arrests of development.

22. Next, that there is no reason for believing that syphilis is, by transmission, in any appreciable degree the cause of degeneracy of race. Upon that I may quote a little knowledge which we
gain from the proof which has recently accrued that the foreign
disease known as yaws, and known as framboesia in Ceylon,
which has been especially prevalent in the Fiji Islands, is nothing
but syphilis. The spirochete has been proved to be present
in it, and we are justified in saying that the inhabitants of the
Fiji Islands, who have, from time immemorial, been subject to
this disease, yaws, so that they have favoured the occurrence
of it in their children, and few escape having had the disease,
the idea being to have it and get it over, is really syphilis. They
suffer from bone disease and lupoid diseases, but they are not a
degenerate race at all.

I would suggest two difficulties, two things which are not
at all explained. No explanation has been suggested of the
supposed fact that female infants suffer more from infantile
iritis than do male infants, and that the same fact is true, though
less definitely, with regard to keratitis. Syphilitic iritis occurs
in a very small number of male children, but keratitis occurs
chiefly in the female. I know of no speculation which will explain
those facts. We do not yet know whether the character of the
disease in the infant differs in any respect in relation to the sex
of the parent from whom it is inherited. I suggest that those
are subjects well worthy of further inquiry. When we can
ascertain that there is a difference in the character of the disease
when inherited from the father as compared with when it is
inherited from the mother, we shall have added much useful
knowledge.

I hope I have suggested enough points for the evening's dis-

Dr. G. H. Savage: I feel, after hearing the most interesting address
of Mr. Jonathan Hutchinson, who has taken a broad view of the whole
question, that the position I hold is rather due to my age than to any-
thing else. I have, of course, mainly to consider what might be looked
upon as a small field in relation to insanity. But I will try to point out
the various relationships which syphilis holds to mental disorder.

First of all, there is the very materialistic and distinct pathology,
and besides that there is the moral side; we have the physical on the
one hand, and on the other the psychical disorder.
DISCUSSION ON SYphilis.

First, then, it is clear that a certain number of cases of insanity follow the acute poisoning by syphilis. I have seen several cases, I admit only a few, in which, with syphilitic fever, there has followed a delirious condition, passing on to acute mania of a very different type. I have seen, at least, one case, in which there seemed to be no complicating cause, either heredity or anything else. In one or more cases I have seen the acute syphilitic poisoning associated with influenza producing similar delirious symptoms, passing on to a maniacal state. I have seen the same associated with alcoholism. It may, therefore, be taken for granted, that acute syphilitic fever, with or without complications, may be followed by acute mania, of a brief, acute, curable type.

Next, I think it is very important to distinguish, as far as possible, the effect of syphilis upon, first, those who are neurotic; next, those who are not neurotic. It has been sometimes thought that the neurotic individual had a nervous system which was mainly accountable for the development of the cause on the mental side; that, in fact, the neurotic person would be more likely to be delirious than the person who was non-neurotic, that an increase of temperature would be associated, probably, in the one case with delirium, whereas it would not be so associated in the other. And I am inclined to think that there is a distinct difference in the symptoms resulting from syphilis, when the subjects are neurotic, and when they are non-neurotic. I should like to have an expression of opinion as to what has been said by more than one writer—I think, French—that there is an essential difference between the syphilitic relationship to general paralysis and to locomotor ataxy. The statistics, which may or may not be true, point, according to some observers, to the fact that the neurotic person, having syphilis and suffering markedly from nervous symptoms, would be ataxic, but that the individual who suffered along the nervous side, without being neurotic, would be more liable to have general paralysis of the insane. Of course that may, to a certain extent, be borne out by the fact that all of us who have been or are connected with asylums recognise, that the percentage of neurotic inheritance amongst general paralytics, is comparatively small, whereas, as I shall point out later, a syphilitic history in general paralysis is very prevalent indeed. Next, one has to recognise, both in the neurotic and the non-neurotic, that mental symptoms may follow—coarse brain change, or coarse changes associated with the membranes or cortex. For instance, one has seen a fair number of cases associated with single or multiple gummata. I am inclined to agree with the fact which Mr. Jonathan Hutchinson has so ably placed before us, viz., that treatment steadily pursued has altered to some extent the character of the syphilis, and I may say that when at Bethlem Hospital, I made many post mortems on general paralytics, and it was extraordinarily rare for me to meet with gummata. Indeed I believe it is a fact that gummata are not common now in post mortem
rooms in cases of syphilis. I have, however, seen a fair number of cases of insanity, in which one was obliged to say that there was some local cause which might possibly depend on a gumma. In some cases the gumma or supposed gumma gave rise to local cranial nerve symptoms, in others to epilepsy, and in yet others, the local cortical trouble was connected with some disease of membranes, possibly gummatous, and associated with ptosis, external strabismus and the like. In others, again, it was associated with complete hemiplegia, and as I have said, with epilepsy. Of course, all these cases may be explained by arterial degeneration, to which I shall refer later. But at all events, it is sufficiently clear, that you may have an acute mental disorder, following acute syphilis. Next, you may have a more chronic form of mental disorder associated with epilepsy or with hemiplegia, or some local cranial nerve complication, as the result of syphilis. And I think it is worth noting that a very large number of cases of what afterwards prove to be cases of general paralysis of the insane, are cases which, perhaps, if they had been more continuously treated after the method of Mr. Hutchinson, would not have developed general paralysis of the insane. Take such a case as this: A man has ptosis and external strabismus, and has other local symptoms. He is treated with iodide; he is treated, perhaps, with a little mercury. At all events, he loses those symptoms and they are forgotten. But years afterwards he is admitted to an asylum, suffering from general paralysis of the insane. It is extremely common for one to have a history of temporary aphasia, temporary monoplegia, in cases in which there is a distinct history of syphilis. This has been cured, almost invariably, by iodide of potassium, and these cases, years and years afterwards, appear in the asylum as cases of general paralysis of the insane. Almost any part of the nervous system may be affected by these earlier syphilitic troubles, you may find, for example, aphasia or implication of the third or sixth nerves. But general changes may also be taking place, you may possibly, get hysterical symptoms. And it is not uncommon for me to see a man in a very hysterical condition who, one hears, had had syphilis many years before. And I now speak always with great caution about a middle-aged man who has had syphilis and who has marked hysteria. Such cases frequently recover temporarily, but in the end they break down with general paralysis. There is a general and diffuse disorder of the cortex associated with the syphilitic change.

To sum up, one has to remember that a very large number of cases of general paralysis of the insane with a syphilitic history, start with atactic symptoms, so that many general paralytics are ataxies before they are general paralytics. One has known many going on for years with locomotor ataxy, with no idea that there is likely to be a further complication. Fortunately, a very large number of ataxies do not suffer from mental disorder, but in many cases with a syphilitic history you get ataxy preceding the general paralysis by years. It is interesting
also to recognise that there is a progressive mental degeneration, associated with endarteritis of syphilitic origin. I do not know what symptoms may not occur. It comes to this, that any part, local or general, of the brain may be starved; the nutrition may be interfered with by the change in the arteries, and with that you get an alteration in the balance of mind, ending almost invariably in dementia, more or less pronounced. It is interesting to recognise that the decay in these cases is generally progressive, and does not affect the memory so much as it does the other functions of the mind. It is to me a puzzle—and I should like to know from those who have had a larger experience of syphilitic cases than I have, whether it is a recognised thing, that when syphilis is associated with alcohol with advancing age the memory gets very much weakened; that, in fact, in many cases with alcohol and with senility a chief feature is the defect of memory.

For many cases of syphilis and syphilitic brain disease there is very little loss of memory till quite an advanced stage of the disease, and even in general paralysis there may be a retention of memory much beyond what would be expected. It has therefore to be remembered that one of the most characteristic pathological changes, associated with the mental decay connected with syphilis, is to be referred to the endarteritis which there occurs.

What is my belief as to the connection between general paralysis and syphilis? It has been constantly pointed out that syphilis alone may occur, largely spread, among certain races, like the Arabs and, I believe, the Japanese and others, and that general paralysis may be very rare indeed. Of course, it used to be said that general paralysis was unknown among negroes and unknown amongst the Irish. Examination into the causes of general paralysis has shown that although syphilis was there before, alcoholism was added to it, and worry was added, and then general paralysis appeared. And the more one has seen, the more one has felt inclined to think, that syphilis needs something more to produce general paralysis; something like alcohol or the stress of life.

But at least among predisposing conditions I am inclined to think large meat eating is another assisting cause in the production of general paralysis of the insane. I find far fewer women than men have general paralysis of the insane, which is interesting. It used to be said that very few prostitutes had general paralysis of the insane, but it was pointed out that comparatively few women leading that life, lived to forty-five or fifty years of age; that, in fact, they died of some other trouble before they would have developed general paralysis. And it is to be remarked that general paralysis, associated with syphilis, is a disease that very rarely comes on within ten or twelve years; I should say it much more frequently comes on at between fifteen and twenty years after the primary infection.

Locomotor ataxy as the result of syphilis will be considered by
others. I would merely say in passing, that with locomotor ataxy depending upon syphilis, you may have various mental symptoms; that such a thing as mental crises occurring in locomotor ataxy has hardly been sufficiently considered. There are insane interpretations of any one of the symptoms of locomotor ataxy, so that the individual, with lightning pains, may accuse his enemies of converting him into a lightning conductor, by getting some devilish machines to torture him. Others having changes in the skin, maintain that the devil has got possession of them and is gripping them. So you may have insane interpretations following locomotor ataxy, which depends upon syphilis.

One has next to consider that, besides the physical side, there is a psychical side. First of all, there is what one calls syphilophobia, and that may, again, be divided into the adolescent type, and into definite syphilitic hypochondriasis. The first class is that of the young man who has not had any syphilis but has heard about syphilis, and has got some morbid, sexual feelings, and may not, infrequently, have had hallucinations of smell, and who thinks that he has got syphilis. Of course, it is much more common for a man who, having led a chaste life, falls, and then worries himself with the idea that he may have got syphilis. And then he may develop true syphilophobia. Those cases occur in the young. But a still more dangerous type is the syphilitic hypochondriasis, which occurs in elderly men, or older men. And that I would divide into two groups. There is the man who has, what may be called some of the stigmata of syphilis left, in the way of an old scar, etc., or who, having formerly had some syphilitic eruption, thinks still that people look at him askance, that “there is the mark of the beast in his face,” and that everybody is shunning him. A very considerable number of men having had some syphilitic skin trouble, pass into the belief that other people know it, that other people look at them and avoid them. Thus there are two other developments of mental disorder, as associated with syphilis. Some subjects believe that people shun and avoid and insult them, and they may become very suicidal. Others believe that they are the centres of contagion, and that mobs are coming to lynch them. They also are intensely suicidal, or may be dangerously homicidal. So you have the youth who has or has not run the risk of syphilis, who develops syphilophobia, and you have yet the older man who, having had syphilis, believes that there is some stigma about him, which points him out as a marked man, and all this may lead to fully organised delusional insanity.

And now it seems to me that I have run rapidly over my experience of syphilis. Of course, if one had to take each of these groups in detail, one would occupy far too much time. But I have pointed out, as well as I could, that there are definite relations between certain forms of mental disorder and syphilis, that there are certain pathological changes in the brain that may give rise to certain degenerative forms of brain
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decay; and that there are certain other conditions associated with syphilis that give rise to delusional insanity of a more or less marked type.

Dr. Purves Stewart: Mr. Chairman and Gentlemen, In the few minutes allotted to me in which to refer to the effects of syphilis upon the central nervous system, I do not propose even to enumerate, much less to discuss fully, all the possible organic nervous diseases which may be traced to syphilis. Most syphilitic affections of the central nervous system are there, so to speak, accidentally; that is to say, they are syphilitic lesions which occur in the neighbourhood of the central nervous system, or even within it. But most syphilitic lesions do not primarily attack nervous tissues, but non-nervous tissues. They attack blood-vessels, meninges, connective tissues, and so on. They only implicate nerve elements secondarily. In fact the nerve elements in that class of disease are implicated quite by accident. As examples of this class of syphilitic disease, I may remind you of the cerebral softening which occurs as the result of the thrombosis of a syphilitic artery. The symptoms are nervous, the disease is arterial. Then one might mention the spinal softening which occurs as the result of thrombosis of an artery in the spinal cord. The symptoms again are nervous, but the disease is arterial. Or one might refer to the presence of gummata. Gummata in the meninges, or in the substance of the brain, produce their symptoms because they happen to come across nervous tissues; they are not primarily in the nervous elements themselves; only secondarily do they involve or compress various nerve tissues. Aneurisms, either intracranial or intraspinal, the result of syphilitic disease, arise from arterial disease, which happens to be in the neighbourhood of the brain and spinal cord. And we may now recall gummatus infiltration of the dura mater, which is probably the cause of the characteristic nocturnal headache of syphilis. All these diseases are primarily non-nervous, that is, they primarily start in non-nervous tissues. And this class of disease is not confined to the tertiary stage of syphilis, as was formerly taught for so many years. Syphilitic disease of the arteries, connective tissues and membranes may occur at any stage of the disease, from the very earliest to the latest. For example, Thomson Walker recently recorded a case of syphilitic hemiplegia from thrombosis in a man, only two and a half months after the primary infection. And Kahler recorded a case of a man who died from thrombosis of his bulb, and that man still possessed his primary chancre when he died.

But there is another class of disease which we meet with in syphilis, in which the nerve elements do undergo a primary dystrophy or decay. And as these nerve-fibres and cells degenerate, the neuroglia proliferates and produces what we call sclerosis. But sclerosis is not a direct result of syphilis; syphilis per se never produces sclerosis. Sclerosis is a
secondary process which follows any antecedent degeneration of the nervous system, whatever be the cause of that degeneration. Into this class of primary degenerations it is possible that some cases of the peculiar syphilitic spastic paraplegia which was described by Erb should go, in which, as we know, bladder symptoms are so very prominent. Erb's syphilitic paraplegia arises within a comparatively short time of the syphilitic infection, often within a year, and generally within three years. Some of these cases are therefore primary degenerations. Other cases of Erb's syndrome, again, are probably examples of the other class, viz., vascular or meningeal syphilis, in which the nerve elements are only secondarily affected.

But the most typical examples of primary nervous diseases resulting from syphilis, whether from the syphilitic toxin itself, or from some other toxin, produced by the syphilitic virus or permitted by it, or from some separate factor, such as that to which Dr. Savage has referred, are tabes and general paralysis of the insane. These two affections, which we now believe to be simply two varieties of the same disease, and which not infrequently co-exist in the same patient, develop as a rule, some ten years or so after the primary syphilitic infection. There are exceptions to this general rule. Cases are known where a man develops tabes within two or three years after syphilis, and others after twenty or thirty years, but the average is about ten years or thereabouts. The more we study tabes, and the more we study general paralysis of the insane, the more firmly do we become convinced that syphilis is an essential factor in their production. It is not necessary for me to discuss the reasons for considering that these diseases are due to primary dystrophy of nerve elements, as Thomas and Hauser, Ferrier and others maintain. They are not the result of gross syphilitic disease of the membranes, as Redlich and Obersteiner thought nor are they the result of disease of special lymphatic spaces. I will not discuss these points, because they have recently been exhaustively considered by Dr. Ferrier in his Lumleian Lectures a few weeks ago. nor do I propose to discuss the fascinating problem as to why one syphilitic patient develops tabes, while a second develops general paralysis, and a third escapes without any subsequent nervous manifestation whatever. I would quote two illustrative cases. Two brothers twenty years ago acquired syphilis from the same source at the same time. One lived a strenuous intellectual life—he was a member of our own profession—and he developed general paralysis and died of it. The other lived in the country and did not over-exert his brain. He was a farmer. He developed tabes. The question is a complicated one, and we cannot discuss it fully.

But to-night I want to call your attention particularly to one special point, and that is the condition of the cerebro-spinal fluid in syphilitic diseases of the central nervous system. The examination of this fluid is no mere abstract matter of laboratory interest. It is a practical
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clinical method of diagnosis, and its value becomes every day more
evident. The process of lumbar puncture and withdrawal of cerebro-
spinal fluid was originally introduced by Quincke, of Kiel, in 1890, but
it was not until 1900, when our French colleagues, chiefly Widal, Sicard
and Ravaut, took the matter up, that the systematic examination of the
cerebro-spinal fluid was carried out. For the last four or five years
I have been making observations on the cerebro-spinal fluid, and in my
concluding remarks I will draw upon my personal experience, now
extending over several hundred cases.

I shall not describe the technique of lumbar puncture, but will pass
to the results of the examination of the cerebro-spinal fluid, which we
obtain in this way. Normal cerebro-spinal fluid is colourless, like water,
with a specific gravity of 1006 to 1008. Chemically, it contains a
trace of serum albumen, a little albumose, and a substance which
reduces Fehling’s solution. If we centrifuge this fluid and collect the
sediment on a microscopic slide, and stain and examine it with a
magnification of about 400 diameters, we find the normal fluid
contains, perhaps, one or two endothelial cells, it may contain one or
two lymphocytes in the field, but never more than two or three. Very
often it contains none at all. In functional nervous diseases the
cerebro-spinal fluid is normal, and it is also normal in such diseases as
epilepsy, paralysis agitans, disseminated sclerosis, and in a large
number of other diseases, which I will not enumerate.

But in certain organic diseases of the nervous system there may be a
great excess of cells in this fluid. In acute microscopic affections of the
meninges, for example, especially in suppurative diseases of the brain
or meninges, we find polynuclear leucocytes. But this group of diseases
does not concern us to-night.

In sub-acute and in chronic affections of the meninges, whether
tuberculous, syphilitic or otherwise, and in certain chronic degenerative
conditions of the nervous system, we find a lymphocytosis; that is to
say, a great excess of small monomorphs, sometimes accompanied by a
proportion of large monomorphs. But mere syphilis, unless there be
an active inflammatory lesion attacking the central nervous system,
does not cause any appreciable alteration in the cerebro-spinal fluid.
Last year I examined twelve syphilitic patients in the Lock Hospital,
in all stages of the disease—primary, secondary, tertiary, post-tertiary
—in none of whom was there any sign of organic nervous disease. In
the cases of secondary syphilis the average number of lymphocytes was
2.7, which is about the normal. In the tertiary cases there were .9.
But what was the state of the fluid where syphilitic lesions affected the
central nervous system? One patient, who had syphilis two years
before, was attacked with acute “myelitis.” The cerebro-spinal fluid
contained eighteen lymphocytes to the field, instead of two. A woman
was attacked with hemiplegia, and the question of diagnosis between
haemorrhage and thrombosis arose, and that is very often a difficulty
in diagnosis, and with it the question of treatment. In her, the question was, whether to stimulate if it were thrombosis, or whether to depress the circulation if it were haemorrhage. The cerebro-spinal fluid showed 15.3 lymphocytes in the field; this favoured the diagnosis of thrombosis, because in other cases of cerebral haemorrhage which I have examined there has been no excess of cells. In actual gummatous lesions of the central nervous system the excess of lymphocytes is still greater. Thus, in one woman with gumma of the spinal cord, there were fifty-two lymphocytes in the field. We treated her for a month with mercury, and iodide of potassium, and the number of lymphocytes fell to sixteen, and the paraplegia cleared up.

But the two syphilitic diseases which show the most marked lymphocytosis are tabes, and general paralysis of the insane. In these two diseases lymphocytosis is constantly present, and from the very earliest stage of the disease. In twenty-six successive cases of tabes, and twelve of general paralysis, I have found lymphocytosis present in every case, the average, both in tabes and general paralysis, being about 130 to the field. I have seen as many as 316 in tabes, and 481 in general paralysis. This lymphocytosis is of enormous diagnostic importance. In many cases where the diagnosis was doubtful, examination of the cerebro-spinal fluid cleared the matter up at once. For example, two men came on the same day to the out-patient department of the hospital. Both had had syphilis, in both the knee-jerks were absent, both had pains in the legs, in both we examined the cerebro-spinal fluid. In the first patient it was normal, and that case was peripheral neuritis. In the second the fluid contained 150 lymphocytes to the field, and he had tabes. Similarly in cerebral affections. A few weeks ago, I saw a solicitor, æt 43, who recently had had several epileptic fits. He was quite clear in his mind, and his articulation was normal. But his cerebro-spinal fluid contained 200 lymphocytes in the field. Ordinary epileptic cases show no excess of lymphocytes in the fluid. Therefore we diagnosed general paralysis of the insane in its early stage. Another patient, æt 50, had been mentally affected for some months. He had a good deal of excitement, and had also had syphilis, and the question was whether his was a case of general paralysis or not. He had seen various physicians, who had expressed various opinions. Through the courtesy of Dr. Ferrier I saw the patient and examined his fluid, and found it normal. We therefore excluded general paralysis and the prognosis became less gloomy. I could multiply such instances freely, but I think I have mentioned enough.

The constancy with which lymphocytosis is present both in tabes and general paralysis justifies us in saying that if the fluid be normal we can confidently exclude those diseases.

Finally, there is one caution which must be borne in mind. It is that there are other conditions besides syphilis of the nervous system, in which we may find an excess of lymphocytes. There are tuberculous
conditions, especially tuberculous meningitis, and other chronic inflammatory conditions of the meninges, and certain tumours of the brain, in which there may be lymphocytes in the fluid. But if the cerebro-spinal fluid be normal we can exclude syphilitic disease of the central nervous system, and this is often a matter of considerable importance, because in a doubtful case the only other way to settle the diagnosis is by giving mercury and iodide of potassium, and waiting for six weeks or a couple of months to see if the patient improves. In many cases we have, hitherto, been compelled to say, "We do not know whether it is syphilis, we will try the effect of mercury and iodide." It is no longer necessary to do that, if we examine the cerebro-spinal fluid; and if we find it is normal we may conclude that the patient has not got syphilitic disease of the central nervous system.

Dr. W. Hale White: Your Secretary kindly told me that the chief point about this discussion was that the facts were to have a clinical bearing, so I thought I would attack the subject of visceral syphilis, from the point of view of seeing how often at the bedside our knowledge of it was likely to be an aid in diagnosis. And I think the first thing which must have struck everyone who has thought about the subject is, that while much of the damage which is done to the central nervous system is dependent on the fact that there is syphilitic endarteritis, leading to thrombosis and various cerebral changes which have been enumerated, it is only in the central nervous system that this endarteritis is of any clinical value. That is a very striking fact indeed. I do not know any other part of the body in regard to which you can confidently say at the bedside, "This man has got endarteritis affecting his liver, or his spleen, as the case may be." But in any large hospital practice you are constantly able to say syphilitic endarteritis has led to damage of the brain. Why it should not do so in other organs of the body I do not think we know. The only possible exception is the heart.

I am certain, from being constantly in the post mortem room, that as the years go on the number of cases of lardaceous disease which one sees is declining, and that, of course, is very largely due to improved surgery. It is so striking that I have often wondered whether the diminution of lardaceous disease which is going on at the present time is not greater than can be attributed entirely to improvements in surgery. And, therefore, I was very interested to hear Mr. Hutchinson's conclusive proof that syphilis is causing fewer deaths than it did, which, I suppose, means it is less severe, and that probably is the explanation why syphilitic lardaceous disease is less common than it used to be.

One point which, in passing, I would remind you we ought to remember is, that congenital syphilis will cause lardaceous disease. I have seen it in an infant, cause such striking enlargement of the liver—
a perfectly uniform enlargement—and of the spleen, with albuminuria, that it was easy to make the diagnosis during life, that the child had lardaceous disease as a result of its congenital syphilis, a diagnosis which was confirmed at the *post mortem*.

Perhaps the best way to approach the subject will be to take the body and run through its different parts. Let us begin at the respiratory system. There ought to be no difficulty in diagnosis, except in the rare cases, of a syphilitic laryngitis. Anyone who is accustomed to using the laryngoscope can distinguish it from malignant disease or tubercle. One thing of clinical interest is that very often it is quite useless for syphilitic laryngitis to give mercury or iodide unless you at the same time tracheotomise the patient. Unless you give rest to the parts, the man does not make progress; he is constantly moving his vocal cords, eighteen or twenty times to the minute, and consequently the parts do not get a chance to heal. Frequently I have seen them get better directly tracheotomy was done, the antisyphilitic treatment being, of course, continued. I suppose the only other syphilitic affection which we might come across is, that often abductor paralysis causing serious dyspnoea is the earliest symptom—or one of the earliest—of tabes dorsalis, and we are unaware that the patient has any tubercle until he presents himself at the hospital with urgent symptoms from his abductor paralysis.

As our Chairman has reminded you this evening, our knowledge of visceral syphilis dates from the paper of Sir Samuel Wilks, which was published in 1863. You will find in that paper many excellent instances of syphilitic affections of the trachea. And I think it is very necessary to bear in mind that the trachea may be affected when the larynx is not. If that is forgotten, mistakes in diagnosis are made. I have here an excellent specimen showing syphilitic ulceration of the trachea and another showing admirably syphilitic stenosis of the trachea. Passing down the trachea, we have to remember that the most frequent seat for syphilitic disease of the trachea is at its bifurcation; and the result of that is that one bronchus usually gets more or less obliterated, while the other does not, and the patient presents himself to us with this difficulty. There is a man who has some dyspnœa; he does not get air into one lung so well as into the other. I suppose that is a common clinical problem; what is the matter with a man who has impaired entry of air on one side? If you conclude he has that impaired entry from diminution of the calibre of the bronchus on one side, you naturally think he has something pressing on it, such as an aneurism, and we are liable to forget that the trouble may be due to syphilitic stenosis of one bronchus. I have known that mistake made, and I have known forgetfulness of the fact lead to the patient being unnecessarily tracheotomised, the difficulty being lower down than any tracheotomy tube could reach. Here is a specimen showing syphilitic stenosis of one bronchus. There was greatly impaired entry of air in that case.
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In regard to the lungs, the first thing I would say is, that syphilis of the lungs, unless you include in that the secondary effects on the lungs of diminution in the entry of air through the stenosed bronchus, is so rare that no man can have sufficient experience of it for it to enter into practical medicine at the bedside. It is excessively rare. Gummata of the lungs are described. We have seen specimens in Guy's, but I do not think the diagnosis is ever justified, especially as my much smaller experience fully bears out Mr. Hutchinson's in confirming the association of tuberele and syphilis. And if you get a case in which you suspect there is a gumma or syphilis of the lung, you will almost certainly be wrong because it is so rare. You will find that the patient has phthisis. Here is a specimen showing gummata of the lung. Another, and later, condition in the lung is syphilitic fibrosis, which should not be diagnosed at the bedside as it is so extremely rare. It starts at the root of the lung, and spreads through the lung. It may sometimes be primarily diffused through the lung itself. I show you a very valuable specimen of this. Congenital syphilis is described as producing white fibroid lung. It is not of any clinical value, even it it exists, and I doubt it. The description of it has been copied from book to book, and the account given in the text books says that the children are all still-born. The frequency of congenital syphilis of the lungs has been enormously exaggerated. I have never seen any specimen showing it. I would remind you of another fact; that if a man who has phthisis acquires syphilis, the acquisition of syphilis usually greatly accelerates the progress of the phthisis; and one or two patients I have seen have gone rapidly downhill after they acquired syphilis they themselves having active phthisis at the time they acquired it. The converse—that a syphilitic patient is liable to phthisis—is well known, and has been pointed out this evening.

Passing to the heart, we get gummata of the heart. Most museums have specimens showing that, and I show you a very beautiful one. But I think they are so rare that again he would be a bold man who would diagnose gumma of the heart during life. What is perhaps of more importance as a syphilitic affection of the heart is fibroid disease of it. We have several specimens of that in the hospital, but I did not bring them because they show badly after being mounted for some time. Dr. Fagge, in the year 1874, brought before the Pathological Society, twenty-seven cases of fibroid disease of the heart, and pointed out that a considerable number—I think twenty-five per cent.—gave evidences of syphilis post mortem. And he pointed out, further, that a large number of these people with fibroid disease of the heart dropped down dead unexpectedly. When I was making post mortems, I made one on a man who was seen by a student to drop dead about 200 yards from the hospital. I performed the post mortem five hours afterwards, and found abundant evidence of syphilis—in the testes and so forth, and well marked fibroid disease of the heart. And I found, since Dr.
Fagge wrote his paper, we had in ten years, eleven cases of fibroid disease of the heart in our post mortem room, which had died suddenly. Four were people who dropped dead in the street suddenly, two were attending the hospital as out-patients at the time. The remaining five were in the wards, but for comparatively trivial maladies, and had died suddenly in the hospital. Of those eleven people, five had had syphilis; and in the Pathological Transactions for about the year 1886, you will find five other cases recorded of people who had fibroid heart, and dropped down dead suddenly, and they all had syphilis. So that in a comparatively small collection of cases, more than half the people with fibroid disease of the heart have had syphilis well marked, and I think we may fairly set it down as the result of the syphilis. And so we learn the important fact that syphilis may be the cause of unexpected sudden death, when it affects the heart. The importance of that is very great, because, unless the fact is recognised, the man making the post mortem at the order of the coroner may not get at the cause of death, or he may fail to find it if he does not know of the possibility of fibroid disease of the heart, and that it occurs in the intra-ventricular septum. If he does not cut through the septum he will miss the cause.

Then there is syphilitic disease of the coronary arteries. I will not attempt to draw a distinction between endarteritis and atheroma, but disease of the coronary arteries leads to disease of the heart wall, and the heart may become fatty as a result of syphilitic disease of arteries, and thus syphilis may be one of the causes of fatty heart. But there are so many other causes that I doubt whether it would be possible to diagnose with certainty that a fatty heart was due to syphilis.

Passing now to the valves of the heart, I should like to state a proposition with which perhaps some of you will not agree; that you rarely get the aortic valves affected by rheumatism unless the mitral valve is affected at the same time. So, if you have a patient before you, who has aortic, without mitral, disease, I suggest it is very strong presumptive evidence that rheumatic fever has had nothing to do with it. Therefore the only causes for this common chronic atheromatous condition of the aortic valves are strain and syphilis. And the way it works out is this: that inasmuch as strain is very rare in women, if a woman has aortic disease without mitral disease, I suggest it is very strong evidence that she had had syphilis. The same line of argument is allowed to apply to aneurisms; it is agreed that, if a woman has aneurism, it is a strong argument that she has had syphilis, because excessive strain so rarely operates in women. I submit that the common experience and argument I have mentioned are correct.

Passing down the alimentary canal, we must not forget that dysphagia may be syphilitic. I have one such case in the ward at the present time. He had had considerable ulceration at the lower end of the pharynx, and it has implicated the upper part of the oesophagus, and he has syphilitic dysphagia.
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Many large text-books, so as to make themselves complete, give an account of syphilitic disease of stomach and intestines. Lardaceous disease of intestines of course occurs, but other syphilitic trouble there such as gumma, must be excessively rare. Personally, I have never seen it, and it is generally acknowledged that the best record of the dead-house in any language is Wilks and Moxon’s book, and in all their vast experience they have only once seen two small gumma of the stomach, and never of the intestine. When I say this about the intestinal tract, I do not include the rectum, because it is known that syphilitic ulceration of the rectum may occur. There is always much fibroid thickening round about outside the rectum in these cases, and we must notice the fact that it is more common in women than in men, although of course syphilis is more common in men; very often there is, in the intestine, above the syphilitic stricture of the rectum, some disease which is not syphilitic. These patients suffer a good deal from constipation; they have chronic obstruction, and they get distension ulcers in the descending and transverse colon. These should not be regarded as syphilitic; they would have followed upon any obstruction.

In the liver we have two syphilitic affections; gumma of it, and large fibrous bands, often as wide as one’s finger, cutting through the liver. I think the liver is an excellent instance of what Mr. Hutchinson says about the fact that syphilis is less prevalent or severe than it was. Because, even in my comparatively short life, I am sure I see less syphilis of the liver in the post mortem room than I did.

A fortnight ago, I was in the post mortem room when one of my patients was being examined, and there was a typical syphilitic liver, and not a single person in the room, except myself, had seen a case of syphilitic disease of the liver. Yet when I entered the hospital you could not find any considerable gathering of senior students, which did not number some who had seen syphilitic disease of the liver. Here is a specimen of a large gumma of the liver; and here is another showing the puckering so characteristic of syphilis. At the bedside—as the problem is chiefly clinical—it always comes to this: Is this rough, uneven liver, which I can feel under my hand, an example of malignant disease or of syphilis? I suggest that we can nearly always determine which it is. First, if it is very large indeed, below the umbilicus, it is probably malignant. If you can feel, as you often can, some of the lumps are umbilicated, it is certainly malignant disease. If the lumps increase very rapidly in size, it means there is some haemorrhage into them, and it is certainly malignant disease. And lastly, some 65 per cent. to 70 per cent. of patients with malignant disease have jaundice. I have never seen jaundice with syphilitic liver. I believe there is a specimen in the museum, showing gumma pressing on the common duct, and I once saw a patient of my own, who had cirrhosis as well as syphilis, and, consequently, he had jaundice. But tertiary
syphilis does not produce jaundice, so we can generally make a correct diagnosis. My experience would fully accord with the teaching, that in livers such as you see here, the condition is proof positive that the patient had syphilis.

I can support from my limited experience what Mr. Hutchinson says about recovery from syphilitic disease of the liver. I keep an eye on a man who came with a lump in his liver. It was suggested to be hydatid by one, abscess by another—he had been abroad. But it seemed probable, from the feel, that it was gumma. He was put upon iodide and the lump disappeared, and he keeps well. Gummatous disease of the liver is a curable condition. And the same changes in the liver may occur in congenital syphilis as in acquired. Here is a beautiful specimen of congenital syphilitic liver; it is exactly like the liver of a person who has acquired syphilis.

I need not trouble you by mentioning the other organs of the body, except that we must never forget to feel the testicles when we are in doubt as to whether a man can be syphilitic:

Syphilitic affections of the spleen and female pelvic organs are too rare for me to go over them, as I am speaking clinically. I should only like to remind you that there is syphilitic fever. Cases accompanied by syphilitic arthritis have been sent into the hospital and treated as rheumatic fever.

If I might sum up the clinical side of visceral syphilis, it would be that, although it is fascinatingly interesting, we are not often able, except, perhaps, in the case of the liver, to diagnose that a patient has visceral syphilis, because the conditions are so rare.

Dr. Beddoes: I would merely wish to compliment the meeting on the very lucid and concise account which has been given of syphilis, in all its branches. And the only point I would like to hear from Mr. Hutchinson is how he gives the small grain doses of grey powder. Another point is that nothing has been said about the Zitmann method of treating syphilis. It seems to be simply the addition of heat. A discussion has been going on in the papers on the subject, and recipes given, but it simply seems to be keeping the patient in a small room at a temperature of 80° F. And that has something to do with the question of tabes and general paralysis. Where syphilis occurs in hot climates, there is very little tabes and general paralysis among the natives. The suggestion that it is due to a combination of syphilis and alcohol is rather negatived by the fact that in Turkey, where many of the people are teetotallers, you get as much and as little, as in Brazil, where alcohol is probably cheaper than in any other place, and where it can, therefore, be taken to great excess. In equatorial countries the amount of alcohol which a man can take in a day is astounding. Brazil and Turkey have a large amount of syphilis, and general paralysis and locomotor ataxy are extremely rare.
I thank the Society for allowing me the privilege of being here to-day.

Mr. Jonathan Hutchinson in reply, said: I had written out particulars of the treatment in detail, but I was anxious not to occupy too much time. My strong recommendation is to begin with uniform doses of one grain of Dover's powder three times a day, and then to make the patient increase the frequency as he is able to bear it, even up to six or seven times a day. I much prefer to divide the doses. If it is necessary to give iodide of potassium with the mercury, my experience is that it is much better not to combine them in the same mixture or pill. Giving them separately so much increases the efficacy of the dose. The idea of giving them separately is not new. It has been advocated by several, and one authority went so far as to say it was much better not to give them at the same time; and made it his rule to have a couple of hours interval between swallowing his mercurial pill and taking his dose of iodide of potassium. I have frequently thought my treatment, of giving the two things separately, succeeded better than the giving of them together. Zitmann's treatment I have had no experience of. Many years ago I was urged to try it, but I have no experience, except of the methods I have described.

A cordial vote of thanks having been accorded to the Chairman, the debate was adjourned to 25th April.

April 25th, 1906. Ordinary Meeting.

Dr. F. J. Smith, President, in the Chair.

Resumed Discussion on "Syphilis."

The President reminded the meeting of the ground covered by the speakers at the debate on April 11th, and announced his intention of reserving his own remarks to the conclusion of the meeting, should time permit.

He had pleasure in first calling upon Dr. Shennan, of Edinburgh, who had kindly travelled down on purpose to speak of and demonstrate the spirochæta pallida.
DR. SHENNAN (Edinburgh): Mr. President and gentlemen. The
search for the actual causal factor in syphilis has been a long one, and
the list of causes, assigned of late years, is a formidable one, including
bacteria of all kinds—coccii and bacilli, including the ubiquitous
pseudo-diphtheria bacillus and Lustgarten's bacillus. Lassar states
that more than twenty-five causes of syphilis have been described
during the last three decades.

For a long time it has been thought that a protozoal organism
might be the cause of syphilis, and as far back as 1837, Donné hinted
at a possible relationship between a spiral organism and syphilis. He
found and figured forms to which he gave the name "vibrio lineola." The
last organism of the protozoal order described was the "cyto-
rrhycetes luis," described by Siegel as occurring constantly in syphilitic
lesions in the blood, and so on. The trouble in connection with this
is that very few others have seen it. Metchnikoff states that Siegel's
illustrations are sufficient to convince him that this discovery is prob-
ably not important.

The Imperial Board of Health in Berlin commissioned Schaudinn, a
scientist who had already distinguished himself in the domain of para-
sitology, to investigate syphilis, and confirm, or disprove, Siegel's
work. Schaudinn asked a noted syphilologist, Hoffmann, to help him,
from the clinical standpoint. Very soon their work resulted in the
announcement of the discovery in syphilitic lesions of two organisms,
which they named spirochæta pallida and spirochæta refringens.
Gathering together the details from the survey of the literature, and
from my own experience, I shall describe the characters of these organisms
as at present understood. The names "spirochæta pallida," or
"spironema pallidum," and "spirochæta refringens," are descriptive,
the former organism staining faintly, in films, the latter being very
refractile in the living state. The spirochæta pallida is an extremely
delicate organism, weakly refractile when living, vigorously motile,
staining with considerable difficulty, and not at all easy to demonstrate,
requiring a magnification of at least 800, with good illumination. In
length it varies from four to twenty μ., that is from about half to about
three times the diameter of a red blood corpuscle. It is extremely
thin, measuring only \( \frac{1}{2} \) μ. It is characterised by very numerous and
very narrow, regular and deep spirals, not more than about 1 μ. in
width.

Terminal flagella have been described at the end of this filamentous
rod, but every one has not been able to demonstrate these, and the proof
is not perfectly clear as yet. Granules also have been described, and
these I shall refer to again when showing the illustrations. The
motility of the organism is of three kinds; a corkscrew movement, a
to-and-fro movement, and a lashing movement. In a film dried on the
surface of glass, the spirals may become stretched out, owing to its
becoming attached first at its extremities. The spirochæta pallida
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has been demonstrated commonly in films, from primary and secondary lesions. They have not, except at most by one or two observers, been described as occurring in tertiary lesions; and it has been explained that some of these cases which have been put down as tertiary, may have been really delayed or late secondary. Some such cases have shown the spirochaeta pallida from seven to ten years after the primary sore.

Now, with regard to staining reactions. The common stain used is Giemsa’s stain, which consists of methylene azure with eosine, dissolved in methyl alcohol and glycerine. With this, the spirochaeta pallida stains of a pink colour, and all other spirochaeta more of a purple colour. It can also be demonstrated by silver impregnation and other staining methods.

As to the position of this organism in the protozoal world, Schaudinn places it near the trypanosome group, and the new name which he has accepted from Vuillemin is “spironema pallidum.” Lately a third name has been applied to it, “treponema pallidum,” indicating the nearness of its position to the trypanosomes.

Along with this spirochaeta pallida, which is looked upon as the true cause of syphilis, another spirochaeta occurs, very commonly in syphilitic lesions, particularly if ulcerated, namely, spirochaeta refringens. This is generally acknowledged to be of saprophytic nature, and corresponds to the forms already described in normal smegma, in balano-posthitis, vulvo-vaginitis, on the surface of ulcers about the genitals, on venereal warts, in the mouth secretions, on the teeth, tonsils, in ulcerated carcinomata, and probably in various forms of gangrene. It is thicker than spirochaeta pallida, and distinctly refractile when living. It may have a corkscrew shape and motion when alive, but flattens out when dried in films, so as to have, usually, a wavy outline. The curves are flatter and longer than those of spirochaeta pallida, measuring 1.5 to 2 μ, or more. It varies in length, like the pallida, measuring most commonly from 8 to 10 μ. It is usually described as having truncated ends, but often the ends are tapering, or one end is sharp and the other blunt.

A vibratile membrane has been described attached along its whole length. It possesses no flagella. It stains easily by most of the methods used for diagnosing these organisms, and with Giemsa’s stain it takes a purplish or violet colour.

Many other spirochetes have lately been discovered. Many have been described in gangrene, many about the mouth, and Löwenthal has recently described one occurring about the mouth, in which the spirals are extremely narrow, and the appearances are very like those of spirochaeta pallida, but the staining properties are different. This spirillum stains more quickly, and of a bluish colour.

As regards the demonstration of the parasite, I have picked out the details as to 758 lesions examined by different workers, and find that
spirochæta pallida has been found most often in moist papules, mucous plaques, and condylomata—genital and extra-genital.

Next come hard chancres, excised or scraped. Success has not been frequent in films made from excised or punctured buboes, and rarely has spirochæta pallida been found in roseolar blood, or in the circulating blood.

In lesions with moist or ulcerating surfaces the spirochæta pallida is commonly accompanied by the spirochæta refringens, and it is a very significant fact that most successes have been attained in such circumstances. From one's own experience the number of forms intermediate between the two, partaking to some extent now of the one, now of the other, is remarkable. It is sometimes extremely difficult, often impossible, to refer these forms to one or other group, and it is easy to imagine how readily one's percentage of successful demonstrations of the spirochæta pallida in such lesions might be raised by having regard solely to tinctorial or to morphological characters.

Frequently, in perfectly stained Giemsa preparations, I have seen forms, staining pink, like spirochæta pallida, sometimes delicate, but wavy or almost straight in outline like the spirochæta refringens and not in isolated examples, which might be explained as stretched spirochæta pallidæ, but in very considerable numbers. Other forms stain deeply like spirochæta refringens, but they have a spiral outline like typical spirochæta pallidæ. As group characters one must take both tinctorial and morphological characters into consideration. It is regrettable that in condylomata and mucous plaques, the most infective lesions in the adult, these difficulties of diagnosis should be experienced.

I shall not enter into the special methods of examining the different lesions—hard chancres, blood, indurated buboes, and so on—but I might give you some points which have struck me, as axioms, to be borne in mind:

Saprophytic spirochæta are always present on ulcerated lesions, on moist papules, and mucous plaques. These are often difficult to distinguish from spirochæta pallida. The more thorough the preliminary cleansing, the fewer of these are seen. Spirochæta pallida may occur somewhat deeply in the lesions, and apparently in clumps. Therefore some six to eight films should be made as the spirochætes are not uniformly distributed. Occasionally, in six or seven specimens I have failed to find the organism, but have found it in the eighth or ninth. In the case of excised chancres and papules, it is well to bear in mind that, according to some observers, spirochæta pallida is not demonstrable after from six to ten hours, even though the tissue has been kept on ice. They soon degenerate. Levaditi lately has shown that this is not always correct, and that congenitally syphilitic children, for example, kept after death for any time up to thirty hours on ice, show the spirochæta perfectly well in their interior, and even in
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macerated foetuses he has demonstrated the spirochæta well. So possibly, instead of the spirochæta being a delicate organism it is a very resistant one. When using Giemsa’s method the nuclei of the leucocytes should be stained of a deep brownish purple, otherwise the spirochæta will not be seen. Decolourisers, such as alcohol or weak acetic acid, should, if possible, not be used, as they tend to discharge the stain, rapidly, from spirochæta pallida. This does not apply when the mordanting (flagella) methods are employed.

A large number of control observations have been made on films from healthy tissues, from skin, from different specific lesions not syphilitic, from gonorrhœal pus and buboes, epididymitis, soft chancrees and associated buboes, vencereal warts, inflamed phimosis, great numbers of skin diseases, and all kinds of tumours, throat mucus, different throat secretions, organs of newly-born non-syphilitic children, and many other pathological and non-pathological tissues, and invariably with a negative result as regards the finding of the spirochæta pallida. My own experience refers to about two dozen cases, and out of these one can only take about sixteen or eighteen, as the others have either turned out to be non-syphilitic or, as happened in some cases, the lesions have been drying up under treatment; one was a case of tabes dorsalis, about three years after infection. These excluded cases were all negative. I demonstrated in hard chancrees spirochæta pallida six out of nine times. In lymphatic glands I failed to get any positive results. I failed to get positive results in roseolar rashes, whereas, in skin papules distant from the genitals, I found spirochæta pallida sometimes extremely beautifully marked.

Before showing the lantern slides, I may say a few words as to the relation of spirochæta to the tissues. I have already mentioned that they have been, to a certain extent, localised in excised lesions, e.g., hard chancrees and skin papules, by making sections of these, parallel to the surface, and then films from these sections. But lately, by special silver methods, some observers have been able to demonstrate in sections, spirochæta near the surface of the papilla of the corium, chiefly in the lymphatic spaces. Some have demonstrated them in the walls of the vessels, and most agree that they pass into the deeper layers of the epidermis passing right up between the cells. Some observers say they are not found usually in small-celled infiltrations. There is still some doubt as to the exact position of the spirochætes in these lesions. Very important work has also been done in connection with congenitally syphilitic children, and the credit for this belongs chiefly to Levaditi. He has used a method of silver impregnation and reports remarkable results. He states that sections from the different organs of such infants may reveal hundreds of spirochætes in a field.

His illustrations in the Annals of the Pasteur Institute, the first number for this year, are remarkable, and I recommend you to look at them. I shall show you reproductions of two of these drawings.
to-night. He finds that there is a relationship between the number of spirochætes and the severity of the disease. For example, he finds that very acute and early fatal cases of congenital syphilis are associated with great numbers of the spirochæta pallida in the tissues, and that these tend to be diffused, thus suggesting a kind of septicaemia. Where a congenitally syphilitic infant has lived for some months, in those cases in which the child is apparently born healthy, in which the signs of the disease gradually appear and in which the organs, post mortem, show marked histological changes, such as cirrhosis of the liver, white pneumonia and other characteristic changes—he finds that the spirochætes are specially localised in the organs which show most extensive histological changes. For example, they are most numerous in the liver, next in the lungs, next in the suprarenals, and next in the skin. In the spleen and the kidney they are not so commonly seen. He considers that the liver is first attacked in the congenitally syphilitic, receiving at an earlier period than the others the spirochætes, which are passing in from the placenta. In such cases he has demonstrated what looked like colonies of spirochætes, blocking the vessels of the liver, particularly their terminal branches, and tending to spread out from the clumps between the liver cells. He thinks these points tend to indicate that this is not simply a post mortem invasion, but that there is some arrangement about it; some relationship between the spirochætes and the lesions which are found. When the spirochætes are few in number, they are generally collected near the blood vessels, but especially in parts of the liver where pigmentation is seen. The only other point which I would quote from Levaditi is that referring to the invasion of important gland cells. These highly organised cells—"noble" cells he calls them—are very commonly invaded by spirochætes, and he is of opinion that the spirochætes, while primarily in the blood, tend to leave it very soon, and pass first into the cells lining the vessels, and thence into the lymph spaces. From these spaces they tend to invade the important highly-specialised cells. He thinks that in this way one may explain some of the doubtful points in connection with syphilis; for example, the important parenchymatous changes which sometimes occur. He also thinks that, in this way, latent cases of syphilis may be explained; the spirochætes passing into these gland cells, and being, as it were, protected from the phagocytes. I think that this idea seems a little far-fetched, and that quite possibly the appearances may be explained in other ways.

Regarding the important point as to whether these are post mortem invasions, or occur during the terminal agony, or whether they are truly ante mortem, it is very difficult to determine. I must say that it does look a little like post mortem invasion in some cases; some of the drawings are almost too clear and the spirochæta too beautifully marked; they are not degenerating.

In other parts, however, the organisms are seen to be becoming
varicose and swollen, evidently undergoing degeneration. Hence, Levaditi concludes that this action takes place probably before death. In order to absolutely determine this question one would have to get living tissue and fix it at once. The difficulties in the way of this procedure, particularly in the case of deeply lying organs, are obvious.

Another point to which he draws attention is, that if secreting gland cells are affected, e.g., the cells in the convoluted tubules of the kidney—just as he demonstrates that those of the bronchial mucous membrane are affected—it would suggest infectivity of the urine, as well as of the expectoration.

Lastly, as to the conclusions to be drawn. It is astonishing with what unanimity this discovery has been accepted on the Continent, an event quite unprecedented in discoveries of similar importance, but there is much to support the relationship of spirochêta pallida to syphilis. The most important facts in favour are its occurrence in non-ulcerated lesions, such as papules and buboes far away from the primary sore; its occurrence in the circulating blood and splenic blood in acquired syphilis; its occurrence specially in virulent infective lesions and its absence from non-infective tertiary lesions; its presence in the depths of superficial lesions where it is stated to be unaccompanied by other organisms, and its definite localisation in the corium—if absolutely confirmed; its presence in congenitally syphilitic infants in great numbers, and its occurrence—according to most observers—only in primary and secondary syphilitic lesions and in congenital syphilis; never in non-syphilitic diseases, and never in healthy man or monkey. The facts in favour of it appear much stronger than those against it.

Against it is the fact that the numbers are occasionally very scanty, but this may be owing to difficulties of demonstration. One would expect that if lesions were extremely severe the causative organism would be present in great numbers. There is also the question of the intermediate forms, a difficulty to which I have already referred. Some hold still that forms identical with spirochêta pallida are to be found in other lesions. Of course, that does not necessarily invalidate the relationship of spirochêta pallida to syphilis; it would simply mean that it can occur in other lesions and yet cause syphilis. In fact, if one finds the typical spirochêta pallida in a lesion, one can be pretty certain that the lesion is syphilitic. But the converse is not necessarily true.

[Slides and explanation].

The President: I am sure, gentlemen, I shall be only expressing the universal voice of the Society, when I say how deeply we are indebted to Dr. Shennan for this demonstration of the spirochêta pallida. It is something entirely new to me, and
probably to most of you here. At the conclusion of the meeting, I shall have an opportunity of saying something about it.

I will now ask Dr. Still to address us on the disease as it occurs in children.

Dr. G. F. Still: Mr. President and Gentlemen, It falls to my lot to contribute to this discussion some remarks on syphilis as it occurs in children. I shall speak almost exclusively with reference to the inherited disease. Acquired syphilis is of extreme rarity in children, and I only mention it to raise a question which may be one of some practical importance. It has been held that there is a vast difference in the degree of contagiousness of the two forms of syphilis in children. It has been asserted that the acquired form is transmitted with an ease of contagion which makes its non-recognition disastrous, while the inherited disease is so little contagious that few observers in this country have ever seen infection from it. Diday, on the other hand, held exactly the opposite view. He says "the lesions of congenital syphilis differ from those of ordinary syphilis by an infinitely greater power of contagion"; and a modern American writer speaking of inherited disease has said, "hundreds and thousands of cases of innocent syphilis have had their origin in innocent babes, so that too great care can hardly be exercised."

I can offer no opinion as to the risk of contagion from acquired syphilis in a child, for I have only met with two cases in which the acquired disease was suspected to be present. But Dr. Coutts, in his Hunterian Lectures ten years ago, referred to cases which seemed to prove very grave risk of infection from children in this condition. But with regard to the inherited disease, I can state from my own observations that, in spite of the quotations which I have made, the risk of contagion from the inherited disease would appear to be extremely small. Amongst the considerable number of cases of inherited syphilis in children under my care, I have never known an instance of contagion therefrom. But I am satisfied that there is some risk albeit small, and I have been told recently of two cases in which the disease was supposed to have been contracted by adults from infants with inherited syphilis. Dr. Coutts, by inquiry from eighteen medical men, attached to children's hospitals, was able to hear of eight cases in which such contagion was thought to have occurred. It is therefore much to be desired that information should be collected as to the particular lesions present in the infants when they infect others. Is the nasal discharge a source of danger? Or is the rash particularly dangerous? And if so, is it the scaly condition, or moist condylomatous condition, or the fissures of the lips which are to be held responsible? Levaditi to whom reference has already been made this evening, has found that the spirochaeta pallida is present in large numbers in the bullæ of
syphilitic pemphigus in the new-born. If this organism bears a causal relation to syphilis, one might expect that the numerous bullae as they break would prove a source of infection to all who handle the infant. But I know of no evidence that such a condition is particularly contagious.

I turn now to the social aspect of inherited syphilis. It is difficult to estimate the damage which this disease inflicts upon the community. If a large population be a valuable asset to a nation, how greatly are our national assets diminished by inherited syphilis! In the family histories of 87 children, I counted 39 still-births, 36 miscarriages, and 25 deaths attributable to syphilis. Of the 87, 13 died whilst under observation. So that in those 87 families 113 lives were lost to the community, owing to the syphilis of the parents. And this is but one item in the damage which inherited syphilis inflicts. Some at least—and it would be interesting to know what proportion—of the children who survive are incapacitated to a greater or less extent by such conditions as interstitial keratitis and syphilitic deafness. It is commonly stated that syphilis rarely affects the nervous system in children, but it is certainly responsible for some very serious nervous affections. My own statistics, indeed, showed that 10 per cent. of the children with congenital syphilis, suffered from some nervous affection. Idiocy is directly due to inherited syphilis in some cases, and I suspect that the relationship is present in a larger proportion of cases than is usually admitted. Dr. Shuttleworth found 1.1 per cent. of cases sent to asylums showed clear evidence of syphilis, but these figures refer only to cases which survived long enough to be admitted to asylums; and the difficulty of detecting congenital syphilis is very much greater at that age than it is in the young idiots who are brought to a children's hospital. And I strongly suspect—although I am unable to give figures—that statistics of the idiots brought to any children's hospital would show a very much larger proportion than this. Nor is it only children born idiotic who show the effect of inherited syphilis on the mind. There is a progressive form of mental deterioration, which affects some children with inherited syphilis, which begins usually in the second period of childhood, from six to twelve years of age. The child, usually at first bright and intelligent, gets duller and duller, has epileptiform attacks, and then becomes more or less completely demented. In some of these cases the child falls into a comatose spastic condition, with great emaciation, and eventually dies of exhaustion. Some of these cases are those which have been described as general paralysis of the insane in children, and after death one finds chronic meningitis, with extensive sclerosis of the cortex.

In a certain proportion of cases congenital hydrocephalus is undoubtedly the result of syphilis. According to my figures, 4 out of 39 cases of hydrocephalus showed such a cause. Again, some of the cerebral palsies of children, particularly of the paraplegic and diplegic varieties, are occasionally due to congenital syphilis.
To these nervous affections from inherited syphilis, I would add a special liability in syphilitic children to die of convulsions in infancy. It has been stated that they are also more liable to develop epilepsy in later life. It is therefore clear that the child who survives with congenital syphilis may add, not to the wealth of the nation, but to the ranks of the unfit.

In illustration of some of these remarks, let me instance a poor family in which there have been three children. One child died of convulsions in infancy, another has interstitial keratitis and is imbecile, and the third child has chronic hydrocephalus. This family may illustrate another point to which I would draw attention, and that is the tendency in certain families to affection of certain tissues. It would seem that there is a special tendency in one family to affections of the nervous system, in another to affections of the viscera, and in another it may be to affections of the bones. I suspect that this is so not only with regard to syphilis, but also with regard to other diseases. I think I have seen it in rickets and tuberculosis. In connection with these nervous manifestations of congenital syphilis, there arises another point. There is a tendency to describe certain congenital abnormalities in children as "para-syphilitic," meaning, I suppose, that although the disease of the parents has not been transmitted to the child, it has influenced its development, and we are told that even spina bifida and navi may be para-syphilitic. I venture to protest against the use of the term "para-syphilitic." Even granting that congenital abnormalities are specially liable to occur in non-syphilitic children, born of syphilitic parents, it is not alleged that these bear any closer relation to the syphilis than to any general cause which may impair the health of the parents. "Para-syphilitic" seems to suggest a specificity of origin, which does not exist in these cases. The Mongolian imbecile is such, not because the mother or father had syphilis in particular, but because they had some disease which interfered with their general health, a disease which may have been syphils, but might equally well have been tubercle or alcoholism, or no disease at all, but simply the strain of domestic trouble of some kind. If we are to describe such conditions as para-syphilitic we should equally talk of "para-tubercular," or "para-alcoholic," and perhaps even of "para-impecuniosity."

There are several questions I should have liked to have brought forward in connection with the symptoms of congenital syphilis, but I have time to mention only some of them.

Hæmorrhage in the new-born—umbilical, intestinal and other; does this bear such a close relation to congenital syphilis as to justify the term syphillis hæmorrhagica neonatorum? Again, what is the effect of syphilis upon the skull of the infant? Is syphilis a common cause of cranio-tubes? Does not syphilis rather hasten ossification of the skull, and produce unusually firm bone? Also, bosses on the skull, which are spoken of as Parrot's nodes, are they evidence of syphilis,
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or are they sometimes due to rickets, and sometimes to syphilis? If so, is there any way of distinguishing between the two causes in any particular case? I think not.

The relation of congenital syphilis to interstitial nephritis is a point upon which some information is needed. It seems clear that acute interstitial nephritis occurs in early infancy as the result of inherited syphilis. Judging by histological appearances in two cases under my care, one would suppose that if life were prolonged and the acute inflammation subsided, chronic interstitial nephritis might result. It seems possible also that the process might from the outset be chronic. If so, such a change might account for some of those rare cases which are met with in children as early as the third or fourth year of life, in which there is a chronic granular kidney, of an origin which has not hitherto been explained.

One effect of inherited syphilis upon which the Society might record its experience is joint affection. I do not think this is so rare as has been supposed in congenital syphilis. From my own experience I should say it falls into two varieties. One is a simple synovitis, affecting one or many joints. I have also seen in three cases a condition which I would call syphilitic osteo-arthritis in children, a chronic multiple arthritis associated with osteophytic changes which, in the hand, may closely resemble Heberden's nodes. This occurs in the second half of childhood, from six years of age to puberty, it comes on gradually, and responds but little to mercury or iodide. I have seen more cases of the multiple synovitis, to which I have referred, in children with congenital syphilis, so that I suppose it to be commoner than the osteoarthritic variety. A noteworthy point which I have observed in connection with both varieties is that they are associated almost always—with eye changes such as interstitial keratitis, choroiditis or iritis. And this leads me to emphasise the importance of examining the eyes in the diagnosis of congenital syphilis. In the infant and young child there is of course no interstitial keratitis, but the ophthalmoscope may show definite syphilis. In the nervous affections, particularly inebility, cerebral palsies, and hydrocephalus, examination of the fundus may settle at once the cause of the condition, a satisfactory point even though the information may affect our treatment but little, for these affections respond only slightly to anti-syphilitic treatment. In nine out of fifteen consecutive cases of cerebral affections there was choroiditis; and taking all cases of congenital syphilis in children into account, I found syphilitic eye affections in 21 per cent., and 12 per cent. had choroiditis. These figures however rather understate the frequency, for it was not specially noted in all the cases of my series.

With regard to the treatment of congenital syphilis in children, there is no method which is to be preferred to the use of grey powder. The dose and duration, however, are matters upon which there may be considerable difference of opinion. As to the doses, my own custom is
to give $\frac{1}{2}$ to $\frac{3}{4}$ grain three times a day. The effects to be guarded against are diarrhea, and injury to future teeth, and salivation.

But with those doses diarrhea rarely occurs, and I have satisfied myself that even the continuance of such doses for two years has no injurious effect upon the subsequent teeth; in fact, I have rather thought it had some preservative effect upon them. Infants stand mercury well, and salivation is of extremely rare occurrence. But there are cases in which it is important to get the child quickly under the influence of mercury, and in those cases I think inunction should be used as well as the oral administration. And here I would say a word about the recently introduced methods of intramuscular and intravenous injection—and my remarks have reference solely to children as, for some years my field of observation has been limited to children, so that I cannot express any opinion as to the treatment for adults. So long as it is possible to mercurialise children as thoroughly as may be necessary by such simple methods as oral administration or inunction of mercury, I am of opinion that the infliction of pain, not to mention the risks inevitable with such a procedure as the intravenous or intramuscular injection of mercury, makes the treatment as unjustifiable as it is unnecessary. There are cases in which the use of powders or inunction may not be practicable for various reasons—powders in particular, are refused altogether by some children, and even little infants will sometimes splutter and spit them out; in such cases the liquor hyd. perchlor. forms a useful alternative. I generally use 5 to 10 minims, according to the age of the child. An infant three or four weeks old will take about 5 minims, but this drug is open to the objection that it seems rather more liable to set up diarrhea than does hyd. cum. creta. Calomel, I think, is open to the same objection, but occasionally is useful given in doses of 1-12th to 1-6th grain, two or three times a day. I have no experience of the mercurial baths which have been used; ten grs. of hyd. perchlor. in a bath of two gallons of water. It seems to have the disadvantage that it involves entrusting persons, perhaps none too careful, with the handling of large quantities of corrosive sublimate for the purpose.

It has been said that treatment should be continued until all symptoms have disappeared. If this rule is literally followed, the inevitable result will be that the child will have a recurrence of its symptoms in a very short time, for the symptoms may disappear not only after two or three weeks, but sometimes within a single week after the commencement of treatment. It is therefore desirable to continue the treatment over a long period, after the symptoms have disappeared. I have myself advocated that a regular administration of mercury to syphilitic infants should be continued six months or a year after all symptoms have disappeared; but I am inclined to think that even that limit is not long enough, and that the treatment should be continued, if possible, for two years after symptoms have disappeared.
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Dr. Morgan Dockrell: Mr. President and Gentlemen, It has occurred to me that, probably, I might play my small part in this discussion by endeavoring to press home one or two small truths, in connection with the diagnosis and treatment of syphilis of the skin. To enter into any elaborate discussion on diseases of the skin would be quite beyond one's power, even on several evenings. I have, however, a number of drawings which I will pass round, and you can take in the main features of them visually, and thus save much time. What I want chiefly to draw your attention to is the fact that, while we are continually treating different diseases of the skin—and sometimes with very bad results—we miss the point that very constantly we have those diseases complicated by syphilis, and sometimes by tuberculosis. That has been brought home to us very much by the fact that recently we have made very careful sections of a large number of cases which came under notice, and we found that syphilis and tuberculosis cropped up continually, and from that we have been able to check the general clinical diagnosis.

The first case I draw your attention to is that of this lad. There is a completely bald patch on the right side of the head. The history was, that six months before he came under observation, he had an initial lesion, and two months before I saw him he had lost his hair completely. It travelled back, and there was an arrest of growth of hair all over the head, such as one sees commonly in connection with syphilis. The case came up before my class, and the extraordinary arrest of growth and the travelling back made one conclude that it was specific. With the lad being put upon mercury internally the hair has speedily grown, and no local treatment has been used since he was under observation. Prior to that he had had local treatment for his scalp. The interesting question about that case is, why should he have become bald on that particular part? On inquiry one found that a blow had been received on that part of the head about four or five years before.

Another important point which I would like to emphasize is the kind of eruption which occurs in connection with syphilis, especially the macular syphilide, where it is confined to the face. This is the photograph of a man who had syphilis five years ago. He had the ordinary macular eruption, occurring in different parts of the body. He was treated by mercury, but the eruption, although disappearing from his body, remained on his face, and, notwithstanding mercurial and local treatment being used, the disease did not disappear. What is the importance of that? That the occurrence of syphilis on a seborrhoic base, which is untreated remains permanently stamped until treated by antiseborrhoic remedies. The local application, which I recommend in cases of that sort, is an ointment of tannic acid, and that was efficacious in this case. I have come across a number of cases in which the eruption of syphilis disappears from the body and remains confined
to a particular part, and that is commonly due to the fact that there has been some complicating condition or predisposing cause in the locality. I would point out that very commonly you find acne which, no matter how much it is treated in the ordinary way, by filing down, does not get better, and there is a marked tendency in many such cases to be complicated by pustules. On making a section we frequently find that the acne is complicated by a syphilide, that it has occurred on syphilitic soil, and it is not until antisypilitic remedies are used internally that the acne is got rid of. In a case which comes to my memory we had complicating the acne not only syphilis, but tuberculosis.

The next picture is that of a case of great interest. The patient was a man who contracted syphilis abroad, in West Africa. Being on a mission in connection with some company, he was unable to return at the time. And before the early macular eruption appeared he developed in addition, owing to considerable nerve disturbance, dermatitis herpetiformis. This condition remained constantly present, involving great deterioration of health from the fact of the continual itching, and also from the eruption occurring in groups. And when he ultimately got back to this country, he was in a very bad state. The eruption apparent in that case was distinctly one of dermatitis herpetiformis. There was no difficulty in recognising it, from its extreme itching, from the grouping of the vesicles, and because the groups were on an erythematous base. But there was something in the base which was different from the ordinary erythematous base which is found in dermatitis herpetiformis, and that was the peculiar colour which indicated very clearly that there was something complicating the disease. It was suspected to be syphilis, and on making a section, we had no difficulty in being certain of that. In this case it was necessary to get rid of the dermatitis herpetiformis, a disease which it is always difficult to cure. It seemed to yield easily to mercurial treatment, and then we came down to the actual condition remaining. We found that we had not only an ordinary syphilitic condition, but also one where there were tubercles and gummata. That man is now taking 120 grain doses of iodide of potassium three times a day, and with marked benefit.

In the short time at my disposal I want particularly to emphasize this point. There is a general idea, especially among men in general practice, that there is not much syphilis about, because they do not come across it quite as often as others do. I think the reason is that the domestic syphilitic generally steers clear of his family doctor. The doctor comes across diseases in other members of the family, but he does not recognise them because he forgets about syphilis. I think you will find eczematous and other conditions, which do not readily yield to ordinary measures, will be much helped by mercury. I have here a series of drawings and microscopical sections of syphilis, which will be published presently, and which I thought you would be interested to see.
Dr. Ettles read a paper on "The General Treatment of Syphilis," and dealt with the following issues:
1. Should mercurial treatment be commenced at once?
2. The relative value of the various methods of administration.
4. Should the treatment be continuous or intermittent?
5. How long should it be kept up?
6. The value of Littmann's decoction.

The point as to mercurial treatment being commenced at once or not was really one of diagnosis, not for any influence it might have on the malady. When the disease is unmistakable, it should obviously be begun at once; where it is in doubt, it was better to delay until the doubt was removed. The greater the surgeon's experience the sooner could he say that an indurated sore was syphilitic, hence it is that we find a surgeon changing his views from delayed to immediate treatment as his experience accumulates. It is very necessary to have the patient genuinely convinced of the nature of his disease so that he may be sustained throughout years of symptomless medication. The recent suggestion, that copper might be used, failed on critical examination. The dose given was only 1-60th part of the physiological dose, while a fairly full dose (1 grain) of pil. hydrarg. was given with it. Obviously the real use of the copper was to act as an intestinal astringent.

Administration of mercury in pill form, so generally adopted in English speaking countries, was the best routine method. The vast majority of cases could be efficiently controlled throughout the entire treatment, it was the simplest and easiest form, and lastly the patient need not "give himself away."

Most people are ashamed of syphilis, and a secret treatment will be much more conscientiously followed.

With inunction, a hot bath, with half-an-hour's subsequent massage, is needed. The ointment messes the bed clothes and patient's night wear. It demands much time and attracts a good deal of invidious attention.

The result is that patients get disheartened and do it badly.
As to inunction being a more scientific treatment, that is a very open question. Lambkin's experience of intramuscular injection has shown that syphilis can be well controlled by doses of 1-12th to 1-6th of a grain of metal per day. Beyond this, we get toxic symptoms. In mouth administration, the absorption is about 5 per cent. of the intake, while in inunction it is only about 0.5 per cent. The idea that a drachm of blue ointment can be rubbed through the skin is absurd. That would mean thirty grains of metal, while a single grain, will produce severe mercurialism. He tried an experiment of getting an Aix masseur to rub a known weight of ung. cinerea into the arm. The arm and the masseur's hands were subsequently extracted with ether, with the result that practically all the metal was recovered. The real secret of the success attending treatment at Aix lay in the general hygienic measures—rest, exercise, proper feeding and metabolism promoted by copious draughts of sulphur water. The inunction was quite a secondary measure, the same success would follow mouth administration under like conditions. Intramuscular injections should only be used for exceptional or severe cases. The fatal cases recorded abroad appeared to be due (a) to over doses; (b) to administration to persons with damaged excretory organs so that the drug was stored; (3) to injection into persons with inactive muscles. It should only be used in vigorous, muscular men—never in women or children.

In "fulminating" syphilis, or "syphilis precox," which resisted all the usual methods, the best results followed intramuscular injections of calomel in paroleine. He had had cases of sloughing of the pharynx where mercury in ordinary forms seemed to really aggravate matters, which instantly took on a better behaviour under the above treatment.

The patient should have it impressed on him that mercury alone is not sufficient, it only aids the system to get rid of the virus. The teeth should be set in order by a dentist before treatment is begun, smoking should be prohibited for the first six months, the mouth should be daily attended to, and good food given. Green vegetables, fruit, and any laxative
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diet should be interdicted. Syphilis was a much milder disease in robust men, hence out-of-door exercise was of the greatest value in shaking off the taint.

The treatment should be continuous. With proper supervision, there ought to be no need of rest to unload the tissues.

It should be kept up for at least two years after the last symptom. If the symptom was tertiary, it was doubtful if treatment should ever be entirely given up. The value of iodides in gum-mata was incalculable, but he entertained the view that they only removed the granuloma and left the specificity. Ought iodides to be withheld in laryngeal syphilis? It had been stated that they caused local irritation of the mucosa, personally, he had seen very gratifying infractions of the caution.

Littmann's decoction was not quite the same as decoction of sarsaparilla. Insoluble salts of mercury were boiled up with the latter. To ascertain if any mercury entered into solution, he got Messrs. Knowles and Phillips, Chemists in Minories, to make up a large quantity of the stronger decoction. This was submitted to Dr. Keane, Principal of the Sir John Cass Technical Institute, for analysis. Dr. Keane found 1.8 mg. of metal in each 100 cc. About 200 cc. are taken daily, hence there was an appreciable intake of mercury. As we know that only a minute dose is needed in the tissues, it might be reasonably considered to have a specific value. Apart from the sarsaparilla, we had senna and quantities of water. The promotion of oxidation by the drinking of carminative and aperient water, together with the administration of minute doses of a very complex salt of mercury was of undoubted use. In an old case of syphilitic choroido-retinitis, he had found a striking improvement in vision after three months on Littmann.

Dr. Fortescue Fox communicated from Dr. Françon, of Aix-les-Bains, a résumé of the treatment of syphilis by French physicians, and of the inunction method in use at Aix-les-Bains. All French authorities now agreed that treatment should be commenced as soon as the diagnosis was certain. With reference to the mode of giving mercury,
Prof. Fournier, who is regarded as the leading authority upon this subject in Paris, after an experience of thirty years, relies on the protiodide of mercury in pills, the perchloride occasionally, and hypodermic injections of grey oil or biniodide of mercury or calomel in severe case. Dr. Broeg reserves the hypodermic method for (1) cases of syphilis of the brain and medulla; (2) of the tongue and mouth; and (3) for psoriasiform syphilis of the palms and soles. Four to six injections are used spread over a period of two months. Comparatively little value is attached to the iodide of potassium, although it is commonly given in the later stages of syphilis. The following régime is from Dr. Broeg: First year, the liquor hydrarg. perchlor. 2 or 2½ drachms thrice daily for twenty days in each month, or grey oil injections four in the month, or biniodide injections twelve or fifteen in the month. At the end of the year, rest six weeks. Second year, alternate mercurial and iodide of potassium treatments, with a rest every third month, or five or six grey oil injections three times in the year. Third year: the same. Fourth year, a mercurial treatment for one month twice, and subsequently one month occasionally. The connection between syphilis and general paralysis was under discussion at the Academy of Medicine in Paris in March, 1905, and Fournier proposed a "méthode des cures mercurielles à termes tardis." He suggests treatment the first two years, nothing the third year, treatment the fourth, and again in the seventh year, as the best means of preventing the development of general paralysis.

With reference to the inunction treatment at sulphur spas, Dr. Françon quotes experiments made in 1904 at the Hôpital St. Louis in Paris, when the following conclusions were arrived at (see Desmonlîcre Arch. gen. de Médecine No. 26, July, 1904). (1) Sulphur waters act in the mercurial reserves in the body of a patient previously treated and aid in the elimination of mercury. (2) They also alleviate and prevent mercurial phenomena, especially salivation. (3) Under their use, concurrently with mercury, large doses of the latter can be given without inconvenience, even in those who were previous rebellious to mercurial treatment.

Dr. Françon in his practice employs both inunctions and injections, combined with the use of sulphur waters internally, and in the Douche-Massage and Sulphur Bath of Aix. The inunctions, commencing with six grammes of mercurial ointment, are given two days in three immediately after the bath—and the amount used is increased by four grammes after every fourth inunction; in this manner from 250 to 300 grammes are employed in the course of a three weeks treatment. In regulating this treatment he attaches considerable importance to the condition of the kidneys.

As a result of the thermal treatment, massage and use of the waters, circulation and cutaneous functions are stimulated, metabolism increased, and the elimination of mercury is, he believes, brought to a
maximum. Hence high doses, whether by the external or internal methods can be safely given. Even in severe cases it is common for the symptoms to begin to abate after only a few inunctions.

The President regretted he was compelled to close the discussion, owing to the lateness of the hour, and proposed a very sincere vote of thanks to all who had joined in the debate, to whom the Society was greatly indebted. This was carried by acclamation.

He could not now make the short contribution which he had intended, but remarked that it had occurred to him what a curious analogy there was between malaria and syphilis. A patient had malaria in India, and came home, losing his malaria. Ten years later he probably met with some disease, which promptly took on a malarial type, and was perhaps much relieved by ten to twenty grains of quinine. He believed much the same sort of thing obtained in syphilis. A man had syphilis, and was cured of it. One day he fell down and knocked his shin, causing a small abrasion, which in a week or two took on an angry action, and it was henceforth regarded as a syphilitic ulcer. If it were not that he was afraid of his knowledge on zoology, he would suggest it might be possible that the spirochaeta pallida might go through the spore or egg-laying stage, and break up into spores, which spores were in themselves incapable of further development until circumstances favourable thereto arose. He concluded by formally transferring the Hunterian medal to his successor in the chair, Mr. John Poland.