

L. 6
Cat-31

Bot - 2/10

EPB Ser

TRA/8

TRANSACTIONS



OF THE

MEDICAL AND PHYSICAL SOCIETY

OF

CALCUTTA.

VOLUME THE SECOND.

CALCUTTA :

PRINTED FOR MESSRS. THACKER AND CO. ST. ANDREW'S
LIBRARY.

1826.

322329



LIST OF THE MEMBERS

OF THE

Medical and Physical Society.



- ABEL, CLARKE, M.D. *Surgeon to the Governor General.*
- ADAM, JOHN, M.D. *Secretary to the Medical Board.*
- ADAM, JOHN, Esq. *Jun. Asst. Surgeon 47th N. I. Madras Establishment.*
- ALEXANDER, J. R. Esq. *Ditto Horse Artillery Do.*
- ALLEYN, THOMAS, Esq. *Surgeon H. C. S. "General Kyd."*
- ANGUS, GEORGE, Esq. *Asst. Surgeon Salt Agency, Hidgelee.*
- ANNESLEY, JAMES, Esq. *Surgeon Madras Establishment. Furlough.*
- ATKINSON, JAMES, Esq. *Surgeon Bengal Establishment. Furlough.*
- BAIKIE, ROBERT, M.D. *Asst. Surgeon 6th L. Cavalry, Madras Establishment.*
- BAILLIE, GEORGE, Esq. *Surgeon to his Majesty the King of Oude.*
- BAKER, THOMAS E. Esq. *Surgeon 10th Cavalry, Bengal Establishment.*
- BARBER, JAMES, Esq. *Officiating Asst. Surgeon Bengal Establishment.*
- BARKER, JAMES, Esq. *Asst. Surgeon Civil, Poorneah.*
- BARKER, THOMAS B. Esq. *Asst. Surgeon. Furlough 12th February 1826.*
- BATHGATE, JAMES, Esq. *Surgeon, Calcutta.*
- BELL, WILLIAM, Esq. *Asst. Surgeon Civil, Moradabad.*
- BIRD, JAMES, Esq. *Surgeon Sattarah Residency, Bombay Establishment.*
- BIRMINGHAM, W.P. Esq. *Asst. Surgeon His Majesty's 87th Regiment.*
- BRETON, PETER, Esq. *Surgeon, Superintendent of School for Native Doctors, Calcutta.*
- BROWNE, ROBERT, M.D. *Surgeon, Calcutta.*
- BROWNE, G. G. M.D. *Asst. Surgeon Bengal Establishment, Artillery, Dum-Dum.*

- BUCHANAN, JOHN R. Esq. *Asst. Surgeon 17th Regiment N. I. Bengal Establishment.*
- BURKE, W., M.D. *Inspector of Hospitals H. M. S. Bengal.*
- BURNARD, RICHARD N. Esq. *Asst. Surgeon Civil, Benares.*
- BURT, BENJAMIN, M.D. *Asst. Surgeon Civil, Moorshedabad.*
- BUTTER, DONALD, M. D. *Asst. Surgeon Civil, Ghazeepore.*
- CAMERON, WILLIAM, Esq. *Asst. Surgeon and Officiating Sen. Asst. General Hospital, Calcutta.*
- CAMPBELL, JOHN, M.D. *Asst. Surgeon H. M. 30th Regiment.*
- CAMPBELL, DONALD, Esq. *Asst. Surgeon Civil Station, Mirzapore.*
- CARTE, W. E. Esq. *Asst. Surgeon 63d N. I. Bengal Establishment.*
- CASTELL, JEHOSEPHAT, Esq. *Surgeon 7th Light Cavalry Do.*
- CATHCART, MATTHEW, Esq. *Surgeon H. M. 38th Regiment.*
- CAVEL, HENRY, Esq. *Asst. Surgeon Commission Sunderbunds.*
- CHALMERS, WILLIAM, Esq. *Calcutta.*
- CHARTERS, W. S., M.D. *Asst. Surgeon 53d N. I. Bengal Establishment.*
- CHEEK, GEORGE NICHOLAS, Esq. *Asst. Surgeon Civil, Bancoora.*
- CLAPPERTON, J. B. Esq. *Surgeon 6th Light Cavalry Bengal Establishment.*
- CLARKE, HEZEKIAH, Esq. *Asst. Surgeon Civil, Gorruckpore.*
- CLARKE, A. M. Esq. *Ditto ditto 15th N. I. Bengal Establishment.*
- CLARKE, JAMES, Esq. *Ditto ditto Garrison Monghyr.*
- COLQUHOUN, A. Esq. *Veterinary Surgeon, Calcutta.*
- COLVIN, JOHN, M.D. *Asst. Surgeon Civil, Azimghur.*
- COOPER, HENRY, Esq. *Asst. Surgeon Bengal Establishment. Furlough.*
- CORBYN, FREDERICK, Esq. *Surgeon 50th N. I. Bengal Establishment.*
- COTTON, T. F. Esq. *Asst. Surgeon H. M. 14th Regiment.*
- CRAWFURD, JOHN, Esq. *Surgeon Bengal Establishment, Commissioner in Pegu.*
- DALRYMPLE, JOHN, Esq. *Asst. Surgeon 56th N. I. Bengal Establishment.*
- DARBY, WILLIAM, Esq. *Surgeon 28th N. I. Bengal Establishment.*
- DAVIDSON, JOHN, Esq. *Asst. Surgeon Bengal Establishment, Nagpore Service.*
- DEMPSTER, J. M.D. *Asst. Surgeon H. M. 38th Regiment.*
- DEMPSTER, T. E. Esq. *Asst. Surgeon Garrison Buxar.*

- DREVER, THOMAS, Esq. *Asst. Surgeon 30th N. I. Bengal Establishment.*
- O' DWYER, J. Esq. *Asst. Surgeon N. I. Bengal Establishment.*
- DUFF, WILLIAM, Esq. *Ditto ditto Bengal Establishment. Furlough.*
- DUNCAN, JAMES, Esq. *Ditto ditto Civil, Agra.*
- DUNCAN, A. C., M. D. *Asst. Surgeon 6th Light Cavalry, Bengal Establishment.*
- DURHAM, SAMUEL, Esq. *Superintending Surgeon, Dacca.*
- ECKFORD, J. Esq. *Surgeon 12th N. I. Bengal Establishment.*
- EGERTON, CHARLES C. Esq. *Asst. Surgeon and Superintendent Eye Infirmary, Presidency.*
- EVANS, JAMES, Esq. *Surgeon 19th N. I. Bengal Establishment.*
- EVEREST, CHARLES E. Esq. *Asst. Surgeon Residency, Katmandoo.*
- FALLOWFIELD, JONATHAN, Esq. *Surgeon 2d Battalion Artillery Bengal Establishment.*
- FENDER, JOHN, Esq. *Asst. Surgeon with Artillery, Bengal Establishment.*
- FINDON, WILLIAM, Esq. *Surgeon 35th N. I. Bengal Establishment.*
- FLEMING, ROBERT, Esq. *Surgeon, Calcutta.*
- FORREST, T. Esq. *Asst. Surgeon 46th N. I. Bengal Establishment.*
- FORSYTH, J. Esq. *Asst. Surgeon, Political Agency Mundlaisir.*
- FORTNOM, JAMES, Esq. *Asst. Surgeon 8th N. I. Bombay Establishment.*
- FRITH, ROBERT, Esq. *Surgeon, Calcutta.*
- GARDEN, ALEXANDER, Esq. *Surgeon, Medical Storekeeper, Saugor.*
- GIBSON, A. Esq. *Asst. Surgeon Bombay Establishment.*
- GLASS, WILLIAM, M. D. *Asst. Surgeon 1st N. I. Bengal Establishment.*
- GOVAN, G., M. D. *Surgeon with Artillery, Bengal Establishment.*
- GRAHAM, ARCHIBALD, Esq. *Asst. Surgeon 12th N. I. Bombay Establishment.*
- GRAHAM, JAMES, M. D. *Asst. Surgeon Civil, Mehidpoor.*
- GRAHAM, WILLIAM, M. D. *Asst. Surgeon Civil, Chittagong.*
- GRANT, JOHN, Esq. *Do. do. 2d Asst. Presidency Hospital, Calcutta.*
- GRAY, D. M. Esq. *Do. do. 1st Nusseree Batt. Bengal Establishment.*
- GRIFFITHS, JOHN, Esq. *Do. do. Hussingabad.*
- GREIG, JOHN, Esq. *Asst. Surgeon Civil, Banda.*
- GRIMES, WILLIAM, Esq. *Asst. Surgeon Civil, Bareilly.*

- GRIERSON, JAMES, Esq. *Garrison Surgeon Fort William.*
- GUTHRIE, HUGH, M.D. *Asst. Surgeon Civil, Allahabad.*
- HAMILTON, WILLIAM, M.D. *Asst. Surgeon, Political Agency Bhopal.*
- HAMILTON, J. HENRY, Esq. *Surgeon H. M. 13th Regiment.*
- HARDY, JAMES, Esq. *Asst. Surgeon Bengal Establishment, Oodypore.*
- HARE, JAMES, M. D. *Surgeon. Furlough.*
- HARPUR, E. T. Esq. *Asst. Surgeon Civil, Nuddea.*
- HARCOURT, JOHN, Esq. *Asst. Surgeon H. M. 11th Dragoons.*
- HARLAN, J., M.D. *Officiating Asst. Surgeon 39th N. I. Bengal Establishment.*
- HENDERSON, JOHN, M. D. *Surgeon H. M. S.*
- HENDERSON, JOHN, Esq. *Asst. Surgeon Civil, Allygurh.*
- HENDERSON, THOMAS, M. D. *Do. do. do. Gyah.*
- HEWETT, WILLIAM W., M. D. *Asst. Surgeon 1st Asst. Garrison Surgeon, Fort William.*
- HUNTER, CHARLES, Esq. *Superintending Surgeon, Saugor.*
- HUTCHISON, JAMES, Esq. *Asst. Surgeon Civil, Midnapore.*
- INGLIS, THOMAS, M. D. *Asst. Surgeon. Furlough.*
- INGLIS, JAMES, M.D. *Asst. Surgeon 14th N. I. Bombay Establishment.*
- INNES, JAMES, M. D. *Asst. Surgeon Residency, Malacca.*
- JACKSON, ALEXANDER R., M. D. *Asst. Marine Surgeon, Calcutta.*
- JACKSON, THOMAS, Esq. *Surgeon H. M. 14th Foot.*
- JACKSON, WILLIAM, Esq. *Surgeon 20th N. I. Bengal Establishment.*
- JAMESON, C. Esq. *Asst. Surgeon Madras Establishment.*
- JEFFEREYS, JULIUS, Esq. *Asst. Surgeon Civil, Furruckabad.*
- JOHNSTON, JAMES, Esq. *Superintending Surgeon. Furlough.*
- JOHNSTONE, JAMES, M. D. *Asst. Surgeon 2d Nusserree Batt. Bengal Establishment.*
- KEMBALL, V. C. Esq. *Superintending Surgeon Bombay Establishment.*
- KENNEDY, RICHARD H., M. D. *Surgeon Residency, Barodah.*
- KING, GEORGE, Esq. *Civil Surgeon, Patna.*
- LAMBE, GEORGE, Esq. *Civil Surgeon, Dacca.*
- LANGSTAFF, JOSEPH, Esq. *Superintending Surgeon, Meerut.*
- LAW, JOHN, Esq. *Superintending Surgeon, Berhampore.*
- LAWRIE, J. A., M.D. *Asst. Surgeon 29th N. I. Bengal Establishment.*
- LESLIE, JOHN, Esq. *Asst. Surgeon 65th N. I. Bengal Establishment.*
- LESLIE, WILLIAM, M. D. *Surgeon 21st N. I. Bengal Establishment.*

- LIVINGSTONE, JOHN, M. D. *Jun. Surgeon H. C. Factory, Canton.*
- MACDONALD, EWEN, Esq. *Surgeon 9th Cavalry Bengal Establishment.*
- McGAVESTON, JOHN, Esq. *Asst. Surgeon Civil, Meerut.*
- MACISAAC, ROBERT, Esq. *Asst. Surgeon Rungpore L. I. B.*
- MACKINNON, CHARLES, Esq. *Sen. Do. do. Civil, Tirhoot.*
- MACKINNON, CHARLES, Esq. *Jun. Asst. Surgeon 38th N. I. Bengal Establishment.*
- MACPHERSON, G. G. Esq. *Do. do. Civil Bauleah.*
- MACQUEEN, KENNETH, Esq. *Asst. Surgeon 9th N. I. Bengal Establishment.*
- MAXWELL, J. A., M. D. *Superintending Surgeon Bengal Establishment, Bombay.*
- MCDOWELL, JAMES, Esq. *Superintending Surgeon. Furlough.*
- MCLEOD, BANNATYNE W., M. D. *Asst. Surgeon Artillery, Bengal Establishment.*
- MCLEOD, CHARLES MURDOCH, Esq. *Asst. Surgeon, Commissioner at Bittoor.*
- McMORRIS, J. Esq. *Surgeon Bombay Establishment.*
- MARDEN, THOMAS TODD, Esq. *Member of the Medical Board, Bombay.*
- MARTIN, JAMES, Esq. *Asst. Surgeon Governor General's Body Guard.*
- MEIK, JAMES, Esq. *1st Member Medical Board, Bengal.*
- MELLIS, JAMES, Esq. *Presidency and Marine Surgeon.*
- MERCER, HUGH S. Esq. *Surgeon 22d N. I. Bengal Establishment.*
- MITCHELSON, WILLIAM, Esq. *Asst. Surgeon 23d N. I. Bengal Establishment.*
- MONTGOMERIE, WILLIAM, Esq. *Do. do. Singapore.*
- MORTON, JAMES, Esq. *Asst. Surgeon Civil, Rungpore.*
- MOUAT, JAMES, M. D. *Do. do. H. M. 13th Regiment.*
- MUNRO, THOMAS M., M. D. *Asst. Surgeon Kumaon Local Batt. Bengal Establishment.*
- MUNT, C., M. D. *Physician, Serampore.*
- MURRAY, ANDREW, M. D. *Surgeon 4th N. I. Bengal Establishment.*
- MUSTON, WILLIAM PITT, Esq. *Apothecary General, Bengal.*
- NEWMARCH, HENRY, Esq. *Asst. Surgeon Military Orphan Schools.*
- NICOLSON, SIMON, Esq. *Presidency Surgeon and Surgeon Native Hospital.*
- NISBET, MATTHEW, M. D. *Asst. Surgeon Civil, Shajehanpore.*

- OGILVY, ALEXANDER, Esq. *3d Member Medical Board.*
- OGILVY, GEORGE, Esq. *Superintending Surgeon, Bombay.*
- OGILVY, WALTER, Esq. *late Member of the Bengal Medical Board.*
Furlough.
- PANTON, WILLIAM, Esq. *Surgeon Residency Scindia's Court.*
- PATERSON, GEORGE MURRAY, M. D. *Asst. Surgeon 16th N. I. Bengal Establishment.*
- PATERSON, J. C. Esq. *Do. do. Civil Station of Ajmere.*
- PEARSON, ALEXANDER, M. D. *Senior Surgeon H. C. Factory,*
Canton.
- PENMAN, J. A. Esq. *Surgeon, Calcutta.*
- PENNINGTON, R. B. Esq. *Asst. Surgeon Hissar Establishment.*
- PHILIPPS, BENJAMIN, Esq. *Member of the Medical Board, Bombay.*
- PLAYFAIR, GEORGE, Esq. *Garrison Surgeon, Chunar.*
- PORTEOUS, ALEXANDER, Esq. *Surgeon, Calcutta.*
- RAMSAY, DAVID, Esq. *Asst. Surgeon 25th N. I. Bengal Establishment.*
- RANKINE, JAMES, M. D. *Surgeon Residency Malwah, Rajpootanah.*
- RAY, CHARLES, Esq. *Surgeon Skinner's Horse.*
- REDDIE, GEORGE, Esq. *Superintending Surgeon, Cawnpore.*
- RENNY, CHARLES, Esq. *Surgeon 8th N. I. Bengal Establishment.*
- RENTON, DAVID, Esq. *Surgeon 1st Light Cavalry, Bengal Establishment.*
- RIND, J. NATHANIEL, Esq. *Surgeon, Superintendent Government Lithographic Press, Calcutta.*
- ROBERTSON, A. J. Esq. *Asst. Surgeon Bombay Establishment.*
- ROBINSON, CHARLES, Esq. *Superintending Surgeon Bengal Establishment.* *Furlough.*
- RONALD, JAMES, Esq. *Asst. Surg. Surgeon Board of Revenue Central Provinces.*
- ROSS, ANDREW, Esq. *Do. do. 37th N. I. Bengal Establishment.*
- ROW, JOHN, Esq. *Superintending Surgeon 5th Extra N. I. Bengal Establishment.*
- ROYLE, JOHN FORBES, Esq. *Do. do. Civil, Saharunpore.*
- RUSSELL, WILLIAM, M. D. *Presidency Surgeon, Surgeon General Hospital, and Superintendent Vac. Innoculation.*
- SAVAGE, JOHN, Esq. *Presidency Surgeon.*

- SCOTT, ALEXANDER, Esq. *Asst. Surgeon 60th N. I. Bengal Establishment, Residency Bussorah.*
- SCOTT, CHARLES, Esq. *Asst. Surgeon, Bombay Establishment.*
- SCOULAR, THOMAS, Esq. *Asst. Surgeon, ditto.*
- SHAW, R. Esq. *Asst. Surgeon Civil, Shahabad.*
- SHUTTER, THOMAS, Esq. *Asst. Surgeon Bengal. Furlough.*
- SIMMS, GEORGE, Esq. *Asst. Surgeon Bengal. Furlough.*
- SIMSON, ANDREW, M. D. *Asst. Surgeon Political Agency, Jeypore.*
- SIEVWRIGHT, FRANCIS, Esq. *Do. do. H. M. Depôt, Chinsurah.*
- SKIPTON, GEORGE, Esq. *Superintending Surgeon, Agra.*
- SMITH, JOHN, Esq. *Surgeon 42d N. I. Bengal Establishment.*
- SMYTTAN, GEORGE, M. D. *Surgeon Bombay Establishment.*
- SPILSBURY, GEORGE G. Esq. *Surgeon Political Agency Saugor.*
- SPROULE, SAMUEL, M. D. *Member of the Medical Board, Bombay.*
- STARK, JOHN, M. D. *Asst. Surgeon H. M. 44th Regiment. Furlough.*
- STENHOUSE, ALEXANDER, M. D. *Asst. Surgeon 4th Extra N. I. Bengal Establishment.*
- STEVENSON, W. Esq. *Do. Do. 2d Local Horse, Bengal Establishment.*
- STEVENSON, W. JUN., M. D. *Do. Do. 42d N. I. Do.*
- STEUART, J. F., M. D. *Asst. Surgeon 69th N. I. Do.*
- STEWART, JAMES, Esq. *Do. Do. 14th N. I. Do.*
- STEWART, POYNTZ, M. D. *Asst. Surgeon Civil, Howrah.*
- STEWART, DUNCAN, M. D. *Asst. Surgeon with the Commissioner, Pegue.*
- STRONG, FRANCIS P. Esq. *Do. Do. Mysore Prince, 24 Pergs. Subs. Cal. and Presidency Insane Hospital.*
- STUART, J. G. Esq. *Asst. Surgeon Bombay Establishment.*
- SULLY, C. B., M. D. *Asst. Surgeon Civil, Dacca Jellalpore.*
- SWINEY, JOHN, M. D. *Surgeon Bengal Establishment. Furlough.*
- TAYLOR, WHITNEY, Esq. *Asst. Surgeon Depôt, Cawnpore.*
- TAYLOR, JAMES, Esq. *Do. Do. 66th Regiment N. I. Bengal Establishment.*
- THOMAS, WILLIAM, Esq. *Surgeon 20th N. I. Do.*
- THOMPSON, WILLIAM, Esq. *Surgeon H. M. 4th Light Dragoons.*
- THOMPSON, JAMES, Esq. *Surgeon 39th N. I. Bengal Establishment.*

- THOMPSON, WILLIAM, Esq. *Asst. Surgeon Goruckpore L. I. Bengal Establishment.*
- TODD, DAVID, Esq. *Superintending Surgeon, Barrackpore.*
- TOKE, JOHN SYME, Esq. *Asst. Surgeon 43d N. I. Bengal Establishment.*
- TURNBULL, GEORGE, Esq. *Do. Do. Northern Division, Bundelcund.*
- TWINING, WILLIAM, Esq. *Do. Do. and Surgeon to Commander in Chief, and officiating 2d Assistant General Hospital.*
- TYTLER, JOHN, Esq. *Acting Garrison Surgeon, Chunar.*
- WADDELL, GEORGE, M. D. *Asst. Surgeon, Deputy Apothecary General H. C.*
- WALLICH, NATHANIEL, M. D. *Superintendent H. C. Botan. Garden, and Supt. General Government Plantations.*
- WARDROP, ALEXANDER, Esq. *Asst. Surgeon 11th N. I. Bengal Establishment.*
- WATSON, WILLIAM, M. D. *Surgeon Board of Revenue Western Provinces.*
- WEBB, WILLIAM TAYLOR, Esq. *Surgeon 6th N. I. Bengal Establishment.*
- WEBSTER, ALEXANDER B., M. D. *Asst. Surgeon 2d Extra N. I. Bengal Establishment.*
- WELCHMAN, C. W., M. D. *Asst. Surgeon Civil, Tumlook.*
- WHITAKER, STEPHEN, Esq. *Asst. Surgeon Prince of Wales' Island Establishment.*
- WILLIAMS, RICHARD, Esq. *Superintending Surgeon, Nusseerabad.*
- WILSON, HORACE HAYMAN, Esq. *Surgeon and Assay Master, Calcutta Mint.*
- WILSON, BENJAMIN, Esq. *Asst. Surgeon Artillery, Kurnaul.*
- WOOD, ANDREW, Esq. *Do. Do. Senior Asst. President in General Hospital. With Invalids to Europe.*
- WOODBURN, DAVID, Esq. *Asst. Surgeon. Furlough.*
- WOOLLEY, JOSEPH, *Asst. Surgeon 8th Light Cavalry Bengal Establishment.*
- YOUNG, DONALD SMITH, Esq. *Assist. Surgeon Madras Establishment, H. H. Nizam's Service, Aurungabad.*

HONORARY MEMBERS.

MAJOR GENERAL HARDWICK, *Bengal Artillery.*

THE HONORABLE SIR CHARLES E. GREY, KT. *Chief Justice, Bengal.*

SIR JAS. MCGREGOR, KT. M. D. *Director General, Army Medical Board, London.*

A. DUNCAN, JUNIOR, M. D. *Professor of Materia Medica, University of Edinburgh.*

PATRONS.

JAMES MEIK, Esq.
ALEXANDER GIBB, Esq. } MEMBERS OF THE BENGAL
ALEX. OGILVY, Esq. } MEDICAL BOARD.



OFFICE BEARERS

OF THE

MEDICAL AND PHYSICAL SOCIETY,

ELECTED AT ITS FORMATION IN MARCH, 1823.

JAMES HARE, M. D. PRESIDENT.

JAMES MELLIS, M. D. VICE-PRESIDENT.

JOHN ADAM, M. D. SECRETARY AND TREASURER.

JOHN CRAUFURD, Esq. }

succeeded by

JOHN SWINEY, M. D. }

HORACE HAYMAN WIL-
SON, Esq. }

JOHN GRANT, Esq. }

HENRY NEWMARCH, Esq. }

MEMBERS OF THE COMMIT-
TEE OF MANAGEMENT.

OFFICE BEARERS

ELECTED FOR 1824.



JAMES HARE, M. D. PRESIDENT.

HORACE HAYMAN WILSON, ESQ. VICE-PRESIDENT.

JOHN ADAM, M. D. SECRETARY AND TREASURER.

JOHN SWINEY, M. D.

JOHN GRANT, ESQ.

ROBERT BROWNE, M. D.

HENRY HAMILTON, ESQ.

MEMBERS OF THE COMMIT-
TEE OF MANAGEMENT.

JOHN SWINEY, M. D.

JOHN GRANT, ESQ.

ROBERT BROWNE, M. D.

CLARKE ABEL, M. D.

WILLIAM TWINING, ESQ.

MEMBERS OF THE COMMIT-
TEE OF PAPERS.

OFFICE BEARERS

ELECTED FOR 1825.



JAMES HARE, M. D. PRESIDENT. *Resigned, on his departure for Europe, and succeeded by*

ALEXANDER GIBB, Esq. PRESIDENT.

HORACE HAYMAN WILSON, Esq. VICE-PRESIDENT.

JOHN ADAM, M. D. SECRETARY AND TREASURER.

JOHN GRANT, Esq.

ROBERT BROWNE, M. D. } MEMBERS OF THE COMMIT-
CLARKE ABEL, M. D. } TEE OF MANAGEMENT.

WILLIAM TWINING, Esq. }

JOHN GRANT, Esq. }

ROBERT BROWNE, M. D. }

CLARKE ABEL, M. D. }

WILLIAM TWINING, Esq. } MEMBERS OF THE COMMIT-

PETER BRETON, Esq. }

ANDREW WOOD, Esq. }

succeeded by

C. C. EGERTON, Esq. }

TEE OF PAPERS.

OFFICE BEARERS

FOR 1826.



ALEXANDER GIBB, Esq. PRESIDENT.

HORACE HAYMAN WILSON, Esq. VICE-PRESIDENT.

JOHN ADAM, M. D. SECRETARY AND TREASURER.

JAMES MELLIS, M. D. ASSISTANT SECRETARY.

JOHN GRANT, Esq.

ROBERT BROWNE, M. D.

CLARKE ABEL, M. D.

WILLIAM TWINING, Esq.

MEMBERS OF THE COMMIT-
TEE OF MANAGEMENT.

ROBERT BROWNE, M. D.

JOHN GRANT, Esq.

CLARKE ABEL, M. D.

WILLIAM TWINING, Esq.

PETER BRETON, Esq.

JAMES MELLIS, M. D.

MEMBERS OF THE COMMIT-
TEE OF PAPERS.



AGENTS FOR THE SOCIETY,

MESSRS. MACKINTOSH AND CO. CALCUTTA.

CONTENTS.



	<i>Page.</i>
I. Observations on the Fever which prevailed in Calcutta in June, July, and August, 1824. By W. Twining, Esq.	1
II. Observations on the Epidemic of June, July, and August, 1824. By H. Cavell, Esq.	32
III. On an Epidemic Fever at Berhampore. By J. Mouat, M. D.	41
IV. A case of Hydrophobia, with Remarks. By J. Grant, Esq.	51
V. A case of Hydrophobia. By Drs. Browne and Adam, . . .	64
VI. A case of Hydrophobia in a Native. By H. Cavell, Esq. . . .	83
VII. On Rabies Canina, its Appearances in Dogs, and the Effects on Persons bitten by them. By J. Mellis, M. D.	90
VIII. Half yearly Report (from 1st July to 21st December 1823) of the Medical Practice at Quilon. By K. Macaulay, Esq. Staff Surgeon,	109
IX. Case of Rupture of the Pulmonary Artery. By J. Adam, Esq. jun.	115
X. Abstract of the Contents of a Work on Chinese Medicine, compiled by order of the Emperor Kien Lung. By A. Pearson, M. D.	122
XI. Some Notices, illustrative of Chinese Medical Opinion and Practice in Paralysis. By A. Pearson, M. D.	137
XII. On Single Vision, and the Union of the Optic Nerves. By W. Twining, Esq.	151
XIII. Account of Experiments with three Species of Indian Serpents, with a view to ascertain the comparative Virulence of their Poison. By P. Breton, Esq.	170
XIV. On the Climate and Diseases of Bencoolen. By R. Tytler, Esq.	181
XV. On the Endemic Fever of Arracan, with a Sketch of the Medical Topography of that Country. By J. Grierson, Esq.	201
XVI. On the Treatment of Persons bitten by venomous Snakes. By Donald Butter, M. D.	220

	<i>Page.</i>
XVII. Medical Topography of the Districts of Ramghur, Chota Nagpore, Sirgooja, and Sumbhulpore. By P. Breton, Esq.; with an APPENDIX, descriptive of the Animals and Reptiles met with in the Districts of Ramghur, Surgooja, and Sumbhulpore, and of the principal mineral Productions of these Provinces,	234
XVIII. On the Burning in the Feet of Natives. By J. Grierson, Esq.	275
XIX. On the Native Practice in Cholera, with Remarks. By H. H. Wilson, Esq.	282
XX. On the Indian Penance of Gulwugty, or Churruck Pooja. By R. H. Kennedy, M. D.	293
XXI. Case of a Tumor in the Liver. By W. Thomas, Esq.	301
XXII. History of a fatal Case of Nasal Polypus. By R. Browne, M. D.	306
XXIII. Medical Topography of Aurungabad. By D. S. Young, Esq.	325
XXIV. On the Native Mode of Couching. By P. Breton, Esq.	341
XXV. Case of Hydrophobia, as communicated in a Letter to J. A. Maxwell, M. D. Superintending Surgeon, Bombay. By R. H. Kennedy, M. D.	383
XXVI. Report on the Efficacy of Sulphate of Quinine in Intermittent Fever, By D. S. Young, Esq.	393

APPENDIX.

Letter addressed to the Society by Major General Hardwick, on the Cyperus Rotundus, as a Remedy for Cholera,	399
Case of Paralysis of the lower Extremities, communicated by A. Gibson, M. D. Surgeon Bombay Establishment,	400
Extract of a Letter from Mr. T. G. Baker, on Hydrophobia, and a singular Absorption of the Bones of the Cranium,	401
Letter from Dr. Butter of Goruckpore, relative to the foregoing,	403
Communication from Dr. Wallich, describing the botanical Characters of the above Plant,	405
Extract of a Letter from G. G. Spilsbury, Esq. of Jubbulpore, describing an unusual Contraction of the Eyelids,	406

CONTENTS.

xxi

	<i>Page.</i>
On the Substances noticed by Mr. Grierson, (vide p. 278,) by Mr. Wilson, the Vice-President,	406
Extract of a Letter from Mr. Playfair, detailing a Case of Lum- bricus cured by the Mudar,	407
Account of the Use of Akund, or Mudar, in the Leprosy, by Dr. J. R. Vos,	409
An Account of the Meet'ha Zuhur, by the late Dr. W. Hunter,	410
Extract of a Letter from Mr. Bell of Moradabad, detailing a Case of Amputation for a severe malignant Disease of the Hand and Forearm,	411
Notice on a new Species of Daphne. By Dr. Wallich, . .	412
Extract of a Note from C. R. Barwell, Esq. Chief Magistrate of Calcutta, forwarding a Communication on the Employment of the Papeeta, or Faba Indica, in Cholera,	413
Extract of a Letter from Dr. Burt of Moorshedabad, detailing a Case of Hydrophobia in the Dog,	415
Extract of a Letter on the District of the Musoorea Tebba, and its Eligibility for an experimental Medicinal Garden, ad- dressed to Dr. Wallich. By Mr. Royle, Superintendent of the Sahurunpore Garden,	417
Notice on the Employment of Oil of Croton by the Hindoos ; communicated by W. C. Blaquiere, Esq.	419
Meteorological and Thermometrical Register, kept at Keitah, during the Months of January, February, and March 1825, by C. Mackinnon, Esq. junior,	420
Donations for the Library,	429
Ditto for the Museum,	430



OMISSIONS IN VOL. I.



List of Members.

LANGSTAFF, JOSEPH, ESQ. Deputy Superintending Surgeon, Cawnpore.
SIMMS, GEORGE, ESQ. Assistant Surgeon Civil, Moradabad.

List of Contents.

XXX. Case of a singular Tumor in a Native of Jessore, by Dr. Adam.



OBSERVATIONS ON THE FEVER

WHICH

PREVAILED IN CALCUTTA,

IN JUNE, JULY, AND AUGUST, 1824.

BY W. TWINING, Esq.

I BEG permission to lay before the Society a few observations on the fever that prevailed in Calcutta and its vicinity in June, July, and August 1824, which I hope may be subservient to a more general history of that epidemic.

My chief reason for thus recording the principal features of the disease, as it occurred under my observation, arises from a belief that there were varieties in the symptoms, progress, and consequences of this fever, all of which may not have fallen under the notice of any individual practitioner; and where so many medical men were at the time interrupted in their professional pursuits, while laboring under the disease themselves, we can hardly expect a correct and comprehensive history of it, unless a number will contribute their observations to that purpose.

The fever which prevailed in Calcutta in June, July, and August 1824, was equally remarkable, whether we consider the severity of the patient's sufferings at the time, the few out of the whole population who escaped an attack, or the very inconsiderable mortality caused by it. The characters of a febrile disease so peculiar, and in its results so unlike the epidemic or endemic fevers of tropical regions, surely deserves to be carefully recorded.

It will be readily admitted, that the seasons have considerable effect in modifying the character of disease, however questionable the mode may be, in which unusual atmospheric vicissitudes exert their influence. I should feel great diffidence in expressing an opinion as to the mode of action and precise effects which the nature of the seasons may have had in producing or modifying the fever in question : therefore, while stating the observations I have been able to collect, respecting the atmospheric constitution of the years 1823 and 1824, I wish by no means to place an unreasonable emphasis on their relation to the endemic of 1824, being satisfied with the mention of facts, concerning the importance of which the members of this Society will of course form their own opinions. Nevertheless it will appear, that there existed the co-operation of agents acknowledged to have great influence in the origin and transmission of morbid

miasmata. These agents are heat, moisture*, and stagnation, in a degree not accordant with the usual succession of the seasons in Calcutta.

In the year 1823, the hot season of April, May, and the beginning of June, was by no means remarkable for its intensity; and Calcutta was, according to the best accounts, quite as healthy in those months, as it usually is at that period of the year. The rains which succeeded, were believed to be rather more abundant than common; but by a reference to the register of the rain-gage kept at Calcutta, that belief is unsupported. The rains in the higher parts of Bengal, and to the westward, appear to have been remarkably heavy; for in the latter end of July, the Dummooda river overflowed, much beyond the usual height of its waters at that season; and the inundations in Bengal generally, were in consequence of the heavy rains in the districts just mentioned, more extensive than ordinary.

In 1824, the temperature indicated by the thermometer in April and May, exceeded but little that of the previous year; but the heat was of a more oppressive description to the sensations, and it was observed, that the occurrence of north-westers, which, usually, by their frequent return, cool and

* Although heat, humidity, and stagnation of the atmosphere prevailed at Calcutta previous to and during the epidemic, a state of atmosphere quite the reverse of humidity prevailed at Baroda, when a similar disease existed there in 1824. Vid. Appendix, Vol. 1st. p. 371.

refresh the air in Calcutta, and give at times a temporary respite from the burning heat, were remarkably rare in those months. The rains commenced unusually early: the first this season fell on the 18th May, after which there were six days of heavy rain, and four days in which light rain fell, before the end of the month, which gave a transient freshness to the air; but the intervals of the showers were extremely close and oppressive, and the evaporation great, resembling a hot steam rising from the earth.

For the data contained in the following table, I am indebted to Mr. Gibbon, whose general accuracy will be a sufficient pledge of its correctness.

The 8th column for each year in this table, shews the number of rainy days in each month; and of the figures placed fractionally, the upper number indicates the days when there was light rain, but no appreciable quantity collected in the pluviometer; the lower numbers shew the days of heavy rain.

It appears that there was more rain at Calcutta, in the above stated five months of 1823, by nearly one sixth, than there was during the same period of 1824: but the early rains in May and June of the latter year, exceed by above one half, the rains in the same months of the former year. However, the quantity of rain that fell during the whole of the two years referred to, was quite equal to the general average of rain annually in Bengal, which has been stated at 70 inches; (see page 40 of the introduction to Dr. Jamieson's compilation from the Bengal Medical Officer's Reports on Cholera.) By the same register, from which the above table is composed, it appears, that from the 1st September to the end of December, there fell 16 inches of rain at Calcutta in 1823, and 28 inches in the same months of 1824, making the total of each year above 70 inches. But it was not necessary to include those months in the table, which were subsequent to the cessation of the endemic.

I am sensible that it would have been more satisfactory to have given the average of the daily

temperature of each month at stated hours ; but I have not had access to registers kept expressly for that purpose.

There are states of the atmosphere which influence our feelings of health and comfort, and doubtless exercise an action on the human constitution, in a degree not to be ascertained by any instruments or scale hitherto invented. To some occult and not easily appreciable agency of this sort, may be referred a state of the atmosphere which occurred in the latter end of May, and frequently in June and July 1824, but in a more remarkable degree from the 4th to the 9th of July, and again on the first four days of August, when there was an intense glare of white light from the whole sky, extremely painful to the sight ; at the same time there was such a hazy state of the upper regions of the atmosphere, that the sun could with difficulty be distinguished. This was attended with an extremely close damp heat, more distressing than the heat of the brightest sunbeams I ever experienced. Can this effect arise from the transmission of the rays of light through a hazy atmosphere, and depend on the increased refractive power of the latter, bringing the rays through innumerable watery lenses, more perpendicularly on the earth in early parts of the day ; so that, conjoined with the influence of humid atmosphere, the effects of noonday sun are experienced at a

much earlier hour than when the sky is quite clear*? On both the occasions above alluded to, this state of the atmosphere just noticed, was succeeded by an increased frequency of the attacks, and by relapses of the prevailing fever in a great number of instances. It is true, that a similar state of atmosphere prevails at Calcutta, more or less every year, in those months; but its predominance in 1824 may be attributed to the early setting in of the rains in unusual quantity.

In the beginning of this year, there was a scarcity of grain in Bengal, and the price of rice rose considerably; but I am not aware that in the early part of the year, the native population suffered generally from disease. Cholera occurred in a severe and fatal form at some villages about 80 miles to the N. E. of Calcutta. I was informed by a gentleman residing at Callygunge, that the adjacent village of Chakoley had contained little more than 100 inhabitants, of whom 82 were known to have died of Cholera, within a few days of the time when I passed that place on the 11th April. And I was then told, that the inhabitants of the neigh-

* Numerous facts prove the increased refractive power of a hazy atmosphere: at the moment I recollect none more remarkable than the observations made in some of the mines in Sweden, where it has been found, that on hazy days a moderate sized print could be easily read at 100 yards depth, under the shaft of a mine; but on days of bright sunshine, there was difficulty in reading the same print at the depth of 60 yards.

bouring villages were at the time suffering from cholera, which was remarkable for the total absence of spasms. It was stated that many of the sufferers were, without any previous illness, seized with a vomiting, and after being purged once or twice, died in the course of half an hour after the attack.

During the existence of widely spreading epidemics, unusual mortality among animals has been considered a collateral proof of a contaminated atmosphere. Although I have not been able to ascertain that any general mortality occurred among animals, like the epizootics that have occasionally accompanied epidemic diseases in the north of Europe, it may be worthy of record, that the year 1824 was remarkably fatal to dogs in the vicinity of Calcutta; the sickness among those animals commencing in August. They were seized with loss of appetite, excessive thirst, violent action of the heart, that could be seen a considerable distance; and in some cases there was yellowness of the eyes and skin, with distension of the belly, though the dog had taken no food for several days. These symptoms were followed by a purging, which carried off the animal in a day or two after its commencement. On dissection, the stomach was found empty, the spleen "unnaturally turgid" with blood, and the liver streaked with dark purple and black. Various modes of treatment were tried, but found of no service. In one kennel, 10

couple out of 12 died. One gentleman lost 15 out of 16 dogs, and another lost 11 out of 12. In one pack of 47 couple, 43 couple died in two months; in these last the disease commenced in the beginning of October. I am indebted for the above information to the kindness of two friends, who paid great attention to this disease in dogs, and were much interested in the subject.

The earliest cases of the epidemic of 1824 that came under my observation, appeared on the 23d and 24th of May, a few days after the commencement of the rains. In the course of ten days, great numbers of persons were ill of the fever; and I have reason to believe, that before the end of June, nearly half of the population of Calcutta had been affected. Through July, the disease continued unabated; indeed from the 4th to 9th, as already observed, the numbers of attacks appeared much augmented: and although the little tendency to fatal termination was well ascertained, it was truly distressing to observe the numbers either laboring under the effects of first attacks, or suffering from relapses nearly equal in severity; as well as those who, though free from the more urgent febrile symptoms, were from debility totally unable to follow their ordinary occupations. Towards the latter end of July, the primary attacks of the disease were comparatively rare, there being few only at that time who had escaped the fever.

Relapses were frequent; a second, and even a third return of the disease have occurred to my notice. In general, the relapses did not appear equal in severity to the original attack; the febrile paroxysm, as well as the patient's sufferings from pains in the limbs, were in most cases less violent, and the cessation of pyrexia less abrupt; the effects of the relapse subsiding gradually in three or four days.

I do not know of any person in Calcutta who had a first attack of this fever, after the 11th August. In September a few bilious remittents occurred, but they were not of a dangerous character. And about the same time, some of those who had got well of the fever, were suffering from dysenteric affections.

The order of succession in which people were seized with the fever, will of course have some weight in the judgment we form as to the presence or absence of contagion; therefore it may be proper to advert to that circumstance. There seemed no certain succession in which the inmates of Europeans' houses were attacked. In early periods of the disease, it sometimes occurred that Europeans suffered first: in later periods, and when the fever had prevailed in Calcutta for some time, I believe the natives were frequently the first attacked; for then I was hardly ever called to the house of an European suffering from a first attack,

where I did not find that several of the native servants had already been ill. The quantum of exposure out of doors, seemed to have little influence in the early production of this disease ; for among natives, it often seized the Sirdar and bearers, who were only employed in the house, before it attacked the stable servants and others daily exposed to the sun, and in habits of active exertion. I think the Hindoo bearers and servants, who generally slept in their master's houses or compounds, were the first to suffer: while the Mahomedan servants, who mostly return at night to their own houses, were seized at more remote periods. In the house of one gentleman who escaped the fever, the whole of the servants who slept in the house, were attacked in June, and most of them had relapses: while the stable servants, who slept on the ground under a shed adjoining the stables, and were comparatively much more exposed, were not attacked until the beginning of August; and not one of them had a relapse, though they all suffered severely from the disease, and some of them had protracted convalescence.

In one house, a short distance from Calcutta, there was a family consisting of three Europeans. Two of them, who came daily to town in a carriage, suffered a severe visitation of the fever, being both taken ill at the same hour; while the third, who hardly ever came to Calcutta, and went very little out of the house, escaped the disease: but most of their

servants were affected. Another family of four Europeans, who were not attacked with the fever so long as they remained in Calcutta, went to Barrackpore on the 28th July. Two of them were taken ill on the 3d August, with the fever, which then prevailed generally at that place: and among the Europeans and natives of this family, only one person remained free from the fever. Not one of these had a relapse. In one family of five Europeans, one only had occasion to go much out, which was always in a carriage: this person was not attacked with the fever, until several days after the disease had affected the four females, who never underwent any fatigue, and did not go out of the house except in a carriage for exercise in the evenings.

I do not know that any proof can be adduced of the contagious nature of this disease: on the contrary, I believe it was not communicable from one person to another*; because it arose at the same time in remote parts of the town, and affected persons who had not had any communication with sick people. Its progress was not that slow and gradual march which depends on personal communication, and can often be traced. It more than once happened within my knowledge, that those most exposed to the contact of, and communication with the sick, had the disease later than

* A family of eight Europeans, (never before in India,) arrived from England on the 25th July. Not one of these persons had the fever, though the disease went through their servants.

others living in the same house, but not so exposed.

During the early periods in which the disease prevailed, its attacks were sudden, and without previous sensation of any deviation from perfect health; so that it often happened, that people had a most violent attack, with severe headache and burning heat in the temples, within three hours after having boasted of their escape from the disorder. At later periods of the epidemic, I have seen the approach of the fever indicated, the day before, by anorexia, languor, listlessness, and white tongue.

The fever usually commenced with a slight creeping sensation about the loins, presently succeeded by aching pains in that region; at the same time that the extremities became cold. The face was soon flushed, and forehead burning; intense headache followed, with suffused and watery eyes, and the whole countenance appeared bloated and swollen; and in most cases, there was a dry heat at the scrobiculus cordis among the earliest symptoms. I know of no case where the disease was ushered in by rigor, or actual cold shivering. In a few hours the tongue became loaded with a dense white paste, and it was generally many days before this thick coat of white mucus disappeared. Soon after the first accession of febrile symptoms, the pulse became remarkably frequent; it was in most cases above 100 per minute, within six hours

after the attack ; often more rapid: I once observed it 140 in an adult, whose usual pulse in health was 80. When the coldness of the feet went off, and the heat was becoming generally diffused over the extremities, the pulse was sometimes full ; but I believe never hard. There was extreme prostration of strength early in the disease, with rapid increase of the pains in the loins ; and at the same time severe pains in the muscles of the limbs, especially the legs ; attended with an extraordinary degree of anxiety and jactitation, and in many cases extreme febrile anguish, and aching in the back of the neck. In short, the suffering from pain was a leading feature of the disease.

The above symptoms went on increasing till towards the end of 24 hours, when the headache and flushed face somewhat remitted, and the heat became more general ; the extremities partaking of the feverish and burning heat, while the head was in some degree relieved.

On the second or third day, a large number of the cases were affected with a rash, bearing much resemblance to rubeola in its character ; which, in proportion to its early appearance, generally portended a farther mitigation of the more distressing symptoms ; especially if the efflorescence was uniformly covering the body and extremities. When the eruption was partial on the body, and less on the extremities, but increased about the chest, neck, and

face, there was, on the contrary, for the most part, some increase of feverishness, and more uneasiness and anxiety, with aggravation of headache. The specific appearances, as well as the period of accession of this eruption, were variable. In most cases, it appeared within 48 hours from the first attack, (seemingly distinct from the bloated suffusion of visage attending the first day of the disease,) and was for the most part considerably faded at the end of 24 hours more : though I have known some patients in whom the eruption continued two days, and in them it had more the aspect of urticaria ; affecting more particularly the extremities ; the fingers, hands, and feet, being swollen, red, and afflicted with a distressing itching and burning combined.

With remission of pyrexia after the second day, the headache became less, and the pain in the loins was attended with less jactitation ; becoming now a heavy dull aching. During the two first nights of the disease, there was little or no sleep, in consequence of the headache and general febrile anguish ; and for several nights more, sleep was in most patients interrupted by pains in the loins and legs, which pains now extended to the toes and fingers, slight exertion producing exhaustion, and slight movement occasioning headache. But I am not aware that any stage of the disease was attended with delirium. There was, in most cases, little thirst, and it was by no means commensurate with

the distress from the other symptoms. The perspiration, in early stages of the disease, was suppressed; and its return, with warmth in the feet, was usually accompanied by remission of all the more distressing sensations. The urine was copious and pale colored; evacuations from the bowels, even if frequent, were of a dark green color, glutinous, and scanty. I heard of one instance, where swelling of the parotid glands took place on the fourth day.

Young children, when suffering from the epidemic, apparently underwent a similar degree of pain and uneasiness, to that which affected grown persons: they had flushed face, watery eyes, burning heat of head, and cold feet; their hands were also, in the early part of the disease, frequently cold; and they generally had dry heat of precordia. Their pulse was extremely rapid, in some cases indistinct and weak. The early debility appeared too great to admit of much crying; but there was incessant moaning, and restlessness. In some slighter cases, they did not refuse their food through the whole course of the disease. Children remained in a state of debility for many days after the cessation of this fever.

Females in various periods of pregnancy, underwent this disease in its severer forms, without any tendency to abortion, in any case under my observation.

I should particularly advert to the tardy recovery of the majority of patients, and the tendency to repeated relapses, among both Europeans and natives: the protracted debility and long continued pains in the ancles, and dull aching in the joints of the fingers and toes, were almost invariably complained of, for many weeks after the cessation of the fever. Although the more urgent febrile symptoms, for the most part, remitted in less than two days, I believe few were so fortunate as to pronounce themselves quite well in a month. It is true that many Europeans were capable of exertion much earlier, and got relapses: while natives, in a state of languor and exhaustion, attempted work, and were consequently repeatedly laid up.

In the above statement, I have described the severer forms of the epidemic. In general, it was a disease of extreme severity, as far as relates to the sufferings of the patient: but if we regard the immediate result as affecting life, combined with the general prevalence of the disease, it must be allowed to have been a fever of unexampled mildness. There were many cases of this disease of mild form, and where the suffering was much slighter; in fact, cases bearing considerable resemblance to the Febricula described by Manningham: except that the Febricula was unattended by such severe pains, was of longer continuance, and though often, (as far as concerned actual

suffering,) mild in character, and slow in progress, not unfrequently fatal.

In the treatment, during early periods of this fever, it required some reflection to abstain from V. S., when the severity of suffering, with great heat concentrated about the head and neck, were considered. But the absence of hardness in the pulse, and the want of those symptoms more especially indicative of local inflammatory action, as well as the protracted cold stage, authorised the omission of general bleeding: and the result justified the other measures adopted. In several of the earliest cases, in which the head was much affected, I applied a considerable number of leeches to the temples, which seemed to afford relief; but farther observation of the progress of this disease, by no means convinced me that this measure was generally necessary; as other cases, with symptoms parallel in nature and severity, were as speedily remedied without leeches. I apprehend the cause that general bleeding was not adapted to this fever, depended on the long continuance of the languid circulation in, and coldness of the extremities. These circumstances, in almost any kind of fevers, rendering such debilitating measures as general bleeding, or indeed any means of rapidly reducing the vital power, inadmissible; so long as the loss of balance of the circulating and calorific functions continue: and particularly during the continuance of any thing like a cold

stage. Experience shews, that in such stages of these diseases V. S. is not judicious, and cold affusion a very hazardous remedy. I can nevertheless admit, that in particular habits, where great engorgement of the cerebral vessels exists, a limited V. S. may relieve; when copious and free bleeding, such as benefits ardent or inflammatory fever, is by no means advisable. Hence the relief produced by leeches in some cases of the fever now treated of.

The treatment I pursued was, to stimulate the feet and legs, by having them well rubbed with aromatic spirit of ammonia, which was ordered immediately after the warm bath, or tepid affusion: a moderate dose of calomel was given, with an active dose of scammony and colocynth; the latter being repeated every 24 hours until free evacuations of more healthy description, and more natural color, were procured. It was truly surprising how long the stools retained a dark green color, while purgatives were daily administered. During such disordered state of the alvine evacuations, I am of opinion that purgatives, at the intervals stated, and in moderate doses, could not be repeated too often, provided their repetition did not produce watery evacuations. When the bowels were well cleared, and their healthy secretions restored, I did not find it requisite to repeat the purgatives oftener than once in 48 hours, giving them generally at night, and a mild tonic of

Infus. Calumb. in the day. With the above, the tepid bath was at all stages of the fever beneficial, and most grateful to the sensations of the patient.

The slight degree of thirst, and the little disposition to seek cool air or the use of the punka, were remarkable features of this fever. The headache was increased, and the pains in the limbs and loins were much aggravated, by cool air or the punka; these symptoms were relieved by using the tepid bath, or tepid affusion. One gentleman, on the fourth day of the disease, was so much better, that he thought himself convalescent; the efflorescence on the surface not having entirely subsided, though all the other symptoms had disappeared, except debility. At this time he imprudently went into a cold bath. Every appearance of efflorescence on the surface was repressed, and he was seized with headache, great prostration of strength and dejection of mind; his appetite did not improve, and he had a return of the pains in his limbs in an aggravated degree. These symptoms increased for several days, during which he took some active purgatives, combined with calomel and antimonials. At length an eruption of vesicles, having much the appearance of *Rupia Simplex*, shewed itself on the fourth day after he had used the cold bath: there were few spots on the body, but much of the eruption on the extremities. A succession of vesicles came out for 12 days, which only dis-

appeared at the end of a month, under an alterative plan of treatment.

The consequences of this epidemic were not only felt in protracted debility, and long continued pains in the limbs ; but, in several instances, tedious visceral disease, mostly of the subacute form, followed. One patient, who had treated himself while under the fever, or rather used no treatment but warm tea and confinement to bed, remained weak and languid for above two months ; and then suffered from an attack of subacute inflammation of the liver, with jaundice. Another patient, who had freely and repeatedly used purgatives for six weeks, during which the appetite and strength did not return, had an hæmorrhoidal affection, the prelude to an attack of subacute inflammation of the liver, with slight jaundice. Several adults, after having been for many weeks in a state of imperfect convalescence, remained pale and sallow ; and had a return of pain in the extreme joints of the fingers, at the same time with distension of the abdomen, anorexia, slight tenderness of the belly, and thirst, arising apparently from incipient visceral disease : which were removed by the use of repeated small doses of calomel, followed by brisk cathartics. One stout man, above 20 years in India, when convalescent, and on the ninth day after the commencement of the prevailing fever, was seized, on the 17th August, with severe bilious remittent ; which subsided after eleven days, leaving him in a state

of extreme debility, from which he slowly recovered.

Reverting to the question of the propriety of V. S. in this fever, though I did not venture to use the lancet in any case, I witnessed the effects of V. S. in some patients that had been bled by medical friends, who, in consequence of the severe headache, thought the omission of bleeding unjustifiable. A brief notice of these will serve to shew how ill the patients with the fever that prevailed this summer in Calcutta, bore bleeding; and prove the necessity of abiding by Sydenham's advice, in endeavouring to ascertain the character and tendency of the diseases of the season, and in modifying our general plan of treatment accordingly.

1st. A young man, a few weeks in India, had an attack of the prevailing fever, in its ordinary form, in July; and ten days after the pyrexia left him, a severe relapse occurred: in the early stage of the relapse, he was bled to lb. iss. which relieved the affection of the head, but did not remove the fever. He was for a month hardly able to walk, and in two months more he was not free from the effects of the debility.

2d. A stout and robust man, above 20 years in India, had a severe attack of the prevailing fever; he was bled twice, and had leeches to the temples: his convalescence commenced later, and his reco-

very was more slow than any other case I know of. He was suffering under debility, and œdema of the feet, ten weeks after the fever.

3d. A lady, aged about 25 years, and healthy previously, was recovering from a first attack of the fever, when she had a relapse ; and was then bled to lb. iss. ; used antimonials with calomel too freely, by which she was salivated to the most painful degree, and reduced to the lowest state of debility : she had a tedious convalescence, and four months after was suffering from debility ; and had rheumatism, with remains of mercurial irritability.

4th. A gentleman, of slight make, and extremely active mind, about 40 years of age, and two years in India, had a severe attack of the prevailing fever, among the earliest cases that suffered from it. He was bled at the arm, and had leeches to both temples in numbers ; the early stage of his convalescence was remarkably tardy, and he was hardly able to walk in six weeks after his first illness. He had one relapse.

Only one instance came to my knowledge where this fever proved fatal, and in that instance the disease was left entirely to nature. A Hindoo Sircar, about 50 years of age, and slight make, who was employed in the service of his Excellency the Commander in Chief ; was seized with fever, and removed to his home, where he died within 36 hours.

His relatives informed me, that from the commencement of the disease until his death, his feet remained cold, his head hot; there was also extreme anxiety and restlessness, with most distressing pains in the loins and legs, but there was no delirium.

While speaking at the beginning of this paper, of the fever which prevailed in Calcutta in the summer of 1824, I wish to express my opinion of its *peculiar nature*, only when contrasted with the usual forms of the endemic fevers of tropical regions: for besides the short duration of the febrile paroxysm, it had several symptoms in common with ephemeral fevers observed in Europe. Thus we find that Dr. Caius's account of the ephemera of 1484 in England, mentions its accession with severe pains in the muscles, and prostration of strength; also that it was attended by fogs, and an unusually humid state of the atmosphere.

Lommius speaks of the sudden accession of ephemera, without rigor, and not preceded by much loathing of food or propensity to sleep. See Lommius, *Med. Obs.* L. 1. Feb. Diaria.

The disordered state of the alvine secretions, which according to my observations accompanied the earliest symptoms of this disease; and as far as I could ascertain, might often be considered a precursor of the fever, is also common. Burserius,

in vol. i. Sect. 205, de Feb. Contin. says : Besides other evident causes, ephemera is excited when that which ought to have been excreted, is retained in the body, and acts on the sensibility and irritability of the system.

The pain in the loins, besides being generally in some degree present in all fevers, has been observed so predominant in some by Hoffman, as to make him believe that the cause of those fevers, was an affection of the nervous system, beginning in the spinal marrow, and gradually proceeding to other parts. See his Dissertation, de Vera Motuum Febrilium, indole et sede. As a cause of one symptom in fever, namely, pain in the loins ; how much may depend on altered vascular action, and disordered secretion in the duodenum, which intestine is closely bound down in crossing the vertebræ ? May spasmodic constriction, or other affection of the biliary and pancreatic ducts, which open into the duodenum, be in like manner connected with pain in the loins ?

The essential character of the fever which prevailed in Calcutta, in the summer of 1824, appeared to be that of increased arterial action with diminished power, in the early stage ; and protracted debility with proclivity to visceral congestion afterwards.

The result of my enquiries leads me to believe, that fevers in some respects resembling that just

described, prevailed at the same time in some other parts of India, where the situation was low, and in the vicinity of the sea, or within the Delta of great rivers; but not in central or upper India, nor in elevated situations. No such fever prevailed generally at Ghazee-pore, Patna, Dinapore, nor even so low down as Berhampore*. The latter place being within the low flat district of Bengal proper, and only 90 miles distant from Calcutta, might have been supposed under the influence of much the same sort of circumstances as Calcutta, with respect to atmospheric vicissitudes and exhalations. The inundations of 1823, at Berhampore, exceeded their usual extent at that season, quite to the same degree that then occurred at other stations in Bengal. The rains of 1824 did not set in at Berhampore, so early as at Calcutta. H. M.'s 87th Regiment had been 19 months at Ghazee-pore, when they proceeded from that place on the 10th June 1824 for Berhampore, where they arrived on the 27th of the same month. The corps was not attacked at either of these stations, with any similar fever; neither were the people of the bazars, or the native inhabitants generally, at

* This statement is confirmed by a communication from Mr. Proctor, Secretary to the Medical Board, and by a very obliging note from Mr. Savage, who in speaking of Berhampore, and the adjacent city Moorshedabad, where he was stationed, says:—"The rains of 1824 commenced here on the 12th of June. I am not aware that fever prevailed amongst the natives here in an unusual degree in June, July, and August. There were several cases corresponding with the Calcutta fever, amongst the Europeans of the station."

either of those places, visited by such disease. However, I understand that there were a few sporadic cases of fever, at several different stations, through the country; the leading characters of which, were so like the fever that prevailed in Calcutta, as to indicate the influence of some widely extended and general cause, modifying the nature of the fevers at that season.

A fever of an ephemeral nature, and somewhat similar to that which prevailed in Calcutta, afflicted the troops at Rangoon, at the time. It is worthy of remark, how the disease in two regiments at that place, presented characters essentially different, though modified by the reigning epidemic. I am informed in a letter from Mr. Orr, now acting Surgeon H. M.'s 89th Regiment, that, that corps left Cannanore early in April 1824, remarkably healthy; and arrived at Madras on the 11th of the same month: soon after landing, numerous bilious fevers occurred; and at the end of the first week after landing, cholera appeared in a severe and fatal form, carrying off several men. These diseases he attributed to the intense heat of the day at Fort St. George, where there was at night a strong land wind. On the 6th June, they arrived at Rangoon, after a passage of 16 days from Madras; during which about 40 cases of bilious fever occurred, and every patient recovered. On the 10th and 11th June, the regiment was actively employed against the enemy, and exposed to sun and heavy

rain alternately ; numerous instances of fevers were induced by this and subsequent exposures to rain. The disease continued in the form of bilious fever, from which the greater part of the regiment had suffered before the 16th August ; at that time the fever began to assume the intermittent, and in a few cases the remittent type. Early and free depletion by V. S. and purgatives, was the plan of treatment adopted.

Whatever impression the human constitution may have previously received at Madras, in the instance of the 89th Regiment, it appears to have been sufficient to perpetuate the character of bilious fever in the sick of that regiment at Rangoon ; while many men of H. M.'s 13th Regiment, which went from Calcutta, and arrived at Rangoon early in May, were affected by an ephemera, in many respects resembling the epidemic of Calcutta, but requiring V. S. and bearing it with advantage ; after which recovery was in the greater number of cases rapid. In a letter from Mr. Hamilton, H. M.'s 13th Regiment, dated 20th July, he says :—“The type of the fever which so generally pervaded the troops during the latter part of June and commencement of July, was purely inflammatory ; ushered in with more than usual artual pains. The disease yielded readily and early to bleeding and purgatives, leaving only a weakness of the knee joints, and painful rigidity of the tendo Achillis. Happily this form of disease, which indeed might

be termed ephemeral, has disappeared within the last few days. None of the cases with this mild form of fever died.”

The account of my experience of the fever in Calcutta in the summer of 1824, is taken from notes which I am in the habit of making at the time; to which a few general observations are added at the end of each month. In stating the results of my own observations to the Society, I by no means wish to question the testimony of others, who may have witnessed different modifications of this fever: on the contrary, my principal reason for offering these remarks, arises from a belief that the disease, in different circumstances, assumed various modifications; as occurred in the two regiments mentioned at Rangoon.

Not being in possession of data, from which to make a calculation with any pretension to accuracy, I am not able to state what proportion of the inhabitants of Calcutta may have escaped the epidemic fever of the summer of 1824. It has been estimated variously by different persons, from two to five per hundred. If allowed to form a conjecture from the result of my observation generally, I should be disposed to assume the smaller number as the more probable.

I have not been able to ascertain that there were any particular situations in the vicinity of Calcutta,

where a considerable number of the residents escaped the disease; so as to attribute their immunity from the prevailing fever, to the locality; for in all the instances of exemption that came to my knowledge, not more than one or two individuals in any house remained free from the disease. Nor did the mode of living, either abstemiously or freely, seem to have any influence in this respect. No description of constitution or temperament of body, appeared to be less susceptible than others, to the causes active in the origin and propagation of this fever. In fact, it appears very difficult to assign any cause for the immunity of the few who did not suffer from the disease, when it prevailed so generally. To assert individual insusceptibility in those instances, is no more than saying that they did not take the fever. Let us hope for valuable information on these matters from the observations of those who may have resided near the extreme points to which the epidemic extended, and who may have noticed on the one hand, the apparent causes of disease arising from locality or other external agents, where the fever extended: and on the other hand, observed the circumstances most likely to have influenced the state of health of the inhabitants, at the nearest places in which the residents generally remained free from this fever.

OBSERVATIONS ON THE EPIDEMIC

OF

JUNE, JULY, AND AUGUST 1824.

BY H. CAVELL, Esq.

NOTWITHSTANDING one of the members has already called the attention of the Society to the epidemic which prevailed so long in Calcutta, I may be excused following that gentleman, as I shall confine myself merely to the facts of the disease, as it appeared under my own eye, without introducing any speculations regarding it; for although I subscribe to the opinion, that by studying the causes of a disease, we arm ourselves with so many remedies, not only for the prevention, but removal of it; yet we are so much in the dark about those which operate in the production of febrile diseases, that in reference to the epidemic which forms the subject of this communication, it will be safer to confine myself to the phenomena of the disease, rather than enter upon speculations of doubtful utility.

Upon the symptoms and mode of cure, much may be said highly interesting, as almost every practitioner took a different view, and adopted a different

treatment of the disease. It is generally believed, that nothing of precisely the same nature ever existed in Calcutta before; but this, upon enquiry, I find to be not strictly the case, as I was informed by Conductors and others of the same class, that they were acquainted with the disease, and gave it the appropriate name of "the three day fever:" but the wide space through which its influence extended, attacking as it did Natives as well as Europeans, without regard to age, sex, or temperament, gave it at this season of its occurrence almost a new character.

I beg now to state, that immediately within the garrison of Fort William, not less than 300 cases of the epidemic were submitted to my exclusive charge, and that I studied with attention all their phenomena. If then I differ from my medical friends respecting treatment, I hope at least to be able to prove that some benefit resulted to my patients.

The symptoms which ushered in, and were characteristic of the various forms of this fever, were pretty nearly the same (except in the appearance of the skin,) whatever was the age or disposition of the patient. The predominating signs were a chilliness extending over the whole frame, quickly followed by a pain and weariness in the limbs, and a general sensation of stiffness and soreness, with a heaviness over the eyes, so excessive as to render the effort to open them painfully op-

pressive, and a headache which I believe to be perfectly indescribable. The conjunctiva was extraordinarily red, and suffused in a manner peculiarly characteristic of the disease. The skin was hot and dry, and not unfrequently covered with an almost uniform blush : in some cases indeed, it exhibited patches of an inflammatory appearance ; in others a papillary, and in one or two instances a vesicular eruption ; but very often little more than the flush attendant upon febrile excitement. The pulse was full and strong, and greatly accelerated ; the respiration hurried, and generally there was a disposition to vomit. The bowels were usually costive, the urine scanty and high colored ; while the patient felt frequent alternations of heat and cold, though the impression upon a bystander was, that he was experiencing uniform heat. The tongue in some cases maintained its natural appearance, while in others it was covered with a thick dirty white fur, always moist, although there was a general complaint of thirst ; and with but one exception, a disagreeably bitter taste in the mouth. These symptoms were succeeded by a considerable prostration of strength for many days. The first case I saw was that of a Staff serjeant, a fine strong muscular well-proportioned man, who told me that about two hours before I saw him he had been seized with a violent rigor, which lasted nearly an hour, and was succeeded by great heat and pain in his eyes, head, and limbs, but particularly in his back. During my visit, he complained

of most violent pain in his head, great throbbing in his temples, heaviness and stiffness in his eyes, so great as to prevent his opening them without difficulty; and when they were opened, the conjunctiva was greatly turgid with blood, and the eyes glassy: pressure increased the pain, but light did not affect them. The tongue was moist, but very foul: there was much thirst, and a most disagreeable taste in the mouth; and he had just vomited some bilious matter. The skin was covered with a bright scarlet blush, and excessively hot. The pulse 120, very full and strong; bowels regular, urine high colored and scanty. The pain in the limbs increasing, and being alarmed at the excitement, I abstracted from the arm about 30 ounces of blood, which occasioned fainting. I gave him a dose of calomel, and a mixture of senna and salts: this was about 2 P. M. At 7 o'clock, I again visited him. The pain was not decidedly better, though the pulse was much subdued, and the bowels had acted freely: the stools were black and offensive; the eyes had the same appearance as at first. I ordered 24 leeches to the temples, and a powder, composed of one grain of calomel, five of antimonial powder, and five of jalap, to be taken every three hours. At 5 A. M. the following morning, I found him much in the same state; pain rather less, skin cooler, and less red; but still hot. As the bowels had been repeatedly moved, I omitted the jalap in the powders which were to be taken as before. 7 P. M.

greatly better, but uncommonly exhausted; and as there was no heat, I gave him a mixture with Infus. Calumb. cum Sulph. Ether. The next morning the prostration was very great, and I gave him cordials. From this time he gradually recovered his strength, though very slowly. His wife was then attacked, and I treated her in the same way. But not being satisfied with the relief depletion afforded, I was led to think the stomach was materially affected, and that the heaviness over the eyes, the disposition to sickness, and the taste in the mouth, might be occasioned by disorder of that organ. I accordingly, in the next case, administered an emetic of Ant. Tart. and Ipec. as best calculated to prove the truth or fallacy of this opinion, and to form a guide for future treatment. The exhibition was satisfactory; an uncommon quantity of bile was discharged, and relief in the head and limbs immediately followed. I then gave every two hours a mixture of Ant. Tart. and Mag. Sulph. Latterly, however, I omitted the salts, relieving the bowels when necessary by a common cathartic pill; and I invariably found that all distressing symptoms readily gave way, and that in 36 hours the fever was almost entirely subdued, and the patient in a state of convalescence, without such excessive prostration of strength as in the two first cases. I ought to remark, that when no bile followed the emetic, the symptoms were not relieved, and it was necessary to repeat it.

In reviewing the disease as here described, it will, I apprehend, be found very difficult, if not impossible, to attach it to any class ; and the various opinions which have been formed of its nature, render such classification still more perplexing. One has considered it rheumatic fever, a second scarlatina, and a third synocha. Yet not to one of these does it bear more than a very slight resemblance. I will not occupy the time of the Society long by any attempt at refuting these opinions ; it will be enough to remark the grand distinctions. First, then, in rheumatic fever, the pain generally attacks one, two, or more parts first, and then often changes its seat. There is no eruption ; the face is not flushed ; there is seldom much headache ; and it has never, in my own experience, terminated so rapidly as this fever did. The joints too are most frequently the parts affected.

The resemblance to scarlatina, however modified, is if possible still less, as it has attacked indiscriminately those who have, and those who have not had that disease. And there were comparatively few cases in which the scarlet blush was at all apparent, and in many cases there was no eruption in the mouth or on the tongue.

I now come to the last opinion, of its being synocha. It is sufficient to observe, that synocha never run its course so rapidly ; and I cannot conceive, that when the vascular excitement runs so

high, as in the outset of the epidemic, in no instances should there have been such ill consequences as usually follow the former disease, more especially when we see the simple treatment by which the latter was cured.

Although some eruption was common, we cannot consider this an eruptive disease, since in a great many cases there was none. How unlike any former history of eruptive diseases, is it that the eruption should assume so many characters? In one case it belonged to the class *papula*; in a second *exanthema*; in a third *vesicula*; in a fourth *bullae*; and in a fifth to that of *wheal*. All of these varieties I have seen, and they were attended for a short time with the highest excitement of the vascular system, but which suddenly subsided, leaving the patient convalescent. It did not seem that the nature of the affection of the skin influenced in any degree the deviation of the disease. There were no marked stages; no changes which it underwent; it came on suddenly, and vanished suddenly, making its appearance in some cases simultaneously with the febrile symptoms, and in others not till 24 or 30 hours after; and in two or three, not till after all fever had subsided.

The mode of attack was peculiar, for there was no previous indisposition, no premonitory symptoms: it seemed as if something was applied which in a moment had the power of destroying the ba-

lance of health, and of producing a disease, the symptoms of which were truly appalling at first sight; yet in no instance, to my knowledge, was it fatal, let the age, sex, constitution, or habits of the person attacked be what they might. The succeeding prostration of strength and pains in the limbs, in many cases, were excessive; but as far as my own experience went, I am inclined to think they were the result of the treatment: for it is true, that where blood was abstracted, either locally or generally, the loss of strength was great indeed; which might reasonably be expected, since after such high excitement, debility was sure to succeed: and as bleeding did not cut short the disease, nor, I might almost say, mitigate the symptoms, it would necessarily exhaust the patient. To my not bleeding, then, may be ascribed the comparatively trifling debility my patients suffered. I saw several in whom depletion had been had recourse to, and they gave me very great trouble during convalescence: the powers of digestion were greatly impaired; there was considerable vertigo, with a tendency to fainting; and the patients were annoyed for some time by distressing dreams and bad nights, which were only removed by *Infus. Calumb. C. Sp. Æther. Sulph.* and the *Pil. Hyd. et Ext. Hyoscyami*.

It will have been seen, that as I became better acquainted with the disease, I did not even give purgatives except cautiously; and I think no one will question, that by exhibiting an emetic, without

either bleeding or purgatives, I wasted the strength of my patients as little as possible. One of the most peculiar features of this epidemic, I conceive to be, that notwithstanding the *apparent* symptoms of inflammatory affection of the head, such as the violent pain increased by pressure on the eyeballs, which, as I have mentioned, were turgid in an extreme degree, the light did not annoy the patient. I had one or two cases in which light was distressing; but in them the intolerance succeeded from other causes; they were delicate females, whose nervous susceptibility was extreme, and therefore cannot militate against the general fact.

In conclusion, I beg to observe, that my only aim has been to give a faithful delineation of the disease, and to bring to the notice of the profession the treatment I found best calculated to prevent the unpleasant consequences so much complained of.

ON AN EPIDEMIC FEVER,

AT BERHAMPORE.

BY J. MOUAT, M. D.

COMMUNICATED BY THE MEDICAL BOARD.

Presented Aug. 6, 1825.

ABOUT the end of March or beginning of April 1825, a fever, possessing peculiar and marked characters, appeared amongst the men, women, and children of his Majesty's depôt at this station, which is now generally known by the name of the *Epidemic Fever*. The suddenness of its attack, the redness and watering of the eyes, the acute pain in all the joints, rendered excruciating on the slightest touch, the scarlet or crimson efflorescence on the surface, its ephemeral duration, its not requiring blood-letting, &c. its sparing neither age, sex, nor habit of body, its seizing the acclimated as well as those recently arrived, stamp it at once a different disease from the remittent or endemic fever of Lower India.

In March we had six, in April nineteen, in May twenty-one, and June sixty-six cases, viz. five men, sixty-six women, and forty-one children, being a total of 112. Severe cases requiring treatment in hospital.

It was seldom preceded by languor, lassitude, nausea, vomiting, cold chills, or the tremors, which generally usher in fever; or those symptoms were so slight and rapid in their succession as scarcely to be noticed, since in general the individuals awoke out of their sleep, with great pain in the head, loins, shoulders, arms, wrists, hips, thighs, and ancles, and sometimes in the fingers and toes. The whole surface became suffused or flushed, the face scarlet, the eyes red, watery and heavy, great thirst, hot skin, white or furred tongue, with the edges, as also the fauces, red; respiration quick, pulse hard, quick and full, urine high colored, and bowels costive: sometimes bilious vomiting, bad taste in the mouth, and a degree of debility, restlessness, and universal soreness, rendering every position alike uneasy and intolerable, that was distressing to the patient, and alarming to the spectator. Want of sleep a very constant symptom, but little or no disturbance of the functions of the brain. In a few cases, the eyes were affected with ophthalmia; in others cough, with pleuritic affections; in two instances hepatitis, and in several pains, tormina, and tenesmus, evidently indicating the intestines to be implicated. In the very great proportion of the cases, the fever seemed the pure Synocha of Cullen. In general the remissions were perfect and well marked, though one, two, or even three paroxysms were observed in the 24 hours. Sometimes, however, it seemed one general paroxysm of fever from the first to its termination. Generally during

the second or third day an efflorescence appeared on the face, neck, chest, and often over the whole person, sometimes inducing a perfect remission of the fever, in others seeming to aggravate the state of excitement. In many cases, however, the discoloration of the skin was evident from the first; but in these cases the individual had been languid, heavy, or slightly ailing for one, two, or several days previous. In general, the eruption was exactly like the *Roseola* of Willan, appearing on the face, chest, and person, going off in two or three days, though in some instances it appeared more like the *Erythema Papulatum* of the same author; and in other cases I have seen it like the *Purpura simplex*, not disappearing on pressure, indicating it to be an exudation from the vessels, and not vascular distention. Occasionally, like the *Roseola Miliaris*, or *Lichen Tropicus*, only more florid. Some individuals had boils, and others small acuminate vesicles with hard bases, and four or five children were affected with urticaria, and large watery vesicles, sometimes forming ulcers, and in one case the sloughing was so deep, the ulcers so foul, and the fever so high, that convulsions came on, and the child died. In every case there was great debility, referable to the joints, and in a few cases swelling. Very small doses of calomel frequently induced disagreeable ptyalism. The efflorescence often excited a secondary fever, short in its duration, seldom lasting beyond 24 or 36 hours, but leaving an extreme degree of debility. *Bleeding* was only useful when

there was topical affection of the lungs, liver, or intestines, and even then in a lesser degree than could have been anticipated, considering the severity of the symptoms : for though in every case the fever was instantly mitigated or restrained by the venesection, yet the subsequent paroxysms were sure to be more severe and protracted, and the debility excessive. If the pain in the head was very aggravated, or continued with violence, four or six leeches to the temples, shaving the head, and applying cold to it, were sure to give speedy relief. In the ophthalmic cases, the leeches applied to the inner membrane of the eyelids, sufficed for the cure, with free and repeated purging. In fact, an emetic given at first, (which generally relieved the head and eased the pains,) followed up by repeated cathartics, such as the *Pulvis Jalapæ Comp.* ; *Sulphas Magnesiæ*, and *Infusum Sennæ*, together with the cold affusion, as often as the fever returned, appeared the most eligible treatment : since the cathartics moderated the pains in the joints and head; the cold affusion diminished the heat, the thirst and restlessness, inducing sleep and a copious perspiration, which was followed by rapid convalescence, and very little debility. Towards the close of the febrile state, the *Pulv. Antimonialis* did good ; and in several cases, after the fever had abated, the warm bath gave immediate and permanent relief to the painful joints. In one or two cases benefit was found from camphorated and stimulating liniments.

The almost universally happy termination of the disease, rendered the prognosis favorable. I have already stated that the suddenness of its attack, the appearance of the eyes, the pains in the joints, the cuticular efflorescence, the absence of delirium, its ephemeral type, and distinct remissions, distinguish it from the remittents of India.

The *pains* being fixed, without aggravation at night, and in most cases going off with the fever; together with the eruption, distinguish it from the rheumatism.

The *pains*, the appearance and progress of the efflorescence, the absence of disease in the tonsils, its non-contagious nature, its attacking the same person more than once, with occasional relapses, distinguish it from the European Scarlatina. Speedy restoration to health, where free purging and the affusion have been used, I have found as its termination. Chronic or protracted ailments rarely followed this fever, where purgatives were early and freely exhibited. Indeed one woman, who had long been ill with a host of chronic ailments, and had suppression of the menses, got a change after the fever that ended in perfect health.

No doubt excess in eating and drinking, exposure to the sun, irregularities of every kind, and an inflammatory diathesis, predispose to this affection. But its having attacked all ages, habits,

temperaments, sexes, the seasoned, as well as the unseasoned European, the abstemious native and sick in hospital, laboring under chronic and protracted diseases, would point out some very general and universal exciting cause; and I should suggest the atmospheric viscissitudes of the season, as the most probable predisposing, as well as exciting cause of this disease. I am led to this conclusion from the period of the year, when the frame is the most excited by the extreme heat, and consequently when the least change would be likely to make the strongest impression; and from the numbers who have imputed or traced its accession to wet, or sleeping in a current of air, when of course a slight variation in the temperature would be likely to suppress the copious discharge from the skin, and to induce that high state of excitement so observable in this fever; besides the known influence in all parts of the world, that alternations of a *hot*, a *cold*, or a *moist* air have on the human frame, when exposed to its influence during sleep, or a state of quiescence. I cannot deem it a new disease, since I have seen it before at this season, and at this station; though at Rangoon, only last year, and at Berhampore within these three months, did it ever appear under my observation as an epidemic disease, so clearly characterised, and in a manner to exclude or modify the prevailing endemics of the country.

The following communication, recently received from the writer of the above paper, furnishes

some additional facts regarding the fever which deserve to be known. He observes:—"I have little to add to the observations on the epidemic fever which the Committee of the Medical and Physical Society propose to publish. Called upon as I was by the Superintending Surgeon for a report on a disease which at that time excited considerable alarm, from its general prevalence and the violence of its attack, I limited my observations entirely to the depôt under my more immediate charge; not thinking it would have been laid before the Society, much less published amongst its Transactions.

In that paper, the disease is detailed as it appeared in March, April, May, and June. In July, it became somewhat less prevalent amongst the women and children of the depôt, decreasing in August, and entirely disappearing in September 1825. My inability to consult the records of the Berhampore hospital at present, prevents me giving the precise numbers of patients treated subsequent to the date of my former report; and my quitting that station in August, precludes my entering into minute details. In no way, however, did the characters of the disease change in the depôt, though in H. M. 31st Regiment, some little variation was observed, which I shall briefly notice. The left wing of that corps, (recently landed from England,) arrived at Berhampore in the first week of July 1825, and in a few days the epidemic ap-

peared amongst them. Mr. White, the Surgeon, was one of the first attacked, and with singular severity: so much so, that for the greater part of the month, his duties devolved on myself. In the 31st Regiment, out of 18 officers, two only escaped this epidemic; and amongst the men, it was alike prevalent and severe. In them, bleeding was often found serviceable, referable perhaps to that high inflammatory diathesis so characteristic of all the diseases incident to new comers. Catarrhal and pneumonic symptoms were very prevalent, owing no doubt to their being young men or recruits, at an age peculiarly predisposing to pulmonary affections. The disease in every respect appeared the same, modified probably from their being unseasoned, and not having been in the country more than two or three months.

I also thought the eruptions continued longer, appearing in many cases with minute vesicles, ending in a scurf-like or branny desquamations of the cuticle.

I cannot say that medicine in any case at once cut short or arrested this disease. In this respect it appeared to be governed by some peculiar laws, as distinctly marked as what we see take place in the contagious Exanthemata. The fever in no instance lasted less than three days, and seldom continued beyond the sixth or eighth day. What its progress, duration, and termination might have

been amongst the European men, women, and children, had it been left to its own course, I am not prepared to decide. Amongst the natives, I had ample and convincing proof, that the disease was protracted and severe, when no remedies were used. The evidences in support of this statement were, the emaciation, the debility, the pains, the swelling of the extremities, and longer duration of the disease, in those who trusted to nature. Whereas those who got an emetic, and were freely purged, recovered in a few days, and were engaged at their usual avocations or employments, as soon as free from the fever. To this there were very few exceptions.

Note by the Secretary.—The epidemic described by Dr. Mouat, was not limited to the station of Berhampore, but visited many other places on the banks of the river, during the rains of 1825. It was particularly severe in the large and populous towns of Patna, Benares, and Chunarhur. At the last place, and in its immediate vicinity, not fewer than 10,000 natives are stated to have suffered from the disease at one period. Mr. Robinson, Superintending Surgeon of the district, in his communications to the Medical Board, thus describes the fever.—“ Within the last six weeks or more, (his letter is dated 18th August,) an epidemic fever, of a rheumatic character, has prevailed generally, from Buxar to Benares, Chunar, and Mirzapore, at which places, as well as at this station (Ghazeepore,) hardly a person of any age or sex, whether European or Native, has escaped. It has generally commenced with severe pain in the loins, wrists, and ancles, unusual drowsiness, and headache. It seldom continued beyond four days, but has been followed universally by great prostration of strength. It usually gives way to purgatives and emetics, frequently repeated; and in a variety of instances, warm bathing has proved of essential benefit. There has been, in many cases, an accumulation of bile. In several the head has been much affected, and in such where the habit was full, early and copious depletion with the lancet, has been followed by the best effects.

50 ON AN EPIDEMIC FEVER AT BERHAMPORE.

It first commenced at Buxar, and has been since gradually advancing up the river to the other stations on its banks. It appears to be confined entirely to the course of the river, as I do not hear that the population of the towns and villages inland have suffered more than usual. Numbers of the soldiers of the European regiment at this station have been attacked, and from 15 to 26 are daily coming into hospital. The whole regiment, I imagine, will feel its influence."

A CASE
OF
HYDROPHOBIA, WITH REMARKS.

BY J. GRANT, Esq.

Presented Dec. 4, 1825.

PERMIT me to bring under the notice of the Calcutta Medical and Physical Society, a fatal case of Hydrophobia, which lately occurred in the General Hospital. Although from the peculiar obstinacy of the patient in this instance, there was little opportunity of trying the curative means usually resorted to, with the least chance of benefit;—still I think that every case of such a formidable disease ought to be submitted to the members of the profession at large, in hopes that something may be elicited from individual and collective genius and enquiry, which, by the mercy of Providence, may eventually lead to the discovery of some certain antidote to the rabid poison.

In going round my wards on the evening of the 14th October last, I was called upon to prescribe for Alexander Cameron, a man attached to the barrack department of Fort William. His age was about 40. He was a middle sized man, of coarse features, and with that peculiar flushed

and bloated appearance, which betokens a man of intemperate habits. He was a native of Ross-shire in Scotland, and spoke the English language imperfectly. It is of some importance that the fact of the man being a native Highlander should not be forgotten.

He complained of headache, and oppression about the precordia—skin clammy—pulse creeping—tongue red—manner discomposed.

R. Hydrargyri Submuriatis

Scammoniæ

Extracti Colocynthis Compositi, singulorum,
grs. v.

On visiting him next morning (15th October,) he complained, in addition to the symptoms already mentioned, of what he called a *stoppage* at the top of the sternum, with some difficulty of deglutition. I ordered ten leeches to the top of the sternum, and the Mistura Sennæ Comp. until the bowels should be well cleared out.

On my evening visit, I found him depressed and anxious, with some appearance of confused ideas, which I attributed to the effects of drinking. He complained of the utmost difficulty in swallowing; and his manner of speaking and breathing, indicated considerable spasmodic affection about the larynx. At the moment a suspicion of hydrophobia glanced across my mind; and I asked if *he ever had a complaint like the present one before*. He an-

swered in the affirmative, which induced me to waive a question respecting being bitten by a rabid animal, lest it might unnecessarily alarm him. He stated, that he forced down a portion of the purgative mixture, which procured a motion. Pulse small and creeping—skin having a clammy cold feel. Habeat statim Balneum tepidum, dein sumat Haustum

Tincturæ Opii, m. 40.

Spiritus Etheris Sulphurici, dr. i.

Misturæ Camphor, oz. ij.

Next morning (16th October) I found him in much the same state as the previous evening. Skin cold, and damp with sweat—oppression of the chest increased; and when he spoke, it was with a species of reduced whooping sound, similar to what we hear in pertussis. His manner was gloomily desponding, without what we properly call fear. I spoke to him in his native language; and told him not to be cast down, that he should yet do well. He replied in the same tongue, that he felt obliged to me for my kindness; but that he was sure he must die. I did all I could to remove this impression, but with little or no effect; for he still shook his head; and repeated, that he was certain he should never rise from that bed. I again asked him if he was *sure* whether he had ever labored under similar symptoms; and he answered, as on the former occasion, in the affirmative. My idea now was, that my patient labored under *delirium tremens* from drinking, which might have either

brought back a former asthmatic complaint, or occasioned a morbid sympathy of the lungs. I ordered a large blister to be applied to the breast, and the following to be administered :—

R. Pulveris Antimonialis, grs. viii.

Camphoræ, grs. iv.

Opii, gr. i.

About the middle of the day, I was called upon by the Apothecary, who told me that Cameron refused his medicine, and wanted to speak to me. I went immediately, and found him in much the same state as in the morning, with the symptoms aggravated. He was perfectly sensible, though anxious ; and began by asking my pardon, in his native language, for having deceived me. How so ? I enquired. He replied, that he had given me a false account, in stating that he had been similarly affected before ; and that to take medicine, or to trouble himself was useless, since the fact was, he had been bitten by a mad dog. He then, in a perfectly collected manner, told me, that about two months before, seeing a greyhound near one of the gates of Fort William, he went to try and catch it, it being a part of his duty to prevent dogs getting into the Fort ; that the dog turned upon him, and bit him on the inside of the thumb, toward the palm of the (right) hand. That he had not the most distant suspicion of the dog being mad, and consequently took no care about the wound, which healed quickly. That some two or three nights before admission into hospital, feeling thirsty, he seiz-

ed a vessel of water ; but that his hand twitched to one side, and he felt in putting it to his lips, as if he would choke. That this feeling only arose in attempting to drink ; and that on experiencing it, he instantly was struck with the conviction of having hydrophobia, from the bite of the greyhound.

Having thus got a direct key to the cause of the man's malady, I perceived the symptoms of confirmed hydrophobia perfectly established. His skin was cold, and moist with sweat. He breathed laboriously, and with a whooping sound. His pulse was small. He complained of great thirst, and lamented the impossibility of quenching it. His lips were dry, and covered with a white frothy saliva. His manner, when let alone, was gloomily restless and anxious ; and his imagination was impressed with the prospect of inevitable and speedy death. I took up a jug of congee water which lay near him, and requested that he would drink of it to quench his thirst. He in a hurried manner threw out his hand in an attitude of horror ; and with an expression of great distress, begged of me to lay down the jug. I poured out some of the contents of the jug into a glass. The sight appeared to torture him : his face assumed the look of a man laboring under extreme nausea. I reiterated my request that he should taste the liquid ; on which he ejected a great quantity of the ropy saliva already mentioned from his mouth—his chest heaved—the whooping sound became stronger—

and he rushed wildly and passionately out of the ward.

After he became more calm, I mixed the following draught:—

R. Tincturæ Opii, dr. ij.

Sp. Lavand. Comps. dr. i.

Aq. pur. dr. ij.

Ft. haustus.

Small as the draught was, the sight of it distressed him excessively; and on my urging him to take it, he attempted to bite me. Immediately afterwards he begged my pardon in his native language, and entreated that he might be allowed to die in peace. Do not, Sir, he continued, desire me to take any thing, lest I may lose my reason, and do something improper. An old comrade of his now came, and sat by his side. His wife was also near him. He seemed anxious to settle his affairs, as he was sure, he said, he should die that night. He had a paper in his hand, which I believe was his will. He was perfectly sane, when not urged to swallow any thing; but the moment that the wish was expressed of administering any medicine, he would become irritable and fretful; and on the least shew of forcing it upon him, would fly out into an uncontrollable paroxysm of madness, while a large quantity of ropy frothy saliva ran from his mouth. The sight of liquids, and indeed the mention of them, appeared to have a direct sympathetic power over the salivary glands. On rejecting the draught, I

offered him a pill, consisting of two grains of the extract of Belladonna; but this too he swore he would not take. I next proposed blood-letting; but, as before, he rushed out of the ward, crying wildly at the very idea of the thing. In the course of the day, attempts the most urgent were made to make him submit to various remedial processes; but all in vain: he was obstinately bent against taking any thing whatever, or hardly to be touched, and prayed that he might be left alone, as he *must* die that very night. Among other things, I proposed friction with camphorated mercurial ointment; and explained to him how little trouble the mere rubbing in would give him. He shrunk from the application, however, with horror. I mentioned to him my impression, that a tobacco enema would give him relief; but I had no better success; and I did not feel that I was authorised to have recourse to physical force in the exhibition of any remedy, exclusive of the chance of benefit resulting from such a measure being faint in the extreme.

A more pitiable spectacle than this unfortunate man presented altogether, I have seldom beheld. His bodily sufferings were intense, and hourly on the increase. His face was flushed, and bathed with cold sweat. His eyes were shrunk in their sockets, but in a state of paroxysm induced by the sight or the offer of liquids. They protruded as if about to burst from his head. His extremities were quite cold, and his pulse was feeble and creeping. His

nervous system appeared in a state of delirious tremor. His movements were agitated and anxious; his respiration difficult, and stertorous; and his parched, dried, livid lips, evinced the raging thirst which he in affecting terms lamented could not be quenched! His mind being as it were in an unbalanced state between sanity and insanity—before him he saw inevitable death—but he did not fear it, and only begged as a favor to be let alone, since all attempts to avert the doom which he considered certain, must be only a source of useless annoyance.

I ought to have sooner observed, that the cicatrix of the fatal bite was distinctly marked by a purplish line on the inside of the metacarpal part of the thumb.

Remembering the recorded experience of Signore Marochetti, an Italian surgeon in the service of Russia, who about the year 1813, had his attention directed by a peasant in the Ukraine to certain pustules under the tongue, which were said to be invariably attendant upon rabies, I examined Cameron's mouth, but saw no pustules whatever, nor was there any appearance of inflammation in that part. Accordingly, had the remedy been perfectly convenient, and supposing that the man would have submitted to have the pustules opened, had they been there,—and supposing that he would have abided by the necessary directions for gargling with a strong decoction of the *Genista*

lutea tinctoria, (the newly discovered specific of the Russian peasant, so much lauded by Signore Marochetti,) still this case was one in which the remedy was not indicated, since the pustules on which it was supposed to act, were not in existence under the tongue.

About eight o'clock in the evening, (16th Oct.) Cameron appeared more calm, and even consented to have a vein opened. The pulse, as I before stated, was feeble and creeping; but as the blood flowed from the arm, it rose in strength, and acquired a more natural feel. After twenty ounces of blood were abstracted, he got impatient, dragged away his arm, and insisted that no more should be taken away. On the whole, he appeared rather relieved than otherwise by the depletion. He stubbornly persisted in declining all medicine.

Next morning, (17th Oct.) when seemingly in much the same state as the preceding night, he expired suddenly in a fit about eight o'clock. The bleeding appeared rather to hasten than to avert his fate. All attempts at remedy came too late!

The extraordinary obstinacy of the patient in this case, and his concealment for some time after admission into hospital, of the real nature of his malady, will appear extraordinary to those who may not be acquainted with the peculiarities observable in the uneducated Highlander. I have

considerable experience of these peculiarities, which will bear me out in my assertion, that, generally speaking, a more obstinate being than the uneducated Highlander exists not. In sickness, he is liable to apprehend the worst; and if he does so, will, according to constitutional bent, either take remedies with reluctance, or reject them entirely. When he *does*, however, indulge better hopes, he usually relies upon the skill of his medical attendant with a kind of superstitious devotion, similar to what has been observed among the Arab tribes. Highlanders, as is the case indeed with the natives of every country, have an instinctive dread of the bite of a mad dog, attended with a conviction, which nothing can set aside, or weaken, that a dreadful death must be the inevitable result, unless the bitten part be instantly cut out. To this conviction may the circumstance be attributed, of Cameron's disingenuousness in concealing his malady. He had made up his mind to die; and he considered, that, by withholding the real cause of his disease, he should not be annoyed with the exhibition of remedies. Had I not addressed him in his own language, I believe he never would have disclosed the fact of his having been bitten at all; nor does it appear that he ever disclosed it, until he did so to me. It may not be irrelevant here to mention, that rabies canina has sometimes proved dreadfully fatal in the Highlands and Islands of Scotland. I knew myself a man of the name of Grant, who in infancy had been made an orphan by

a catastrophe of this kind. He was the son of a peasant. His father, with a number of other men, was engaged on a fine summer day in the labors of the husbandman. While thus occupied, a mad dog came among them, and bit several of them in the face and hand. The cottage of Grant was near the field; and the dog, (after ineffectual attempts to overpower him,) made directly for it. His wife was sitting near the door, with her infant boy at her breast. She saw the dog coming towards her, open mouthed. Suddenly starting up, she threw her infant into a basket, or creel, which was suspended on the wall. The dog bit her severely, but missed the infant, who in advanced life told me the story. There being no surgical or medical aid available, all those whom the dog bit, perished. It is worthy of record, however, that some of them anticipated a dreadful death by a kind of excusable suicide, (if suicide can under any circumstances be excusable.) Having a most tremendous impression of the horrors of dying in a paroxysm of hydrophobia, Grant and his wife had their veins opened, that they might bleed to death. They bled to death accordingly, evincing throughout, the most calm resolution, and hopes of mercy in another and a better state. All this to common men of the world, and at this time of day, will appear scarcely credible; but as I know the story to be true, I deem it my duty to mention it to my professional brethren. I now proceed to the *post-mortem* examination of Cameron's body.

The body, as it lay on the cot, appeared to have become rigid in a state of spasm. The fingers and toes had stiffened in a state of contraction. The muscles of the face were drawn back, giving an expression of agony to the countenance. The face and chest were livid.

On opening the head, the vessels of the dura mater, and pia mater, showed a state of turgidity and plethora, such as one meets in fatal cases of phrenitis. There was no extravasation of lymph. On reflecting back the membranes, the cerebral mass had a more collapsed, and flattened appearance than usual, and its substance was certainly much softer than it generally appears. The lateral ventricles contained about three drachms of fluid. The cerebellum also seemed much softer than usual. The amygdalæ of the fauces, and the velum pendulum palati were enlarged, and red with inflammation. I took care to extract the tongue and pharynx, with as little derangement of parts as possible. My esteemed friend, Dr. Birch of the Madras establishment, and Mr. Palsgrave of the Bengal medical establishment, gave me their valued assistance in the examination; and we were all much struck with the appearance of the tongue and pharynx. The papillæ at the root of the tongue had assumed the appearance of pustules, some of them as large as the segment of a pea; while the entrance into the esophagus was not much larger than that of the male urethra! The papillæ, pustules,

or vesicles, or whatever they may be called, had a watery hue at top, and a purplish inflamed base. They were at the very root of the tongue, and I doubt if it could be practicable to open them all in life, even in a tractable subject. Are we to consider these as a variety of the pustules observed by Signore Marochetti?

The section of the abdomen clearly demonstrated, what I had heard before, that Cameron had been a hard drinker. Adhesions to a great extent had taken place in different directions. The liver was very small, excessively hard and *leathery* to the feel, and rather pale. The stomach and intestines were empty. The colon, instead of a transverse arch, had an irregular zig-zag flexure obliquely across, and hiding the stomach.

A CASE OF HYDROPHOBIA.

BY DRs. BROWNE AND ADAM.

Presented Feb. 5, 1825.

THE following case of Hydrophobia, drawn up from notes taken by Dr. Browne and myself during our attendance on the patient, is presented to our fellow members, as strikingly exemplifying the great lapse of time which may sometimes intervene between the date of the bite and the occurrence of the disorder. Other circumstances also connected with the cause of the malady, combine to give it peculiar claims to our notice; and I trust, even as a faithful record of symptoms, it will be found not unworthy the attention of the Society.—About four o'clock on the afternoon of the 21st January 1825, Dr. Browne received a note from Mrs. D., requesting him to visit her husband in the course of the evening; and at half past five P. M. another note reached him from Mr. D. himself, saying that he was very ill, and begging his immediate attendance. It was nearly six o'clock before Dr. Browne arrived at his house in Entally; and previously to entering the patient's bed-room, in reply to a question respecting her husband's illness, Mrs. D. informed him, that he began to feel very unwell about two o'clock, and said to her that he "*was going to get the hydrophobia.*" Having

also learnt that he had been bitten by a dog about *fifteen months* before, Dr. B. went into his bed-room, incredulous as to the existence of this fearful disease, after the lapse of so long a period from the receipt of the poison; but he was speedily satisfied that his unfortunate patient's apprehensions were too well founded. He was seated on a chair, and received Dr. B. with great calmness.

Having never met with a case of hydrophobia, he was very forcibly struck with the general appearance of the sufferer, as different from any thing he had ever witnessed. His complexion was peculiarly pale, his features rather collapsed, but intensely fixed, and his eyes expressive of the deepest thoughtfulness and alarm: the whole surface of the body felt cold and clammy; pulse about 130, feeble and variable. While making these observations, he spoke not a word, either to Dr. B. or to his friends. His eyes, however, were fixed upon him with the utmost intensity, not the slightest movement appearing to escape his keen and penetrating gaze. On being requested to describe as accurately as he could, how he had felt for some days past, he said he had been very well, had gone about his usual occupations, dined the preceding evening with a friend, and walked home after dinner, only suffering a great deal of pain in his left shoulder, which he considered as rheumatic, having experienced a severe attack of that disease in the opposite shoulder, about a year before. His

attention being pointed to a recent abrasion of the skin on the back of his left hand, and to a large scar on one of his fingers, he said the scar was owing to the bite of a horse received many years since, and the sore occasioned by his having accidentally hit a beam in the godown about a week ago. The injury caused great pain at the time, and was followed by a good deal of swelling, discoloration, and stiffness of several of the finger joints. The pain continued severe, extending up the back of the forearm to the elbow for three or four days, but gradually abated, and the hand and arm could now be used with perfect power and ease. As the hand and arm got well, the shoulder became affected, and for the last three or four days had been very painful. During the whole of the night, he had suffered extremely from the pain in the shoulder, which he attributed to his having been much heated by his long walk the preceding evening. He took his breakfast of tea and toast in the morning, but with little appetite. During the forenoon, the pain became excruciating, and extended up the neck as high as the ears. About two o'clock he asked for a cup of tea; but on seeing it poured out, felt very uneasy, could not look at it without great distress, and found every effort to drink it utterly fruitless. It was at this time that he made the remark to his wife which has been already noticed. Dr. B. did not question him respecting it, but merely asked if he had met with no other injury in the hand except those which had been pointed out.

He answered in the negative, made no remark concerning the nature of his complaint; and neither at this nor any subsequent period sought any opinion as to the character and probable result of the awful disease under which he was suffering.

While giving the foregoing account, Mr. D. maintained a wonderful degree of composure. It was only when mentioning the incapability of drinking the tea, that the peculiar expression of the eyes and countenance became strikingly heightened. Perceiving his increasing distress, Dr. B. endeavoured to prosecute his further enquiries in the most cautious manner; and again drawing his attention to his shoulder, asked if it was still painful. He replied, that all the pain he had undergone from the former attack of rheumatism was nothing to what he was now enduring in the shoulder and neck. This suffering, however, was not aggravated by pressure or motion: he bent his neck, and raised his arm, with perfect ease; nor did his countenance exhibit that expression which always indicates the existence of acute bodily pain. He was requested to make a deep inspiration, and to say whether he felt any acute pain in the chest. He did so without apparent difficulty, answered in the negative; but remarked, that he could not say he had no difficulty of breathing, while he felt so strange a sensation in his throat. "Though there is something heavy on my breast, all the difficulty lies here," pointing to his throat. There was no headache,

nor any appearance of determination of blood to the brain: the intellect remained sound and active. Though the bowels had not been moved during the day, there was neither tenderness nor distension about the abdomen. The tongue was white and moist. There was no appearance of pustules, either under the tongue, or about the fauces. At this period he did not complain particularly of thirst, swallowed solids, and honey and jelly, without any difficulty; but water and every other liquid were objects of the utmost abhorrence. It was requested that he would make an attempt to drink a little water, in order to shew what effects it produced upon him. He very readily complied. A wine glass, nearly half full of water, was placed on a teapoy at arms-length from him. He clenched his teeth, fixed his eyes upon it, and continued to gaze wistfully upon it for some time. At length he grasped the glass, and succeeded in carrying it nearly half way to his lips, without much tremor, or convulsion of the arm or throat; but as the fluid came nearer his mouth, the arm shook violently, the lips quivered, the nostrils became expanded, he seemed to struggle for breath; and in making a resolute attempt to bring his now opened mouth to the glass, his arm was furiously extended, and his head thrown back in the most horrid convulsions. Some minutes elapsed before he became tranquil, when he renewed his attempts to drink; but every effort produced the same distressing results: and after these vain endeavours, even the sight of the water, particular-

ly when shaken in the glass, renewed all his miseries, agitating him in a manner the most painful and appalling to witness. A vein was now opened in the arm, and between 40 and 50 ounces of blood were abstracted *pleno rivo*. The instant the blood flowed from the orifice, he started in the same manner as when a liquid was presented to him; but this aversion speedily subsided, and he experienced no further uneasiness during the operation, which was succeeded by a slight degree of syncope. On recovering from the syncope, it was found that he could bring the cup nearer to his lips, but was still unable to swallow a drop of its contents. Turpentine enemata were ordered, with a view of opening his bowels; and he was directed to take 15 grains of calomel, with six of antimonial powder, and one and a half of opium, every four hours, and to rub in mercurial ointment very freely over the thighs and abdomen. Between 11 and 12 at night, I accompanied Dr. B. in his visit to the unfortunate patient. On entering his chamber, we found him sitting up in bed, supported with pillows behind; his countenance pale, but calm; the eye steady, yet indicative of an emotion, as well as his whole aspect, not easily described, but approaching nearest to alarm. It was in short the true hydrophobic expression, which instantly recalled to my mind what I had witnessed in other cases of the disorder. His brow was slightly bedewed with sweat, the surface cold, pulse 124, small and fluttering. He spoke quite rationally, and de-

scribed his sensations with the utmost clearness. Since Dr. B. had visited him, he had in vain attempted to sleep. No sooner, he stated, was he about to fall into a slumber, than he was attacked with a feeling of suffocation, which compelled him to start up suddenly in bed, and utter a loud cry or moan. Being questioned in regard to his sleep for some time past, he observed, that he had been oppressed with frightful dreams for several nights, and that last night he had not slept for five minutes together. He swallowed a bit of dry biscuit without difficulty, and could now bear the liquid to be brought to his lips, although attended with an expression of horror; but not a drop could be passed into the mouth, each trial exciting convulsions of the face, arms, and neck, which from his gestures evidently occasioned great distress to him. We repeatedly urged him to make the attempt; and although he uniformly complied with our wishes, he never could succeed in getting the liquid to enter the mouth. In this respect, however, Dr. B. remarked, that he was much improved, compared with the state he exhibited previous to the bleeding. What appeared extraordinary, he could swallow his saliva without difficulty. The medicines were ordered to be continued in the same dose, with an interval of three hours, and the injunction to be repeated as before.

At our visit about eight o'clock the following morning, (22d,) we learnt that he had passed a rest-

less night, and not once closed his eyes since we left him. His expression was not so full of apprehension ; but the countenance still continued pale ; skin now of the natural temperature ; pulse 124, not so small. The medicines had been taken every three hours as directed, and four ounces of mercurial ointment in all rubbed in. He had been twice moved in the bowels during the night ; the evacuations, by the account of the attendants, presenting a natural appearance. He complained of being sick, and vomited once or twice, which appeared to proceed from the antimonial, combined with the calomel. He could introduce into his mouth a piece of rag moistened with *warm* tea, and suck the liquid from it, and in this way was enabled to obtain some relief ; but although he could bear the cup to be brought nearer than formerly, without the same degree of aversion, he found it utterly impossible to place it in contact with his lips. The bare mention of the attempt first excited distress, which he endeavoured to subdue ;—a slight convulsion got over, he then steadily looked towards the cup, fixed his eye on it, and made the effort, after a pause of a minute or two ; but when by a motion of his arm, the vessel was brought within a certain distance of the mouth, the whole train of horror and convulsions was renewed by it ; and he was irresistibly compelled to force it from him. The respiratory organs appeared much affected. A convulsive inspiration was first made, as if a great weight pressed upon the

chest; the *alæ nasi* became contracted; his visage altogether lengthened; and the eyes, fixed on the object of his aversion, were peculiarly expressive of the distress both bodily and mental under which it was evident he labored. The act of inspiration, thus partly involuntary and restrained, was attended with a sort of hissing sound, and followed in expiration by a loud and sudden groan. The pupils, which at first were preternaturally dilated, were now rather contracted, and remained so during the progress of the case. The same treatment was pursued, with the exception of the antimonial, which, on account of the nausea produced by it, was now ordered to be discontinued.

At 12 o'clock, very little alteration in any respect had occurred. The room being darkened by the venetians having been closed, he observed, with reference to my counting his pulse, that the light, when freely admitted, distressed him in the same manner as liquids, but the effect was only a momentary one. He preferred, however, having as little light as possible in the room. A looking-glass having been asked for purposely in his hearing, in order to ascertain the effect it would produce on him, he was immediately thrown into the greatest distress by the mention of it, and earnestly begged it might not be brought into the apartment. The application of any thing cold to the surface, was observed to produce a similar effect; and when the mercurial ointment first touched the skin, a degree

of horror was also excited, which ceased as soon as the business of inunction commenced. The same watchfulness continued, with the pulse and heat of surface, as at the morning visit. He had taken a good deal of tea by means of the rag, and at my suggestion wished to try some tamarind sherbet. He had also eaten some biscuit with currant jelly; but still suffering from sickness at stomach, he felt no inclination for more. When any allusion was made to food or drink, his attention, I observed, became immediately arrested, and with an intense anxiety of manner, he directed his looks towards the table on which the article was placed, eagerly following every movement of the person who was about to fetch it, till brought within his grasp, when he seized it in the manner described. His tongue was minutely inspected, both last night and this morning, with a view to any change of structure which might have taken place; but nothing peculiar was observed. It continued lightly furred, of a whitish color, as at the commencement of the attack. The medicines were ordered to be repeated, and preparations were now made for accelerating their effects by means of fumigation. On calling to see our patient at six P. M. or a little later, I found he had just had a scanty evacuation of the bowels, of a dark color and slimy consistence. His countenance was more anxious than before; and from the report of the attendants, it appeared that since the visit of Dr. B. (at three P. M.) his malady had considerably advanced. It was stated, that soon after three,

without any exciting cause, convulsive strugglings attacked him more violent than the preceding, attended with loud cries and sonorous breathing; and it seemed to be the opinion of every one around him, that the symptoms were hourly increasing. His manner, however, was extremely composed: he spoke rationally, and made distinct and appropriate replies to every question put to him concerning his sensations, and what he had swallowed in the interval of the visit. He had taken more tea in the way described, and attempted some thin sago, but could not pass the smallest particle into his mouth. He complained of shortness of breathing, and felt slightly squeamish. On this account it was deemed advisable to delay for a little giving him his medicine, although the usual time for administering it had now arrived. After waiting a few minutes till the stomach was settled, and he expressed a wish to take them, the pills (in which form the calomel, &c. &c. was administered) were presented to him, when he swallowed the first without difficulty. The second was also taken into the mouth unaccompanied by any expression of aversion; but when it appeared to have reached the pharynx, and the effort at deglutition was made, a convulsive fit was excited by it, which caused him to start suddenly on his knees, and grasp the bed-post with both hands. In this position he struggled hard with the convulsions, uttering at the same time the most piercing cries, and ejecting with violence from his mouth a little thick viscid

saliva. He then sank down on the bed, pressing in his agony his head between the palms of his hands, or catching at whatever was nearest him; and if a momentary calm occurred, it was only to be followed by a repetition of the same distressing paroxysms. All this while he retained the perfect possession of his senses, and repeatedly expressed to me, in a hurried tone, that he could not help his violence, and entreated that we would make allowance for his distress. “Could we not give him assistance”—“He must be suffocated”—“He would die”—“God almighty look down with mercy on his sufferings!” Such were the exclamations uttered by this unfortunate individual, in an extremity of anguish that no words can convey an idea of; and surrounded as he was by his afflicted family in tears, the scene altogether presented was the most harrowing to the feelings that has ever fallen to my lot to endure. In about half an hour the convulsive fits appeared to have intermitted. He said he had now swallowed the pill, but dreaded the suffocation would return. He sat down on the edge of the bed, having two or three Bearers on each side, partly for the purpose of restraining his violence, and partly to afford him support as he leaned forwards in that position. In the mean time, I retired into the other apartment to meet Dr. Browne, who had just arrived, and directed his friends also to leave him, as I observed that the sight of any one, or the mere attempt to speak to him, brought on a slight recurrence of the

paroxysm, while the presence of the servants alone was not productive of the same result. During the few minutes that elapsed while we were consulting together, he remained tolerably tranquil, and on my return to the apartment along with Dr. B. we found him sitting in the same posture, and clinging with one arm to the neck of a Bearer. He seemed afraid of a relapse, and unwilling that we should approach him. On our attempting to feel his pulse, he at first withdrew his arm, then again hastily offered it, and seemed to intimate by his manner, that he did not wish to be rude, but could not restrain himself. While we were in the act of ascertaining the pulse, he suddenly sprang on his feet, and stamped with the greatest violence on the bed steps; then extricating himself from the Bearers, and dashing aside the screen interposed between the bed and the door of the apartment, he rushed quite frantic into the outer hall. It was in vain the attendants attempted to restrain him. He offered violence to no one; but seemed to be endued with insuperable muscular strength, and hurried along by an impulse that nothing could control. The frightful cries he now uttered, coupled with an occasional remark which escaped him, that it was a "dreadful death," served to fill all present with mixed sensations of pity and horror. After running about the room, he would suddenly fall down, and roll himself on the floor, and in an instant start up again. At length, when the paroxysm was abated, he suffered himself to be led back to his bed-room, and sat

down for a few seconds till another paroxysm came on, exceeding in violence all that had gone before it, and drove him once more into the outer apartment. The same distressing scene was again exhibited, in a manner too painful to dwell on, even in the recital; and the tragedy was brought to a close by his finally sinking on the floor in a state of complete exhaustion. While he lay in that situation, pillows were placed under his head, and the attendants remained by him to prevent his rising, should he again attempt it; but restraint was now wholly unnecessary. Nature, unable to bear the contest any longer, had at length given way; and a collapse, the immediate precursor of dissolution, succeeded to the convulsions. His breathing was now free from spasmodic constriction, and laborious from weakness alone. There was a slight rattle in the throat, and a frothy saliva flowed from the mouth. The pulse which, during the preceding paroxysm, had been extremely feeble and irregular, was now imperceptible at the wrist, and its action slow and labored in the carotids. For about a minute, it appeared to acquire an increase of strength, so as to afford a slender hope that the patient might yet rally; but at the next examination, the heart had ceased to beat; and the stamp of death was visibly imprinted on the countenance. Thus, in the brief space of little more than 24 hours from the occurrence of the first unequivocal symptom, was this unfortunate man numbered with the victims who have perished by *rabies*

canina: affording (if proof were at all required) a striking illustration of the fatal nature of the disease, and the inefficacy of art even to mitigate its severity.

In the above melancholy detail, two circumstances appear more especially to claim our attention, as connected with the origin of the disorder, and leading, I apprehend, to an inference of some practical importance in regard to its treatment. These are, first, the great length of time which intervened between the bite of the rabid animal and the occurrence of the disorder; and, secondly, the apparent peculiarity of the symptoms having been immediately excited by an injury received subsequently on the bitten part. In the commencement of the case, it is stated, that the patient had been bitten 15 months before; but from enquiries which were afterwards made, there is every reason to believe, that at least 20 months had elapsed. The widow of the unfortunate man having been requested to communicate all the particulars relating to it that came within her knowledge, furnished the following statement in reply.—“ To the best of my recollection, Mr. D. was bitten very slightly on the back of his left hand by one of his own dogs (a white terrier,) in the month of April or May 1823. The animal was fighting with another dog, and it was in the attempt to separate them that Mr. D. was bitten. From the following circumstances, the dog appeared to me to be

rabid. He used to hang his tongue out, howled much, and bit every object that presented itself,—tore, and gnawed the mat where he was chained, and died in about three or four days after he had bitten his master. A little before his death, he bit the keeper also, in a very severe manner on the wrist. This man, about three months ago, was in Calcutta in perfect health. When Mr. D. was bit, he took the precaution of scarifying the wound, (or rather scratch, for it was very slight) with a penknife. He then expressed some blood from it, and washed the part with vinegar. A servant of Mr. D. who was also particularly questioned, gave a statement of his master having been bitten on the *right* hand by a large black dog, subsequently to the bite of the terrier. This occurred about 13 months before Mr. D. was seized with the disorder. It did not appear, however, that this dog was mad, as he survived the occurrence about 10 months, and died from a cause totally unconnected with it.

Taking, then, all the circumstances stated, little doubt can be entertained, that the seeds of the malady which carried off our unfortunate patient, were sown by the terrier's bite in April or May 1823. This conclusion is confirmed by the train of symptoms originating in the left hand,—the severe pain gradually extending from thence till it reached the shoulder and neck, while the opposite side remained all the time unaffected: nor did the patient

ever complain of uneasiness in the cicatrix of the right hand, produced by the second bite.

Without taking into account the almost marvellous instance of this disorder in the *Edinburgh Medical Commentaries*, which is stated to have occurred after 17 years from the bite, and those alluded to by *Morgagni*, after the lapse of 20, and even 40 years, there are few well attested cases on record, where the disease has shewn itself beyond the period of 12 months. But although in this respect the case now detailed must be considered interesting, it is still more deserving our attention, if we consider the manner in which the latent virus was finally called into action, and the whole system thrown into this horrid disorder by a simple irritation acting upon the morbid, but hitherto unsuspected structure. The circumstance of the scratch, and death of the dog which caused it, had been totally forgotten by the patient himself, as well as the subsequent more severe bite in the right hand; and it was not until the difficulty of deglutition occurred, that an idea of the real nature of his disease once crossed his mind. The injury received from the accidentally hitting his hand in the godown, was situated on the very same spot where the rabid terrier had scratched him 20 months before; and as in this long interval no signs of the disease had ever been manifested in the system, and the bitten member remained free from uneasiness of every kind, must we not infer that the contusion was

mainly necessary to exciting the train of characteristic symptoms, and by some inexplicable influence, (sympathy, or by whatever other term we chuse to denominate it,) rousing into action the slumbering virus of hydrophobia? The intimate relations which subsist between the different structures and functions of the animal economy, and the sensibilities they acknowledge in a state of health, are but little known to us. The subject, when it relates to the complications produced by disease, is still more obscure and difficult of investigation; and perhaps in the whole circle of medical science, there is nothing more illustrative of this than the facts arising out of the malady under consideration. Without, however, attempting any explanation of the very singular one now mentioned, I shall merely add the inference which it would appear to lead to in practice—namely, that complete excision of the wounded part ought in every instance to be performed; and that the period can never be too late at which this operation may not be resorted to, with some prospect, if not certainty, of advantage. Even if this had been adopted immediately after the bite, it might be an object to repeat it after the wound had healed up, and remove the cicatrix entirely by a second application of the knife. No measure of precaution can be too severe, that holds forth a hope of rescuing a fellow-creature from a fate so terrible as that which awaits him in hydrophobia.

It may be of importance to observe, that during the interval which elapsed between the bite and the disorder, the above patient was repeatedly indisposed from other causes; and in particular, labored under intermittent fever and rheumatism, to the latter of which he was constitutionally liable. Further, while under treatment for these complaints, mercurial remedies were administered to him, and carried at two different times to the extent of producing salivation. The inference to be drawn from this fact, as to the vaunted prophylactic powers of mercury in the disease, is too obvious to require a single comment.

CASE OF HYDROPHOBIA

IN A NATIVE.

BY H. CAVELL, Esq.

Presented April 2, 1825.

I BEG leave to solicit the attention of the Society to a case which came under my care soon after my arrival in this country, and which appeared to me at the time to be of the same nature as the one which has just been presented by Mr. Grant.

In April 1822, while I was attached to the civil station of Dinagepoor, a native was brought to me who had been bitten one month and eleven days previously by a dog in the calf of his right leg. The wound had healed, though the scars were visible; and he experienced no inconvenience until three days before I saw him, when his most urgent symptom was pain, which he referred to his bladder, with an inability to make more than two or three spoonfuls of yellow colored urine, at any one time. The pain gradually increased, and an entire incapability of swallowing either solids or fluids came on, attended by great pain in his head, his eyes looking wild and suffused, his tongue slightly foul, his breath very offensive, bowels regular, pulse 76, but very wiry and laboring, his countenance indicating the greatest distress. Skin natural, pain over the pubis excessive; so much so, as frequently to

make him writhe, and there was the most exquisite tenderness on pressure.

As I was doubtful whether these symptoms proceeded from the bite, I determined to try to make him swallow, and procured some water for the purpose. He shuddered at the sight of it, and said he could not take it. However, I repeated my request, and attempted to put the water to his mouth, when convulsive spasms came on. As he was a native, and I knew more to be operated upon by fear than entreaty, I ordered two Chuprassies with rattans to stand by, while I threatened to flog him if he did not drink; but I did not succeed beyond getting the *Lota* to his lips, and forcing a small quantity of the water into his mouth, which in the most menacing manner, I desired him to swallow; but his attempt was succeeded by dreadful spasms, and the water was squirted from his mouth to a considerable distance. It occurred to me, that hydrophobic patients were said to be unable to gaze at a looking-glass. I sent for one, upon the sight of which he shuddered, and turned from it instantly.

These circumstances convinced me that the case before me was indeed hydrophobia; and knowing that hitherto all the means which had been resorted to were equally unavailing, I resolved trying *Belladonna* in a large dose. At 10 o'clock A. M. I gave him four grains of the extract, made into the con-

sistence of honey, which I put upon his tongue with a spatula, taking care he did not spit it out. I then sat by him till eleven; but as no change had taken place, I determined on bleeding him. On opening the vein, the blood flowed freely. When the pulse became influenced, I placed my thumb over the orifice, and checked the bleeding till it rallied, when I permitted more to flow. In this manner, in about an hour and half, I took away altogether 40 ounces. He fainted, and remained faint a few minutes. When he recovered, I asked him if he would drink; he replied, Yes! and without difficulty swallowed nearly half a pint of water. As he still complained of the pain over the pubis, I directed three drams of opium made into the consistence of paste, to be rubbed into the part, which was done in my presence. He shortly after fell asleep for a few minutes, and at about two o'clock P. M. voided nearly a pint of colorless urine: and here I must observe, that there was no evidence (by examination) of water in the bladder before he took the medicine. His pulse was quiet; he complained of hunger, but not thirst, and was free from pain. At three o'clock P. M. he awoke quite comfortably, and made half a pint more urine, complaining still of hunger. I ordered some chicken broth to be made for him. At six o'clock P. M. he continued comfortable, made a good deal of urine; pulse was still subdued, skin cool; and he took the broth, which he swallowed without difficulty. On the 19th, at eight o'clock A. M. slept well through the preceding

night in my Bungalow, without any unfavorable symptom; but the bowels not having been opened, I administered a dose of castor oil, which acted freely. At four o'clock P. M. I allowed him a small quantity of boiled rice; and on the following morning he left me well.

This case will be considered interesting on various accounts; but my observations must be confined to the three following points, namely,

First. Whether it was hydrophobia or not.

Secondly. If it was, what share the Belladonna had in its cure: and, Thirdly. How far that medicine is entitled to a future trial, on another occurrence of the disease.

First, then, as to whether it was hydrophobia. To me, I confess, there appeared to be only one symptom wanting to complete its character, which was pain, or an unnatural appearance in the cicatrices of the wound.

It is true, my patient had suffered inconvenience three days before I saw him, which is too often sufficient to bring the disease to a crisis in a European constitution; but I cannot help suspecting, that in this, as in other active diseases, the native habit is more slowly influenced, and that to this cause may be attributed the little

progress made during the time I have just mentioned.

If indeed this case was not hydrophobia, what was it? All the symptoms but one are common to the disease, namely, the pain which he referred to the bladder, and the want of secretion of urine. But as the bite was in the lower extremity, and as the disease is supposed to come on from absorption, the public, I think, will find little difficulty in accounting for this; and to them I leave this question to be decided upon. I shall proceed to the second point, which opens a wide field for reflection and discussion—the share which Belladonna had in the cure.

It is necessary to premise, that by making the extract of the consistence I did, and putting it myself into his mouth, I feel confident that it must have been swallowed, as I did not allow the patient to spit until after he had taken the first quantity of water. Admitting that he did swallow it, from the nature of the medicine, it is evident that one of two circumstances must have existed,—either that the extract was bad, which I could not admit, as it had only a few days previous arrived from the General Dispensary; or that it must have produced some effect. Arguing in favor of the latter fact in ordinary cases, the same, or even smaller doses, would have produced great vertigo, dimness of sight, redness and tumefaction of the face, and more

particularly of the tongue, which becomes too large for the mouth, as is proved in many cases mentioned by Mr. Bailey of Harwich, in his work on Neuralgia.

In my patient, none of these symptoms came on, the only perceptible effect being diuretic; from which I should infer, that the power of the remedy was exhausted in subduing the violence of the disease, as we see takes place in the most powerful articles of our Pharmacopeia, as opium, arsenic, &c. That bleeding was resorted to, does not take any thing from the Belladonna; for we all know how frequently, and to what an enormous extent patients have been bled in this disease without success. But there is one circumstance to which I would particularly direct the attention of the Society, as being, in my estimation, of peculiar importance in acute diseases, which is not tying up the arm, because the patient is faint, but stopping the bleeding a few minutes until he recovers, when we usually find him capable of bearing further depletion, by which means the pulse is often finally subdued, as in the case before us. And here I must observe, that bleeding was doubtless a useful auxiliary, probably by reducing the system, and consequently rendering it more susceptible of the beneficial influence of the Belladonna. The same argument may also be applied to opium, which I only resorted to in order to relieve a local pain. The quantity was large, but the urgency of the case demanded urgent measures;

and as success was the result of my exertions, I should not perhaps, under similar circumstances, do wrong in applying the same means. And this leads me, thirdly, to enquire what claims the Belladonna has to a trial in hydrophobia. If it be true that this was a case of hydrophobia, and if it be also true that bleeding does not cure that disease, and that opium is equally powerless, it is but fair to conclude, that it ought to be had recourse to, that experience may establish its value, which an individual case cannot do. One strong presumptive cause for hope is, the known efficacy of this plant in those affections to which this awful malady is supposed to bear relation, and among which; authors who have written on the subject have classed it.

The Society, I hope, will excuse the length to which I have been led; and while I earnestly recommend the Belladonna to the profession, I beg they will believe I do it with the utmost diffidence, conscious that a solitary instance of success is insufficient to establish its utility.

Since writing the above, I find in the 10th Number of Dr. James Johnson's Quarterly Series of the Medico-Chirurgical Review for September 1822, four cases of hydrophobia, in which Belladonna was exhibited to a very considerable extent, and all of which recovered; and I cannot but ascribe the success to the employment of that remedy.

ON RABIES CANINA,
ITS APPEARANCES IN DOGS,

AND THE
EFFECTS ON PERSONS BITTEN BY THEM.

BY J. MELLIS, M.D.

Presented Feb. 5, 1825.

OF all the diseases to which humanity is subject, there is none in its nature more afflictive, or in its appearances more horrick, than that I am now about to describe.

Nor are these effects experienced by man alone; for in animals they are not less distressing, particularly in the race from which the disease is named. Not only are the corporeal sufferings of the dog extremely acute, as his howl alone would shew; but in feeling and disposition, this most fond and faithful friend of man becomes strangely and woefully altered.

From being of an affectionate, peaceful, and even timid disposition, he becomes snarlish, restless, and ferocious. Instead of displaying that noble, generous, and daring spirit which characterizes many of our best bred dogs, and which shews them to be as indifferent about ill usage from their masters, as fearless of danger; we find

them crest-fallen, gloomy, and frightened;—flying from, or shunning the company of their usual favorites or associates. In other instances, we find them given to roving, and eager to attack any animal they meet. Dogs, laboring under this disorder, are generally seen trotting along, and seldom running, unless pursued; and I have seen one (*a pariar*, or native dog,) walk through one room into another very deliberately, with ears erect, and a seeming desire to rush upon any object he could get at. In this instance, there were a terrier and greyhound in the room, and the former flew at the dog, and caused him to quit the house; not, however, before he was bitten: and although so slightly, as not to be perceptible; yet such must have been the case; for the terrier died of hydrophobia ten days after!

It has been remarked, that mad dogs generally, or in many instances, fall on other dogs so suddenly, that they are not prepared to avoid, or even resent the injury. It has been further remarked, that they seldom turn out of their way to bite human passengers, or to attack horses, cows, or other animals, but generally their own species. In the instance above noticed, there were three persons in the room; and I doubt not but for the dogs being in the way, one or more would have been bitten.

Mr. Blane, before describing the pathognomic and occasional appearances of the rabid malady, premises, that the varieties in both, but particularly

in the latter, are so numerous, that scarcely two cases present themselves under similar aspects; and he is borne out in his remark by all authors who have written on the subject. In Mr. Gilman's able dissertation, as well as in Mr. Blane's account of rabies canina, (extracts from which will be found in Cooper's Surgical Dictionary,) the various symptoms and appearances are so fully detailed, that I shall not take up the Society's time further than in briefly stating the result of such observations as I have been enabled to make. In doing so, however, I must here, once for all, acknowledge, that I have freely used the language and style of the authors who have written on this subject; and generally, in preference to my own, as being more clear and comprehensive.

And *first*, as regards the name of the disease: I am of opinion that rabies canina is as much a misnomer as hydrophobia, particularly as relates to *dogs*, for in many instances there is in them neither madness nor dread of water. In the human species, however, the latter symptom does at times prevail; and in respect to the state of mind, there are in some instances, during the paroxysm, such derangement and fury induced, as to subject the attendants to the risk of being bitten. This occurred in the case given by Dr. Powell; and I met with one instance myself, where a poor dog-keeper, in the latter stage of the disease, begged of his friends not to touch, or come

near him, when the fit was on, as he should most likely bite them.

In this case, I never saw a poor creature shew more willingness to swallow liquids, although to no purpose. He took them into his mouth, but could not get them down his throat; and the only thing he could take to quench the raging thirst that prevailed, was a slice of lemon now and then. This gave him partial relief; and I would therefore recommend oranges and fruits being given in such cases, when procurable. I have said, there is not always a dread of water in dogs; and in addition to the case I am about to give, (which Mr. Todd sent me,) I have seen another in a dog that was known to be mad, who went along the water side without seeming disturbed by its appearance. I have seen instances too where dogs evidently wished to drink, and tried to do so, but failed in swallowing.

The disease in question belongs to the genera *Canis* and *Felis*; and although it is known that the wolf, the dog, the fox, and the cat, receive and communicate the infection, it is not generally known that *jackals* do so.

I have heard of persons dying of hydrophobia from being bitten by jackalls, and I have no doubt of it. In many instances, I have seen the worst sores, and foulest ulcers caused by their bites; and in one case, a contaminated state of the different

fluids in the system brought on, which nothing could cure but an alterative course of medicine, milk diet, and cordials*.

We find much difference of opinion amongst authors regarding the remote, primary, and proximate causes of this disease; and whether it is to be considered as proceeding from a disease of spontaneous origin, or from the communication of a specific virus. In one instance, to my knowledge, the disease appeared in a little French dog, that was seldom or never out of the house, and never brought in contact with other dogs, (so far as could be ascertained,) for it was so timid, that it invariably ran away from the presence of them. From all that I have learnt and seen of this distemper, I am inclined to believe, that it is one which may be generated in the bodies of carnivorous animals of the description mentioned, as well as communicated by inoculation with the virus. In small-pox, we find this to be the case; and although it may be said, that where this disease occurs without inoculation, there must be contagion in the atmosphere, affecting the body when in a state to be acted upon by it, how do we know but that there may also be certain conditions and habits of body in the canine race, at times rendering them subject to the contagious or infectious poison of rabies

* I have met with a case since this paper was written, which I shall lay before the Society hereafter.

canina, when existing in the atmosphere? It has been remarked, that during very hot weather, and when water is scarce, the disease is most prevalent; and although heat, as arising from climate, will not alone cause the disease, I am inclined to think, that in conjunction with scarcity of water, and with the contagion existing in the air, it may do so. In some islands of the West Indies, it is of rare occurrence;—in Egypt also it is seldom met with; but *there* the dogs are said to be plentifully supplied with water; and further, they generally retire to cool shady places during the day, and only go abroad at night.

Dogs have not, like other animals, the same relief from perspiration in hot weather. From the lungs, fauces, and tongue, and from frequent micturition, is the system relieved; and it is not unreasonable to suppose, that when the body is much excited by heat, and excessive thirst cannot be allayed by liquids, that there will be an increased viscosity of the saliva and other fluids, as well as a plethoric state of the system, and determination to, or fulness of blood in the head.

This is the more likely, if we consider further the general habits of the dog—the great quantity of meat he will generally eat—and his being so subject to costiveness, enlargement of the liver and spleen, as well as to fits and fever. I have opened many dogs (fox-hounds and bull-dogs) who have

died of plethora, as well as from enlargement and suppuration of the spleen or liver. The ancients had their *dies caniculares*, or dog-days, as well as the moderns, and looked upon the season of the year as a principal agent in causing the distemper in question. That extreme heat does affect the brain and nervous system, and brings on fits in dogs, is known to every sportsman: and that goats and other animals will, as well as dogs, seek the shade, or run to rivers or pools of water for relief, is also well known. Mr. Gillman remarks, that in some of the South American islands, in Aleppo, and in the deserts of Southern Africa, and in the island of Antigua, where dogs and other animals suffer much from want of food, as well as water, the disease is of rare occurrence: but still I am inclined to believe, that heat is a powerfully exciting, if not a primary cause, in most cases, when fluids cannot be obtained. It has been supposed by many authors, that feeding on carrion, when putrid, or on putrid aliment, is a principal cause; but I am inclined to think such is not the case, for we find lap-dogs, hounds, and others of the canine race, that are as well fed as their masters, as subject to the disease as the houseless hound, or the prowling *pariar**.

* "That rabies," says Mr. Gillman, "is equally contagious as small-pox or measles, is supported by the most accurate statement of facts, and is shewn by Mr. Trevalyan's experiments. In his correspondence with Dr. Bardsley on this subject, he has assured him, that after losing one pack of hounds, he not only removed the straw, but had the benches of the kennels scalded with boiling water, and afterwards all the joints,

It would be an useless, as well as endless task to enter into all the various symptoms which characterize this malady, more particularly when they are to be found so fully detailed in the works of the authors I have mentioned. Much as we have reason to regret the absence of such premonitory symptoms as might lead us to be on our guard at times, there are, to those who have seen much of madness in the canine race, certain indications of the disease, which are seldom to be mistaken. The temper and habits of the animal become, as I have before said, remarkably changed. There is either an increased and unusual degree of fond-

cracks, &c. painted over, and filled up with hot tar: the walls were then whitewashed, and the pavement cleaned with hot water.

“ Thus secure, as he thought, he collected another pack; yet rabies broke out year after year. In consequence, the pavement tainted with the secretions was removed, and the earth in which it was embedded thrown into the river: the kennels were then new painted and whitewashed, and ‘ ever since the pack became free from infection.’ Dr. Hamilton, the most elaborate writer on this subject, has endeavoured to prove that this, like other diseases, is capable of being propagated in a double way, by inoculation from a wound, and by absorption without a wound, of the poison in a state of vapour, either through the pores of the skin; or by inhalation, or by both. There are other diseases likewise, though equally infectious, which infest the body, and which cannot be propagated by inoculation;—the measles, scarlatina, hooping cough, and the typhus carcerum, are examples of the latter; small-pox, venereal virus, and hydrophobia, are examples of the former.” Experiments by the first physicians and surgeons of the present age, have shewn that the poison may be communicated by applying the saliva of a mad dog to wounds made in sound animals,—not so, however, with that of the human species, or of herbivorous animals. Dr. Zenke of Jena is said to have produced rabies in a cock, by inoculation with the saliva of a mad dog.”

ness and vivacity shewn, accompanied by something like wildness,—or a heaviness and dulness about the countenance, expressive of great anxiety and depression. To these may be added restlessness,—redness and discharge from the eyes,—dryness of the nose and tongue,—loss of appetite, thirst,—costiveness,—frequent starting,—extreme watchfulness,—occasional dosing and stupor,—difficulty of breathing, or rather irregularity and uneasiness, at times, in respiration,—a whining or mournful noise, often followed by a sharp shrill bark, or a dismal howl,—trembling of the whole body, as if attacked with the cold stage of fever,—foaming at the mouth, with occasional fits of coughing and choking from viscid saliva,—a staggering gait, and paralytic affection of the hinder parts, and occasionally a desire to have them and the belly covered with any thing soft or warm.

With some dogs, there is much confusion of thought, if I may so term it, or an absence of that power of discrimination which the animal before possessed. The senses too are much affected: that of hearing becoming irritably acute, the slightest noise causing terror and distress, while those of smell and taste become so blunted apparently, that the animal will often lap its own urine, drink the most dirty and stinking fluids, and eat all sorts of filth, not excepting its own excrement. Dissection has shewn this, and it is a never erring criterion of the disease. The tendency to snap at, bite or worry

animals, is not more remarkable in some instances, than the uncertain, irritable, and treacherous disposition is in others: and although much has been said about the different kind of madness, viz. the *raging* and the *dumb*, being indicated by, and dependant upon, the temper or disposition of the dog, there is as little foundation for the fact, as there is cause for the distinction. The symptoms of each will be found variously united in different animals, and in different states of body; and in a great measure may be accounted for, from the nature of the organs affected.

Where the rabid animal is young, and the brain principally affected, we find the first form of the disease. In older dogs, where the stomach and bowels become inflamed, and the nervous power lessened towards the hinder extremities, we have the second, or dumb madness; and in such cases, many poor dogs die without a murmur, or even desire to bite. Many of the circumstances I have stated in the foregoing pages came within my own observation; and the following cases, which I shall give as briefly as possible, will illustrate much of what has been mentioned. A medical gentleman, many years a Member of the Board at this Presidency, told me of his having been bitten by a little dog belonging to a family here, and that at his particular request the animal was tied up. Although it shewed strong symptoms of madness for a day or two, it recovered, and thus restored

to composure of mind the anxious sufferer on the occasion. Whether the dog was affected with true rabies or not, I cannot say : it shews, however, the propriety of tying up, instead of killing the animal in such instances.

The following case will shew how little warning we have at times of dogs being mad, and how much more quickly it is perceived by their own species. A few friends called one evening on a gentleman, who had a young favorite spaniel bitch, and they were followed by their dogs, two of which were fox hounds, the other an old greyhound. The bitch was under her master's chair, and very quietly remained there ; but no sooner did the other dogs see her than they ran out of the house. This they never did before, and they had been often at the house. The occurrence caused remark and conjecture as to the reason ; and an attempt was made to bring the dogs back by calling to them, but they would not come. A few minutes after, the gentleman of the house put down his hand, snapping his fingers, at the same time, and calling to the animal to come from under the chair, when she instantly seized him by the thumb and forefinger, but so lightly, as not to cut the skin. Suspicion now arose : the bitch was taken to the kennel by the *Dooreah**, and chained up. Before afternoon of next day, she became

* Dog-keeper.

raving mad, and tore every thing within her reach,—the mats she lay upon, and the bamboos and framework around her. Her eagerness for water was beyond every thing great;—she attacked some fowl-curry, and rice, that was put before her, but could swallow neither. Her howl was terrific and dreadful, till towards morning of next day, when she became quite exhausted, and expired.

The third case, was that of the terrier before mentioned, that was bitten by the *pariar*. The first indication of its madness was the very unusual fondness it shewed, and the desire to lick the hands and faces of persons near her. It occasionally ran out of the house a little way in the sun, and back again, (which was not its usual custom;) and by degrees became foolishly frightened at objects it had been daily accustomed to. It was tied up—refused its food—was much affected with rigors—stooled often, and passed offensive and bad-coloured excrement:—there was much foaming at the mouth,—paralysis of the hinder extremities, but little howling. Medicines of a purgative nature, with opium, &c. were given. The animal never attempted to bite, and pined, till death closed the scene.

In the French lap-dog, before mentioned, as getting the disease without having been bitten, there was one remarkable circumstance, and a precursor of the disease, which led to suspicion. The evening of the day on which it was seized, it

ran about the rooms, catching at and swallowing flying bugs and other insects, which were then very numerous. *It died*;—but, before that, never shewed any inclination to bite.

The last case I shall trouble you with, was communicated to me by the Surgeon of a neighbouring district, who, but for the prompt and efficacious measure he pursued, would, I doubt not, have fallen a victim to the disease.

The dog that bit him was of a breed between a terrier and a spaniel, and about four years old. He must have been ill before, (or about the 14th or 15th of the month,) as his master remarked, that he seemed more fond and fawning than usual; but attributed this to his having taken him out in his palanquin with him, a practice he had for some time before discontinued. On the 16th, he was washed, as usual, with soap and water, and brought to the room at breakfast time. His master was busy writing, when the dog jumped up on him to be caressed; but not wishing to be interrupted, he rather angrily pushed him away. On this he laid hold of the right hand, between the thumb and forefinger, and seemingly as if involuntarily, bit it in five parts. Four of the wounds just penetrated the skin; the other was deep. “At this, (says the gentleman,) I was angry with him, and he slunk away under the couch in the room. Fearing that something might be the matter, I imme-

“ diately (he continues) went to the *Duwaekhana**
“ to get some medicines. The blood followed the
“ bites freely; and having first washed it away with
“ lavender water, I dissolved some lunar caustic in
“ water, and applied it freely to the wounds. The
“ palanquin was then at the door, and having been
“ sent for in haste, I no sooner called out ‘ to get
“ ready’, than the dog got from under the couch,
“ and followed me into the palanquin.

“ Finding, however, on enquiry, that he had on
“ the evening of the 15th, refused his food, and feel-
“ ing still more suspicious, I ordered one of the Bear-
“ ers to take him out; and when the man attempted
“ to do so, he snapt at him. The *Dooreah* was then
“ sent for—took the dog away, and tied him up. In
“ the evening, on seeing him, I found him wild, with
“ every symptom of inflammation of the brain. His
“ eyes seemed furiously wild—he was beginning to
“ bark, which he did constantly afterwards, and in
“ a tone and sound different from a common bark.
“ I then became more alarmed, and sent off express,
“ it being about five P. M. for my native doctor. He
“ came in a quarter of an hour, when I made him cut
“ out with a scalpel all the wounded parts to the
“ very bottom. Having applied the caustic freely
“ in the morning, I then could see better the depth
“ of the wounds.

* Dispensary.

“ After this, a red hot iron was applied—the parts
“ were again washed with the caustic solution, and
“ subsequently the sores kept open for a month with
“ an ointment, composed of equal parts of blister-
“ ing plaster and basilicon.

“ The dog went on barking and howling the
“ whole night, and in the morning I gave him some
“ calomel and antimonial powder in boluses repeat-
“ edly, but without any effect. On the 17th and
“ 18th, he continued getting worse, and on the 19th
“ died—in my opinion completely mad. On the
“ last day, a bitch would not go near him ; and until
“ removed to a considerable distance, seemed much
“ terrified lest he should get to her. No cause could
“ be assigned for his becoming deranged. At first,
“ many persons thought it might not be canine mad-
“ ness, as he drank water to the last; but before he
“ died, there were none who doubted it : and the
“ native doctors, who had seen many instances,
“ were convinced it was the disease. After what oc-
“ curred, my mind became uneasy, to a degree I
“ could neither account for nor restrain, especially
“ after having used the means I did. By the advice
“ of Dr. Shoolbred, I took calomel (two or three
“ grains with a little opium,) and rubbed a drachm
“ of mercurial ointment every night till the end
“ of the following month, before which period my
“ mouth had become considerably touched. Al-
“ though medicines may not effect a cure, the mer-

“ curial course gave me some hopes ; and by per-
“ severing with it, the alarm gradually wore off.”

Such was the case of my correspondent in the year 1812 ; and I am happy to say, he has since continued perfectly well, and in the active discharge of his duty.

In three instances, where persons were bitten in a similar manner, one in the hand, and the others in the legs, I adopted a similar mode of treatment, with the exception of the actual cautery not being used, and the caustic kali in solution being preferred ; and I am happy to say, with equal success.

In one only did there appear any symptoms approaching to those of hydrophobia ; but they yielded in a day or so, from the use of opium, the warm bath, free depletion, and a continuance of the mercurial course. In many instances, especially amongst natives, an affection little short of the real disease is brought on from sheer fright, as well as native prejudices ; for I have met with several cases, where, after being bitten by dogs not mad, they have confidently believed they had pups within them, and have as confidently asserted that they had seen them in the urine they had passed. This makes them for a time extremely nervous and wretched ; and it is well known, that in hysteria, a difficulty of swallowing, and a horror of fluids from that very cause is not uncommon.

Dissections have shewn, that in most cases, though not in all, considerable marks of inflammation and congestion, and alteration of structure in the brain, the tongue, the organs of deglutition, the œsophagus, the stomach and bowels, are to be found ; and there can be little doubt, as Mr. Carlisle remarks, that the brain, nerves, and muscles appear to be the seats of this disorder, and that the organs of deglutition are the particular objects of its rage. The same author observes, that canine madness resembles tetanus more than any other disease, although the muscular spasms are not so violent in the former. The muscles of the throat and neck are peculiarly affected in both diseases. The organs of the senses are unduly excited, and the mind is extraordinarily alert. The celebrated Monsieur (now Baron) Larrey found, that in Egypt tetanus bore a greater resemblance to hydrophobia than in the colder climate of Germany ; and in the late campaigns of our armies in Spain and Portugal, Sir James McGregor reports the occurrence of tetanus, in every description and in every stage of wounds, from the slightest to the most formidable. In many cases, the Baron records the great aversion that patients have to liquids, and if forced to swallow them, their being seized with convulsions. In one case, the sight of the bath filled the patient with an invincible dread of the water, into which he refused to be put ; and I recollect an instance myself, where a young man, (a drummer, who was suffering from tetanus, in conse-

quence of a slight bruise, attended with abrasion of the skin, of one of his great toes,) was so affected with that morbid irritability and excitement, so common in the disease, as to be unable to bear noise, light, or air in any great degree. A feather lighting on him would bring on his fits. Dr. Cullen, and other authors, observe that this disease is seldom attended with fever;—that when the spasms are general and violent, the pulse is contracted, hurried, and irregular, and the respiration affected in like manner; but with the remission, the natural state returns. The heat of body is commonly not increased,—the face is frequently pale, with a cold sweat upon it,—the extremities are also often cold, with a cold sweat over the whole body. When the spasms, however, are frequent and violent, the pulse becomes more full and frequent: the face is flushed, and a warm sweat is forced over the whole body.

I have so far exceeded the limits of an ordinary paper, that I must conclude by observing, that in this disease, whether it affect man or brute, I consider the best and surest remedy, the *cutting out the parts bitten*, and afterwards washing them with a strong solution of soap leys, alkalies, or the soap used by the washermen in this country. The Eau de Luce, diluted, will answer as well, should the former not be at hand. Warm stimulating dressings, such as basilicon, mixed with the hydrargyri-nitrico-oxydum, or the Linimen-

tum *Æruginis*, should afterwards be applied, and frequently repeated with poultices over them. At the same time an alterative course of medicines, a vegetable and milk diet, with the use of the warm bath twice or three times a day, as well as purgatives and sudorifics, should be adopted. By such means, prudently administered, the most beneficial and effectual results may be ensured.

HALF YEARLY REPORT

(FROM 1ST JULY TO 31ST DEC. 1823)

OF

THE MEDICAL PRACTICE AT QUILON.

BY K. MACAULAY, ESQ. Staff Surgeon.

(COMMUNICATED BY THE MEDICAL BOARD OF MADRAS.)

Presented Feb. 5, 1825.

DURING the period embraced by this report, my medical charge has consisted of 115 Europeans, with their families; and about 170 Natives; and I have the satisfaction to state, that in neither class has a casualty occurred. The weather has been seasonable, and in no respect calculated to produce disease.

The complaints most prevalent among the soldiers have been hepatitis and dysentery; and in almost every instance, might be traced to dissipation, and exposure to the sun, while in an intoxicated state. In a few cases of the former affection, bleeding was called for; but in general, the symptoms yielded readily to calomel, and camphorated mercurial ointment, rubbed over the region of the liver to the extent of slightly affecting the gums; together with occasional laxatives and blisters.

One case alone afforded any peculiarity. A febrile paroxysm, ushered in by rigors, came on

every evening, so as to cause some apprehension of abscess. It was observed that this was stopped by the application of a blister, and came on again when the blister was allowed to heal; and so sensible was the patient of the connexion between the blister and paroxysm, that he would request another blister to "remove the fever." This man is very subject to hepatitis; and on each attack, an enlargement of the liver is even visible.

The cases of dysentery have been mild; connected apparently with acrid secretions from the liver, and were successfully treated by giving from three to six grains of calomel morning and evening, and some neutral salt or oleum ricini every second or third day.

The instances of fever have been few, and all came under the head of "Febris Ephemera Bili-osa," and merely requiring for their removal two or three purgatives.

In private practice, an interesting surgical case has occurred, which is annexed, illustrated by a drawing.

Ætat. 28, of the Nayr Cast. Has from infancy enjoyed uninterrupted health; and her present plump muscular appearance evinces that it is still perfect. Of late the catamenia have returned only once every three months; but she suffers no in-

convenience from this circumstance. She has been married, and had one child.

From the age of puberty, superficial steatomatous tumors have from time to time formed upon the upper and front part of each thigh, and the lower part of the abdomen near the groins. These, as they arrived at the size of a goose's egg, were removed by escharotics, in the hands of native practitioners, leaving deep scars, not unlike what follow the healing of old scrofulous ulcers in the neck. With one of these tumors her surgeons have been less successful, and a portion of it still remains, about two and half inches in length, and three fourths of an inch in height; bearing considerable resemblance to the comb of a cock; and is correctly represented at figure 2 in the annexed drawing.

About two years ago, a tumor of a similar nature began to form on the left labium, and soon after another on the right. The growth of these has been rapid, particularly the former, which now measures at its largest circumference 27 inches, and is in length 17: the largest circumference of the right tumor being 13 inches, and its length $9\frac{1}{2}$.

On examination of these tumors, they are found to proceed from the labia only, and are so pendulous, that a half turn can be given even to the larger,

so as to bring any part of it into view without the position of the body being altered. Their necks are flattened, and extend from the mons veneris to the frenum labiorum, or fourchette, and consist of the common integuments, which are continued over two thirds of each tumor; together with the lining membrane of the vagina, covering the remaining portion. Both tumors are of a firm consistence, possess little sensibility, and are productive of no other inconvenience than what arises from their bulk and weight; this occasioning a pain in the loins in a standing position. On separating the tumors, the vagina is seen with the other organs in a natural state, excepting the right nymphæ, which is somewhat enlarged.

At a consultation with my friends Messrs. Currie, Chapman, and Brown, of this division, (who favored me also with their assistance at the operation,) the removal of these tumors was resolved upon; and the woman readily acquiesced, anxious to be freed from an encumbrance which rendered life miserable; and she supported the operation with a degree of fortitude that was remarkable.

The steps of the operation are so obvious, that it seems scarcely necessary to describe it. No difficulty was experienced; nor did any untoward circumstance occur. We commenced with the larger tumor. In removing it, five arteries were divided, and these were secured as we proceeded;

only one, requiring a ligature, was met with in taking away the smaller. The edges of the wounds were brought together by the interrupted suture, aided by adhesive plasters. No further excitement followed than what was desirable; and so favorably did matters proceed, that the wounds may almost be said to have healed by the first intention, the part presenting an appearance afterwards far from unseemly; and our patient returned to her native village in less than three weeks, full of gratitude for the relief afforded her.

The weight of the larger tumor proved to be 13 lbs. and that of the smaller 4 lbs. On laying them open, they were found to consist of a perfectly white substance, resembling the fat of raw pork, without the least red streak or speck; the blood-vessels being entirely confined to the surface or coverings of the tumors. They were firm throughout, the lower part of the larger tumor approaching nearly to the consistence of cartilage, from the pressure this portion received while resting on the ground. On the tumors being left aside for some hours, a considerable quantity of a clear glairy fluid oozed from the incisions.

The only remarkable circumstance, perhaps, attending this case, independent of the extraordi-

nary size of the tumors, is the rapidity of their growth. The woman's own statement appearing incredible, reference was made to her friends, who all agreed in asserting, that they had both commenced within the last two years.

CASE OF RUPTURE
OF
THE PULMONARY ARTERY.

BY J. ADAM, ESQ. JUNIOR.

Presented Feb. 5, 1825.

I AM induced to offer to the Society, the following account of a case of rupture of the pulmonary artery, in the hope that from its being of rare occurrence, it may not be deemed unworthy of mention.

Dominicus Riger, fifty-two years of age, of tall stature, and debilitated constitution, had been subject for some years to various uneasy feelings referred to the region of the stomach and head, attended with general derangement of the digestive functions; and latterly, to irregular action of the heart, accompanied sometimes with a sense of constriction across the chest, increased on using any corporeal exertion, or too frequent indulgence in spirituous liquors. During the latter two years of his life, his health had been visibly declining every month, and he complained much of want of appetite, flatulency, acidity in the stomach, and an occasional fluttering at the heart, which obliged him to have recourse to the recumbent posture for relief, when the sensation was felt distressing.

On the morning of the 7th July 1821, he suffered the first regular paroxysm, which attacked him suddenly in the following manner.

He complained of pain in the head, great giddiness, throbbing of the temples, and imperfect vision, and immediately after fell down in a state of insensibility, in which he remained for a short time, being occasionally convulsed. The pulse was 60, wiry, oppressed and intermittent, indicating some impediment to the free passage of the blood. Thirty-two ounces of blood were abstracted from the arm, and a strong cathartic administered, which was repeated until the bowels were properly moved. On the following day he felt easier, though he complained of headache and throbbing of the temples, together with palpitation of the heart. Sixteen ounces of blood were again withdrawn, and the antiphlogistic regimen strictly enjoined. On the 25th of the month, with the exception of the irregularity of the pulse, which continued to intermit every third beat, he had no other complaint than slight debility, and desired to be dismissed.

From this period he maintained a tolerable state of health, requiring only a laxative to keep his bowels in a soluble condition, until the beginning of September 1822, when he experienced a similar paroxysm as before, though in a more mitigated degree. The same treatment, with the addition of topical bleeding to the head was pursued, and in

the course of a few days, he was again sufficiently recovered as to be able to resume his wonted occupations.

He enjoyed from this time an ordinary share of health, complaining only of occasional palpitation and symptoms of indigestion, though much emaciated from previous sickness, till the 28th of March 1823, on the morning of which he was suddenly seized with an acute lancinating pain in the right hypochondrium, extending from the back part of the false ribs as far as the ensiform cartilage, and shooting up the right region of the chest along the sternum, accompanied with great difficulty in breathing, so as to render a change from the recumbent posture insufferable. He also complained of pain in the head referred to the occiput, of vertigo, and constant palpitation of the heart. His countenance was pallid and anxious; pulse 92, hard, and intermitting every fourth beat; tongue furred, bowels irregular.

On enquiry respecting the cause of his present illness, it appeared that he had been leading a life of intemperance for many days past, to the effects of which the origin of it may with great reason be ascribed. Twenty-four ounces were immediately abstracted from the arm in a full stream, and thirty leeches applied over the affected side, followed by a smart purge, which in a short time afforded him such marked relief, that he was able

to breathe with little difficulty, though the uneasiness in the side still existed, and was greatly increased on any attempt to resume the sitting posture. His pulse after the bleeding fell to 84, and intermitted as usual.

On the following day he was much improved; and although he had not passed a good night's rest, he had nevertheless been more tranquil than had been anticipated. The purgative was repeated, which brought off motions of a greenish color; and as he complained towards afternoon of the pain in the side, and of dyspnœa, twenty leeches were again applied, in preference to employing venesection, which I was fearful his debilitated frame would not be able to endure. A blistering plaster was afterwards applied; and as the seat of pain seemed to indicate partly an affection of the liver, alterative pills were directed to be used two or three times a day. The leeches operated well, and relieved him so much from his distressing feelings, that he felt himself in the evening quite comfortable and easy. He had also lost much of that anxiety and restlessness, and could sit up without experiencing any difficulty in breathing.

On the 30th, he appeared so much recruited, having passed a good night from an anodyne draught exhibited the preceding evening, as to be able to walk about the ward a great part of the day; but towards evening, he again complained of an

uneasy feeling at the epigastric region; and after taking a cup of tea about 8 P. M. and whilst engaged in conversation with one of his comrades, he suddenly fell from the cot on which he was sitting, vomited a small quantity of blood, and died instantaneously.

DISSECTION.—The morning after his death, the body was examined, and the following appearances were observed.

Head. On removing the skull-cap, the dura mater presented nothing unusual, with the exception of the vessels being much distended with venous blood. On opening the ventricles, there was a small portion of fluid found; and at the base of the brain, near the medulla oblongata, an effusion of serous fluid, to the extent of about two ounces.

Thorax. When the thorax was opened, a large quantity of dark grumous blood gushed out; and it appeared that his sudden death had arisen from a rupture of the pulmonary artery, the contents of which had almost entirely filled the right cavity of the chest. On slitting open the pericardium, which contained more than its natural quantity of fluid, the heart was examined. The walls of the right ventricle were very thin, but those of the left of their natural texture. In the right ventricle, two polypi of moderate size, or coagula of blood were found, and the valves of the artery

were in a state of ossification. The pulmonary artery was extremely thin, and enlarged to nearly four times its natural size. In it there was found an organized polypus, extending from the semi-lunar valves about four inches along the artery, of which the circumference was not less than seven inches. The rupture had taken place in the middle; and on further examination, it appeared that there was an opening in the centre of the polypus, through which the blood seemed to be transmitted from the ventricle to the lungs. The aorta and other large vessels, issuing from its arch, were completely ossified; this state of ossification being also remarkable along the progress of the aorta downwards, till near its bifurcation into the iliac arteries. There were some adhesions on both sides of the chest to the pleura costals, but no apparent disease of the lungs.

Abdomen. The liver was very large, indurated, and of a paler color than natural, the effects of former disease of that organ. All the other viscera were in a natural condition.

Riger was a native of Switzerland, originally of a good constitution, and had served upwards of thirty years in Ceylon and Continental India; formerly in the Regiment de Meuron, and latterly in the Hon'ble Company's Artillery. He was invalided in 1813, being unfit for further active service, having suffered much during his residence in the coun-

try, both from attacks of fever and Hepatitis; and was in the following year (1814) attached to the garrison of Ganjam, where he likewise experienced a severe attack of fever, whilst the epidemic was raging at that station. Towards the end of 1818, the first symptoms of the disease appeared, which ultimately led to his death, hastened no doubt by the intemperate life he had been in the habit of leading.

I have now had the honor of detailing the particulars of the case, as far as I could collect them; and in expressing my regret at not being able, from peculiar circumstances, to forward to you the preparation of the diseased appearances, corroborative of the preceding statement, I shall be happy if it is found worthy of record in the proceedings of the Society.

ABSTRACT OF THE CONTENTS

OF

A WORK ON CHINESE MEDICINE,

COMPILED BY ORDER OF THE EMPEROR KIEN LUNG,

*Intended to be used, and resorted to as a Standard Work
on the Subject.—40 vols.*

BY A. PEARSON, M. D.

Presented March 5, 1825.

THE IMPERIAL SYSTEM OF MEDICINE.

THIS first volume contains an account of the origin of the work.

The physician Cien teu paou, with Wang Ping and Woo Kien, members of the College of Medicine, are enjoined by an imperial mandate issued by Kien Lung in the fourth year of that monarch's reign, (end of 1739,) to the following effect. "You physicians of the Royal College are required to revise the works on medicine, and to prepare a new edition, whereby the healing art may be improved."

The members of the commission thus nominated reply.

"We, on receiving the summons, were overcome with fear and joy. From the medical art having

fallen into disrepute, there exists no established system; chiefly owing to discrepancies in the works promulgated on the subject; owing to which, persons know not whom to follow. Now, as you our sovereign view the people as your children, and are desirous that they may attain length of years, your benevolence is great, it is as vast as the heavens; for by this act you confer longevity on ten thousand ages.

“On receiving the decision of your ministers, we Cien teu paou, Chen-che-king, and Leu-yeu-to, grateful for celestial favors, state to your Majesty, that the ancient sovereign Fo Hi and his successors, were acquainted with the changes which take place in nature. They knew how the principles of heaven and earth were blended, their transmutations, and how the inferior principles are united with the superior. This is what the sages alone were competent to, hence their doctrines were those of heaven.

“In the time of the Chou dynasty, (which commenced 1105 years before Christ,) there was a Chung Cay (medical officer) who had charge of the royal person, as well as of the people; his trust was great.

“In the time of the Handynasty, (it commenced 189 B. C.) and later, the practice of medicine was esteemed one of the sciences, and those who were

acquainted with the art, were not considered ordinary men. Amongst such ranked Shun-yu-e, and Chang-ke-che. In succeeding ages, the medical art was estimated lightly; few individuals were to be found who followed it, otherwise than for a livelihood, not from benevolent motives, and to benefit mankind; hence those who delighted in the science ceased to recognise such: thus in after ages, eminent physicians became fewer and fewer; and as the art declined, it ceased to be transmitted.

“ You our sovereign should remember, that your royal ancestor Kang-hi, and royal parent (Yung-Chung) possessed benevolent minds; but it is you who have issued the order for correcting and revising works on medicine. Notwithstanding our humble opinion of the medical art, it is really of the first importance to all throughout the empire, and may not be compared with other arts.

“ Of ancient works, there are Tien-Yuen-tse, Puen-cao, Ling-Kin, which are called the three kings; they appeared during the reigns of Fuh-Hi, Shen-Kung, and Kuang-tee (2622 B. C.) During the Yin dynasty (about 1700 years B. C.) the celebrated minister Ecyun published the Tang-ye-pun-cao. In the time of the Chen-Kue (about 300 years B. C.) Pien-sih wrote the Nan-King. During the after Han dynasty (A. D. 229) Chan-ke wrote the Shung-nan-lun, which treats of diseases occasion-

ed by cold. These works appearing in very early periods, are now difficult to be understood, arising chiefly from erroneous copying and printing.

“ From the Sin dynasty (A. D. 236) and downwards, medical works appeared without number; but as each contained its author's particular opinions, the works, when examined, were at variance with each other, besides ambiguities, giving rise to doubts, which in the present work are removed. The science of medicine may be said to have commenced with Chang-ke (about A. D. 229,) for all works before that treat of medicine without giving prescriptions. The works Shan-han-Cun, Kin-Kuey-yaou-lie, and Tia-ping-lien, were the first works which specified formulæ for medicines. Cases of disease, and the prescriptions for the cure of them, gave confidence in the medical art, and hence arose general principles to last for ten thousand ages, and the works of those men were held sacred.

“ In this new work, it will become requisite to correct what is erroneous in the Shan-han-lun, and to enlarge the work, as well as to add explanatory notes; then to publish it for the use of all throughout the empire.

“ We therefore request the use of all medical books which are in the Imperial library; that an

order may be issued to collect all medical books dispersed throughout the provinces; and that in case of there being books of which the printing blocks exist not, new medical works not yet published may be collected, or traditional works, and the district officer be required to prevail upon the possessor to present the same to the medical commission, to dispose of, or to allow copies of them to be taken. The compilers of the new work propose commencing with the three ancient sovereigns, and tracing the subject to the present reign; to arrange each disease under its proper head; to exclude what is contradictory, to retain what is perspicuous and practical, and to add the discoveries of modern practice. To form two works, one a compendious treatise on disease, calculated for usefulness to the learner: while the larger one (the accompanying work) will investigate the subject thoroughly. This arrangement will assist the practitioner who may have to give instruction, as well as to instruct the student. The practice of medicine will thereby be understood, and for millions of ages, bestow on the people longevity.

“ Before proceeding with the work, we desire to know what plan is to be adopted with regard to it; and when completed, how it is to be distributed.”

Kien Lung, 12th moon, 4th year.

IMPERIAL REPLY.

“ The Ta-hio-sze-Go-urh-tay is required to consult with the medical commission respecting the compilation of the new work,—the expense, and number of persons necessary,—and to preside over the same.”

After this follows a document by Go-urh, addressed to his Majesty, specifying the establishment of transcribers, printers, &c. which it is necessary to form. A third from the same person, of similar purport; and the fourth prefatory document announces the completion of the work, in a strain of high panegyric on the virtues of the sovereign.

The Board for compilation of the Imperial Medical Work.

King. Hiung Chorr (brother to the emperor,) who has charge of the Yoao Zing palace.

Duke. Go-Urh-Tay, Prime Minister, and Ta-Hio-Sze.

Efficient Members.

Tsien-tao-pao, President of the College of Medicine, his title Kuang-lu-suking. Thrice promoted.

Kieh King, an officer of the private apartments of the palace. Thrice promoted.

Leu-yu-ti, a member of the College, of the 5th rank. Thrice enrolled.

Extractors from other Works.

Le-yuh-Cing, Imperial Physician, and a member of the College. Thrice promoted.

Kora-Sen-Kih, Imperial Physician, and member of the College. Thrice promoted.

She-she-tih, Imperial Physician, and Member of the College. Thrice promoted.

Tang-see-Chang, Imperial Physician. Thrice promoted.

Fan-Kuin-Cay, Imperial Physician. Twice promoted.

Lieu-Shen, Member of the College.

Yen-Han, ditto.

Ho-Chen-To, ditto.

Chang-Hoan-Cay, ditto.

Kin-She-Yung, ditto.

Lieu-Che, ditto.

Lieu-Yu-Sich, Member of the Astronomical Board.

Sien-Yen-Choo, a Graduate.

Secondary Extractors from Works.

In all twelve, of inferior rank.

Comparers of Transcripts.

In all ten persons, and two Receivers.

Transcribers.

Twenty three persons.

Inspectors.

Nine persons, each presiding over a particular department.

No. I. The first volume of the work commences with a dissertation on the causes of cold, whence most diseases are supposed to originate, (their urgency, and the degree of danger attending them, being determinable by the state of the pulse,) and seems to involve a view of what are deemed the general principles of medical science. That the conditions of disease and health are much influenced and regulated by the qualities of heat and cold in undue degree and proportion. That the proportions of the primary elements, as in ancient western hypothesis, have likewise great influence, although those which they assign (in number five, and denominated Oo King,) are different, being wood, fire, water, metal, and earth : morbid phenomena resulting from their state, as to deficiency, preponderancy, or distribution. That a sexual distinction, called Yin and Yang, is applicable in human pathology, as well as existing in structure. That diseases of a cold quality are to be met by curative means of an opposite description, is incontestable ; but the writer thinks that the practical application of this has been carried too far. The prints are generally a kind of diagrams illustrative of the text.

Sec. 1. Under the head of diseases of a cold nature, treats of fevers. It contains 16 prescriptions.

No. II. Sec. 2. The subject of fevers continued. 25 prescriptions.

- Sec. 3. The same subject. 7 prescriptions.
- No. III. „ 4. Treats of internal disease. 13 prescriptions.
- No. IV. „ 5. Treats of diseases partly external, and partly internal, the latter peculiar to females. 6 prescriptions.
- „ 6. Internal diseases. 4 prescriptions.
- „ 7. Diseases of the kidneys. 17 prescriptions.
- No. V. „ 8. Of complex diseases. 4 prescriptions.
- „ 9. The same subject. 4 prescriptions.
- „ 10. The same subject. 5 prescriptions.
- No. VI. „ 11. Diseases from deficient perspiration. 9 prescriptions.
- „ 12. A dissertation.
- „ 13. The same.
- „ 14. On vomiting and purging. 1 prescription.
- „ 15. Treats of diseases in which the exhibition of emetics and sudorifics is indicated, and the contrary.
- No. VII. „ 16. Treats of equable and irregular pulse.
- „ 17. Respecting writers who differ from Chang-Kee, with diagrams of human figures for anatomical illustration of muscular and nervous origins and insertions.
- No. VIII. „ 18. Diseases of the viscera. 12 prescriptions.
- „ 19. Dyspepsia, wakefulness; impaired muscular power; 12 prescriptions. Apoplexy, 2 prescriptions. Hæmoptysis, 7 prescriptions. Internal weakness, 10 prescriptions.
- No. IX. „ 20. Diseases of the chest; painful affection of the heart, attended with dyspnœa; 12

prescriptions. Hæmorrhages, Ruptures, 18 prescriptions.

Sec. 21. Pulmonary affections, coughs; 18 prescriptions. Calculous and icteric diseases, 16 prescriptions.

No. X. „ 22. Ulcers, 6 prescriptions. Cholera Morbus, 22. Injuries of the extremities; Herniæ; Intestinal worms; 37 prescriptions.

„ 23. Diseases of pregnancy, 9 prescriptions. Puerperal diseases, 6 prescriptions. Female diseases, 20 prescriptions.

Modes of restoring suspended animation in infants, or from hanging and drowning. In the latter case, the body is to be covered from the neck to the feet with slaked lime, when the water taken in will issue forth from the seven orifices.

No. XI. „ 24. Of improper foods amongst birds, fishes, insects, vegetables, raw flesh, poisoned animals. 16 prescriptions.

Of those which are suitable and edible, and of vegetables. 14 prescriptions.

„ 25. A critical discussion on the merits and demerits of the work Kin-Kae-ven-iao-leao.

„ „ 26. Prescriptions of eminent writers corrected. No. 28.

No. XII. „ 27. Prescriptions of eminent writers corrected and enlarged. No. 25.

„ 28. The same as above. No. 24.

„ 29. The same as above. No. 29.

- No. XIII. Sec. 30. The same as above. No. 24.
 „ 31. The same as above. No. 29.
 „ 32. The same as above. No. 25.
 No. XIV. „ 33. The same as above. No. 21.
 „ 34. On diagnosis, drawn from the complexion,
 voice, and pulse,—with a plate illustra-
 tive of the doctrine of the pulse.
- No. XV. „ 35. Is a dissertation, intended to be very
 profound and ingenious, “De Natura Rerum,” the origina-
 tion of all things, as well as disease, from nothing. Plates il-
 lustrative of the progress, as disease is concerned; sexual
 character of disease,—elements,—their mutations into each
 other, and agency in causing morbid action. Five principal
 viscera correspond to the five elements in question. Diseases
 of a cold and hot nature, and to be treated by taking from or
 adding to the radical heat and moisture. What the physician
 has to do for the suitable discrimination of disease. Whether
 its essence is male or female, (there are plates to aid this re-
 search.) The cold or hot nature of the disease must then be
 determined; and the pulse, of which several of the plates are
 illustrative, must be investigated, when the physician will be
 no longer at a loss how to prescribe.
- „ 36. Diagnostics drawn from the pulse.
- No. XVI. „ 37. Treats of forty-nine diseases from a cold
 cause.
- „ 38. Treats of twenty-one diseases from the
 same cause.
- No. XVII. „ 39. Treats of seven diseases of the apoplec-
 tic kind.
- „ 40. Treats of six various diseases.
- No. XVIII. 41. Treats of nine various diseases.
- „ 42. Treats of nine various diseases.

- Sec. 43. Treats of fourteen diseases of the head, eyes, teeth, throat, shoulders, chest, abdomen, loins, intestinal and urinary passages.
- No. XIX. „ 44. Female diseases, especially those connected with the menstrual discharge, in No. 37. 67 prescriptions.
- „ 45. Diseases of females, in No. 27. 37 prescriptions.
- No. XX. „ 47. Diseases in parturition, in No. 9. Puerperal diseases, in No. 25. Prescriptions, in No. 69.
- „ 48. Female diseases, in No. 17. Prescriptions 53.
- „ 49. Diseases in female sexual structure, No. 14. Various diseases, No. 7. No. 60.
- No. XXI. „ 50. Infantile diseases, with plates of the countenance and lines of the hand, to be observed for diagnosis, in No. 32. Prescriptions 55.
- „ 51. Infantile diseases, in No. 13
- „ „ The same, 7
- „ „ The same, 6
- } 74 prescript.
- No. XXII. 52. Diseases in children, attended with ulcers, in No. 19. The same, attended with vomiting and purging, in No. 17. 80 Prescriptions.
- „ 53. Puerile diseases, in No. 32. Prescriptions 73.
- No. XXIII. „ 54. The same, in No. 31. Prescriptions 54.
55. The same, in No. 24. Prescriptions 71.

- | | | |
|-------------|----------|---|
| No. XXIV. | Sec. 56. | Small-pox, in No. 28. Prescriptions 78. |
| | „ 57. | The same, with illustrative figures, in No. 44. Prescriptions 68. |
| No. XXV. | „ 58 | Small-pox, No. 28. Prescriptions 78. |
| | „ 59. | Small-pox, in No. 10. Grown persons, 25: all in No. 35. Prescriptions No. 60. |
| No. XXVI. | „ 60. | Inoculation of small-pox, in No. 17. |
| | „ 61. | Ulcers and cutaneous affections, with plates, illustrative, in No. 28. Prescriptions 6. |
| No. XXVII. | „ 62. | The same. |
| No. XXVIII. | „ 63. | The same. |
| No. XXIX. | „ 64. | Diseases of the head, in No. 15. Of the back, No. 14. Of the boy, No. 3. |
| No. XXX. | „ 65. | Diseases of the eye, 9. Nose, 8. Ear, 76. Mouth, 3. Lips, 5. Teeth, 8. |
| No. XXXI. | „ 66. | Diseases of the tongue, 8. Throat, 11. Breast, 15. |
| | „ 67. | Diseases of the belly, 6. Armpits, 3. Ribs, 4. Ulceration in internal parts, 10. |
| No. XXXII. | „ 68. | Diseases of the upper extremities, No. 44. |
| | „ 69. | Diseases of the organs of generation and anus, No. 17. |

- No. XXXIII. Sec. 70. Diseases of the lower extremities, No. 21.
- „ 71. The same, No. 30.
- No. XXXIV. „ 72. Diseases of uncertain seat, No. 8.
- „ 73. The same.
- No. XXXV. „ 74. Various kinds of leprosy, with plates.
- „ 75. Wounds, contusions, and bites of serpents, No. 28.
- „ 76. Infantile diseases, No. 21.
- No. XXXVI. „ 77. Diseases of the eye. Plates. In No. 43. Prescriptions 32.
- „ 78. The same, in No. 59. Prescriptions 58.
- No. XXXVII. „ 79. Of Acu-puncturation, and burning with moxa, in No. 36.
- „ 80. On the circulating system and articulations, with plates.
- No. XXXVIII. „ 81. Instructions for cauterising with moxa.
- „ 82. The same, with plates illustrative of the relation of external parts to the viscera.
- „ 83. The same.
- No. XXXIX. „ 84. Plates intended to be anatomical, and to denote the relation of external to internal parts.
- „ 85. The same.
- „ 86. The same.
- No. XL. „ 87. Fractures, their treatment and apparatus. Instruction in Osteology, with plates.

- Sec. 88. Diseases of the head, No. 24.
„ 89. Bones of the thorax and extremities.
„ 90. Miscellaneous diseases.
-

NOTE ON THE SMALL-POX.

The disease is not mentioned or adverted to in the early periods of Chinese history, and comes into observation in their books from the seventh to the eleventh century, first under the name of Tien Choany, boil sent from heaven ; since denominated Teu-apea, from a supposed similarity of the eruption to peas. Its highly contagious nature is recognised and described, and they split the species into many varieties, for purposes of practical distinction and precept respecting the malady.

Inoculation (after their mode) is said to have been first practised during the reign of Chin Sung (A. D. 1014) of the Sung dynasty, at the Hill-ngo-me, in the province of Se-chuen, where an inspired person, the son of a celebrated prime minister, first practised it ; and the disease thus produced being found more mild and tractable than when attacking in the usual way, the practice became general.

The inoculation is performed by means of a tent imbued with the virus, or charged with the powdered crusts mixed with musk and other ingredients, blown up the nostrils ; and when done by means of the recent matter, it is allowed to remain 12 hours, with males in the left, and with females in the right nostril.

SOME NOTICES

ILLUSTRATIVE OF

CHINESE MEDICAL OPINION AND PRACTICE IN PARALYSIS.

BY A. PEARSON, M. D.

Presented July 2, 1825.

IT being one of the objects of the Society, to acquire notices of the state of the healing art in the different countries of the East, I beg leave to tender to them the accompanying memoranda respecting paralysis, as in some measure illustrative of Chinese opinion and practice in that disease.

They were collected many years ago, in compliance with the desideratum of a much respected physician in England, who had bestowed on the disease specified, and the class with which it is connected, his particular attention, and whose researches on the subject have been laid before the public, and favorably received and appreciated by the profession.

At that period, an opinion was very generally entertained, that paralytic affections were of increasing frequency, and that more were attacked with them, at different and much earlier periods of life, than before had been supposed to be the case.

I was instructed to obtain information,—

1st. As to the frequency, actual and relative, of the disease in China.

2dly. As to the remote causes, to which such frequency, if existing, was ascribed, or might be traced; in an especial manner, if the use or abuse of the infusion of tea was by the Chinese themselves deemed to be one.

And, lastly, respecting the practical view with regard to the malady, and plan of treatment for it, usually adhered to in Chinese medicine.

The mode in which I set about procuring this information, was adopted from the wish to have it derived from the best practical sources accessible. Chinese instruction in the healing art, does not afford such an average standard of attainment, as the regularity and system pursued in European countries; and sources of fallacy appearing to abound peculiarly in this quarter, I could not exclusively rely upon such as came within my immediate reach. The most satisfactory notices were obtained by my having the means of reference through a Roman Catholic missionary long resident in Se-chuen, and the titular bishop of that province, and who was equally qualified as willing to direct the necessary enquiries.

He was requested to avail himself, in making them, of the opportunities which his situation afforded, by reference to medical practitioners, especially to those whose capacity, and qualification by practical attainments, were likely to afford the soundest and best authorised information; and stating to him the cases or conditions of disease, to be submitted for their observations and prescriptions thereon.

The result was conveyed in Chinese, with a verbal Latin translation, (which language was the medium of our communication,) the correctness of the translation having been collaterally verified.

As regards the actual or comparative frequency of the disease, it may well be supposed that general views could alone be afforded.

That paralysis is quite as frequent as in other countries, appears highly probable; and to the extent to which my own observation, from the period of these notices to the present time, goes, it is corroborative of such being the case. The views as to predisponent and remote causes, too, correspond nearly with those which experience has led to the assignment of it in Western medicine:—corpulence, vascular fulness, and a certain bodily conformation—period of life—the integrity of the health and powers of the system, impaired by habits of re-

pletion, and excess in its different forms ; or by the seemingly opposite, and directly debilitating influences of inanition, cares, anxiety, hard labor, and other depressing causes. Others were more questionable, or altogether fanciful ; but the use of tea was not considered to be in any way accountable for the production of the evil.

The details of the treatment prescribed for the case stated are subjoined. I procured the different medicines by means of the list of the *Materia Medica*, of which I formerly did myself the honor of sending a copy to the Society ; receiving the personal explanation of a respectable and intelligent Chinese apothecary, from whom I procured them, verifying them as well as I was able by my own inspection, and by procuring specimens of all the ingredients which I forwarded with the memoranda ; but before they reached, the estimable individual to whom they were addressed, was no more.

In any stage of the disorder, when urinary retention and constipation occur, the following remedy is to be had recourse to.

R. Corticis cujusdam (mucilaginosæ e. aliquantulo acrimoniæ,) Pulv. Rad. Rhæi, membranarum nucis Juglandis—Radicis angelicæ a a dr. iiss quarum ft. decoctum aquosum ægroto hauriendum.

Should there be no such retention, &c. then the following medicine is to be administered.

R. Caulium tenerum (veluti lini) infuso Rhæi forte imbutorum; Panacis quinquefolii—Rasuræ nucis cujusdam amari*, Rad. aristolochiæ rotundæ—Radicis Glycyrrhizæ rasæ;) Nucleorum Pruni—Corticis Lauri Cassiæ—Limacium præp. et exsicc. a a grs. 30. undequam par. decoctum aquosum ægroto hauriendum.

1. In the commencement of the disease called Pan-xing posouy, (the half of the body powerless,) and when the mouth and eyes are distorted, then the following medicine may in the first instance be had recourse to.

R. Rad. Ari—Dracunculi;—Panacis quinquefolii;—Seminum Nasi sinensis—Ligni agallochi pp.;—Radicis cujusdam ignotæ mucilaginosæ et insipidæ;—Corticis aurant. sicc.;—Rasuræ rad. glycyrr. a a grs. 24;—Foliorum et rad. scrophulariæ;—Fructus cydonii sicc.—Ligni sassafras (vel ligni oderis similis) a a grs. 40 pro decocto aquoso in parationi cujus gradatim ft. additio rad. zingiberis pauxilli—Inhaurit. ægrotus.

* It would have been a singular coincidence with a practice now brought forward as a modern improvement, had this remedy proved to be (as was first supposed) of the strychnine class. But the quantity of it prescribed—its general use in other cases—as well as the diversity of the Chinese characters by which it is denoted, mark the difference. And at the time I first occupied myself with these memoranda, I found in the Apparatus Medicaminum of Murray, an account of a nut of similar properties; but having been by accident deprived of that work, I cannot with certainty give the name he assigned to it. However, both the Nux Vomica and Faba Sancti Ignatii are prescribed in Chinese medicine, chiefly (as far as I have learnt) in intermittents, and in dysenteric cases.

The addition of the last article is said to be, in order that it may introduce the other ingredients into the suitable parts of the frame.

2. The following medicine is exhibited for the cure of the disease, in which the blood is inadequate to the nutrition of the nerves, in which power of motion in the hands and feet is lost, and the tongue is embarrassed, so as to render the patient incapable of pronouncing words.

R. Radicis apii sylvestris; Radicis ignotæ (pastinacæ similis;) Radicis Dracunculi majoris; Radicis ignotæ; Extracti ejusdem radicis; Radicis Aristolochiæ Rotundæ; Rasuræ Rad. Glycyrrhizæ; Radicis vel Dioscoreæ, vel Ari Esculenti pp. Rad. Eryngii; Radicis ignotæ, insipidæ et mucilaginosæ; Radicis Hipposilini; Rad. Angelicæ Sylvestris; Rad. Gentiani; Gypsi foliati; Rad. asari; Rad. cujusdam ignotæ, a a dr. I. preparatione Decocti tepide hauriendi.

3. The following medicine is exhibited in the malady, in which, on account of a deficiency of blood, the body is dried up, and from noxious matter becomes emaciated; the articulations are much contracted and impeded, so that the limbs are unable to extend themselves, and severe pains are felt.

R. Rad. apii sylvestris; Rad. aristolochiæ rot.; Rad. ignotæ (ut supra) Pastinacæ similis; Radicis cujusdam saporis lignei et substringentis; Rad. ut supra insipidæ et mucilaginosæ. Rad. asari. Pondera haud designata pro Decocto ægroto hauriendo.

4. The following medicine is had recourse to in the affection, in which, on account of phlegm lodged in that part of the heart which is called *sin-hiao* (the aperture of the heart,) the patient becomes incapable in mind, and his tongue is embarrassed, so as to render him unable to pronounce words.

R. Rad. duarum haud certe notarum, sed veresimillime Ari vel Ari Dracunculi præp. (et in prescriptione Sinica prohibetur uti rad. crudis) per clarificationem et rasuram a a. dr. iss. ; Rad. Acori calami ; Corticis Bambusæ ; Ligni cujusdam pure amari (Qu. Braceæ ?) pp. per tortionem in furfuri tritici ; Panacis quinquefolii ; Radici ut supra vel Dioscoreæ vel Ari Esculenti a a. dr. i. ; Corticis Citrus Decumanæ dr. iss. ; Ras. Glycyrrhizæ grs. 42.

Ft. Decoctum aquosum add. aliquantulum Zingiberis ut supra, ad cetera introducenda.

5. The following medicine is prescribed in the disease, in which the half of the body having become powerless, the skin and muscular substance are dried up and extenuated, and wither away, owing to noxious matter. This remedy moistens the nerves and the arteries, and expels the internal noxious wind.

R. Rad. Apii Sylvestris ; Carnis Viperinæ pp. ; Rad. cujusdam subdulcis cum sapore Sassaf. ; Ossis Tigridis pp. ; Radicis cujusdam saporis lignei et substring. ; Ligni Agallochi pp. a a. dr. 1. ; quibus in pulverem redactis, sumat ægrotus grs. 12. ; Post singulos cibos ex Vini

Calidi Cyatho : si sentiantur dolores Ossium. pt. Pulvis cum Ligno Agallochi crudo vice preparati.

6. The following remedy may be had recourse to, by persons of either sex laboring under palsy, or who have from whatever cause been deprived of the use of their limbs.

R. Rad. Ari Dracunculi pp. et Clarific. ;—Rad. cujusdam pure amari, etiam prep. et Clarif. ;—Rad. Dioscoreæ Rubræ a a oz. 7. dr. 7. ;—Limacium pp. et siccat. oz. 5. dr. 2. ;—Gummi Olibani in guttis ;—Pastillarum Stercus Vespertilionis, (semotis omnibus particulis arenosis et extraneis, et in sole siccatum macerentur per 10 dies in Suc Zingiberis) a a oz. 7. dr. 5. ;—Larvarum Bombycis ;—Rad. Angelicæ Seminum—Napi Sinensis a a oz. ij. dr. 5. ;—Sulphureti Hydrargyri (Cinnabaris) Rad. cujusdam ignoti amari Ras. et clarific. ;—Laminarum oxidi Hydrargyri coloris lucide albi ; Arsenici Sulphureti flavi a a grana 630 Camphoræ Borneensis oz. iss. ;—Mosehi oz. 1 drs. 4½.

Scorpionis integri, projecto veneno, in sole siccato, No. 1.

Hæc omnia in pulverem redaeta commisceantur ;—et ope oryzæ glutinosæ (No-my dictæ) in succo Zingiberis coctæ, in massam pro pilulis formandis contund.

Fifty of these pills at one time to be administered to the patient, who after being well wrapped up, is to be left to perspire profusely. For three weeks after this medication, he is to avoid or

abstain from any thing which may stir up the noxious winds.

In this attempt to exhibit the state of Chinese practice in the disease in question, I have proceeded as I would deem it most advisable to do, were it the postulatam to acquire a similar knowledge of a point belonging to our own medicine, which to a stranger would be better conveyed by a view of the practice, followed in a given disease, than by reference to a systematic treatise, or by didactic and general precepts. It will probably appear, that neither the *ratio medendi*, (if such term may be here applied,) nor the means of carrying that into effect, differ so widely as might be supposed from those of our own practice.

I am aware that there is a hiatus, as regards the treatment of the disease, when it makes its first onset, that is, in what may be designated its apoplectic stage; but until that has passed, I apprehend the malady to be little taken charge of in Chinese practice, as it does not know the prompt and efficient service rendered by bloodletting, and other modes of depletion. It may, on the other hand, be said, that if a patient under the condition of weakened moving powers, and too great vascular plenitude, loses the chance of life which such practice alone yields; he who falls into the disease in advanced old age, or from a directly impaired and effete nervous energy, with a care or labor-worn

frame which has been inadequately nourished, escapes the hazard of extinction, from the too active application of general precepts to similar symptoms, though the actual morbid states differ greatly.

We see that in the first instance, or when indications require, they relieve the digestive organs, and the frame as suffering in sympathy with them, by purgative medicines. They have recourse to tonic treatment, earlier perhaps than our practice exacts or allows of. They then proceed to remedies combining stimulant, tonic, and demulcent properties, whether possessed by, or merely ascribed to the articles selected, when the disease has reached its chronic state. We find recourse had to similar resources of greater activity: then such remedies as influence the imagination, as bat dung, viper's flesh, scorpions, and larvæ of silkworms; or which may produce a forcible impression, and consequent alteration on the frame, as the oxide of mercury in the sixth prescription, and the sulphurets of quicksilver and arsenic; or such as are known to act peculiarly on the nervous system, as camphor and musk.

If we may not think highly of the description of their remedial apparatus or resources, we must be struck with the general similarity of them to our own. Whether both came from the same source, or have been arrived at by independent experience

in the course of ages, are questions not belonging to the present subject, more than the hypothetical one as to proximate causes. The lodgement of a malignant wind or vapor, standing them in the same stead as oppression of the sensorial functions by sanguineous congestion and effusion, or inundation of it by serosity at its source, do, or have done, to ourselves. A century and a half ago, the similarity adverted to must have approached to identity, and Sydenham would not have felt himself destitute, having the resources of the Chinese *Materia Medica*. The prescriptions of some of his European cotemporaries were numerically as prolix, and many of the ingredients as singular, inert, or disgusting, as are some of those in the formulæ now detailed. Were a few articles expunged from the prescription sect. 4, it might aspire to adoption in the present day, when the doctrine of the effect of combination of medicines of similar virtues, is amplifying prescriptions beyond their immediately preceding limits. Nor must it be supposed that their curative resources are exhausted by the preceding internal medicines. Instead of our vesicatories, the Chinese resort to means of producing counter irritation, by drawing out and pinching with the fingers and thumb, the skin and cellular substance until the surface is completely blackened;—by scraping it at particular points, and over much of the body, with the edge of their copper coin, until the same effect with some excoriation

ensues;—above all, by the burning cones of moxa on certain points: nor are dry cupping by means of a hollow bamboo, and acu-puncturation likely to be withheld. Externally, they have also their liniments, and especially terebinthinate or other stimulant plasters; while for electricity or galvanism, they have no counterpart nearer than the shampooing apparatus, and kneading the joints and muscular parts with the hands.

There will be no want of instruction as to dietetic and other *juvantia* and *lædentia* in Chinese practice, but more bearing upon the qualities, real or supposed, of meats and drinks, than the cardinal points of strict temperance, and abstemiousness in food and sleep. I have quite recently been referred to in two hemiplectic cases of native Chinese, genuine denizens of Epicurus's herd, and of the make, and degree of obesity, which are supposed to lead to, or to constitute predisposition to the disease; and I have much reason for believing, that the stress I laid upon strict temperance in every construction of the term, as their only chance for safety, to be neither more novel, nor more likely to be attended to, than it would be with my own countrymen, who had gone through and been treated for the same *stadia* of the disease.

In the course of the enquiries which led to the framing the preceding memoranda, a communica-

tion was afforded me of the singularly great proportion of apoplectic and paralytic cases amongst a particular class of persons, who though residing in China, must have brought thither European constitutions, or lived there in European habits,—the Roman Catholic missionaries resident at Peking. I annex a translation of the notice I received on the subject.

“ In the space of 27 years, of 22 European missionaries residing at Peking, there have died of attacks (meaning apoplectic and paralytic ones) seven. And amongst 16 Chinese missionaries (generally, I believe, educated in Europe) resident at Peking, there have died from such attacks, in the space of 27 years, six.

“ So that out of 38 missionaries residing at Peking, 13 have died from such attacks in the space of 27 years.

“ It must be observed, that all did not die speedily, some of them having lived a few days only,—others for months, and even years;—and Mr. Govea, the Bishop of Peking, after the first attack, which was very severe, lived for five or six years, suffering annual relapses, which sometimes anticipated, at other times came later than the time of year of the original attack.”

Nothing farther was stated in this notice, nor was there any attempt to account for what would be a great rate of general mortality, especially so when caused by one state of disease, and that a chronic one.

ON SINGLE VISION,
AND
THE UNION OF THE OPTIC NERVES.

BY W. TWINING, Esq.

Presented March 5, 1825.

THE phenomenon of single vision with two eyes, each of which represents a picture of the object we look at, has received various explanations, and has been the subject of much enquiry. Dr. Wollaston has lately promulgated an opinion on this subject, which I propose to bring before the Society, for the purpose of noticing some observations respecting the structure of the optic nerves, and thalami in a healthy state*, as well as investigations of the changes produced by disease, which preclude us from admitting Dr. Wollaston's premises, or adopting his conclusions.

* "Vesalius, Valverda, Aquapendens, and Losselius, sometimes found the optic nerves separated through their whole course from the brain to the eyes; and yet persons whose optic nerves were so separated, during life, saw objects single as other men do; which would have been impossible, if this single appearance had depended on the conjunction of those nerves."—See Porterfield's 1st vol. on the Eye, &c. p. 194, of the Retina, and Optic Nerve.

Dr. Bostock, however, considers the question undecided. See p. 231, of his 1st vol. of Physiology, published in 1824.

Dr. Wollaston believes, that the faculty of single vision with two eyes, may be attributed to a semidecussation of the optic nerves; namely, that the contiguous half of each optic nerve, on reaching the sella turcica, and there uniting with its fellow, does cross and ultimately serve to furnish retina to the nasal side of the opposite eye. The retina of the temporal side of each eye being formed by the expansion of half of the corresponding nerve, while the retina on the nasal side of each eye is supplied by the expansion of half of the nerve from the opposite side. This semidecussation and distribution of the nerves, though not within the reach of anatomical demonstration, Dr. Wollaston considers established by induction, from the symptoms of disease in some instances which he relates.

A case nearly similar to those published by Dr. Wollaston, came under my care about four years ago. C. D. a lady about 20 years of age, and in perfect health, was thrown from her horse while taking exercise in a riding-school. In falling, the left shoulder and left side of the head struck against the boarded wall. The shock occasioned a momentary privation of consciousness, but of such short duration, that it amounted only to the slightest degree of stunning; from which she soon recovered, and again rode for half an hour. About an hour after the fall, her sight became impaired, so that half of objects on her right (that is, the left

side of persons walking towards her) was not seen. On looking at a book, she read with difficulty, half of the page being dark; and she found that she could not comprehend what she read, from forgetting the first part of a sentence before she arrived at its conclusion. A dull heavy headache was felt, the pulse became slow and oppressed, countenance pale and void of expression, pupils dilated, and vomiting came on.

The slow and gradual accession of these symptoms, distinct from the first effects of concussion, and not immediately connected with alarm at the moment of the accident, was attributed to effusion slowly taking place from ruptured vessels, and appeared to indicate the necessity of active treatment. The patient was accordingly bled to lb. iss. and a general system of depletion was adopted, in its fullest extent; at the same time every kind of excitement was avoided, and no food but tea, and a very small quantity of bread, allowed for several days.

In a few hours after the V. S. the whole of objects was perceived, but there was a confusion of sight, objects appearing irregular, and their outlines not well defined. This symptom, with dizziness and the dull headache, subsided gradually; and after several days continuance in the plan of treatment above stated, the patient recovered, and has never since experienced any similar affec-

tion of the sight. In this case, no experiment was made to ascertain whether only the half of objects would be seen, when one eye was closed.

We sometimes find, that injuries of the head, sympathetic affections of remote parts of the nervous system, and disorders of the stomach, as well as those disturbances of the nervous system dependent on distress of mind, intense thought, and severe application to business; produce suspension of the functions of some organs, and disordered action of others. It is difficult to assign a reason why affections of mind occasionally produce the same symptoms, as arose from concussion of the brain in the above instance; nor is it easy to ascertain how mental emotions sometimes suddenly cause those symptoms to cease.

The function of vision does not unfrequently suffer from all these causes; but surely we have not legitimate reason to conclude, that when hemiopsia, or half sight, has been produced, the cause must be lesion of just half the optic nerve, or of the whole nerve on one side, between its origin and the union on the sella turcica. On the contrary, lesion, or disease of one nerve at the point just mentioned, has not been attended with hemiopsia.

Many have attempted to shew how single vision with two eyes is obtained, and also to explain the

phenomena of hemiopsia, or half sight. It would be endless to advert to the opinions of all who have written on these subjects: among the most eminent, we find Berkeley. The theory which his reasoning seems intended to support, ascribes single vision to the corrections which the impressions made on the retinas by visible objects, habitually receive from the sense of touch; so that the mind was supposed to acquire by degrees the habit of knowing that objects were single, though the impression on the organs of sight were double.

The assistance and correction which the sense of sight receives from the touch, is supposed to be shewn by the case of the boy born blind, and restored to sight by Chesselden's operation. The same case is adduced as a proof of the gradual manner in which the knowledge of the effects of light and shade, as indicative of the figures of objects, was slowly acquired, and by remembering the errors of sight which the touch corrected. This boy saw objects single at the first moment his sight was restored: consequently, (if the lens had never transmitted light prior to the operation,) this case is a proof that the faculty of single vision is not acquired by habit, but is an original function.

Smith and Reid maintained, that single vision arises from the two pictures of objects falling on corresponding points of the retinas. The former of those authors believed the faculty of sin-

gle vision to be acquired by habit, the latter considered it an original power possessed independent of habit. Chesselden's case just noticed tends to decide this point. Smith says: "When the optic axes are parallel, or meet in a point, the two middle points of the retinas, or any points which are equally distant from them, and lie on the same sides of them, either towards the right hand, or left hand, or upwards, or downwards, or in any oblique direction, are called corresponding points."

Wells objects to this, which, he observes, attributes the joint possession of one property, to places of the retinas at unequal distances from the centres of the optic nerves; and that a point of the retina which is *external* in one eye, has a correspondence of action and sensibility, with a point of the retina in the other eye which is *internal*. For instance, if we look at an object with both eyes, which is removed some distance, say 25 degrees, either to the right or left of the place immediately in front of us, the pictures fall on that part of the retina lining the temporal side of one eye, and the nasal side of the other eye. Wells's theory, derived from consideration of visible direction and visible distance, does not appear to explain the difficulty.

The theory of single vision which Dr. Wollaston has lately deduced, from the assumed semi-

decussation of the optic nerves, and his reasoning founded on cases of disease in man, together with the facts which comparative anatomy afford, completely meet the objection which Dr. Wells has urged against the theory of corresponding points of the retinas, above noticed: assigning at the same time a very plausible reason for that correspondence, in the anatomical structure arising from the semidecussation which he believes to exist.

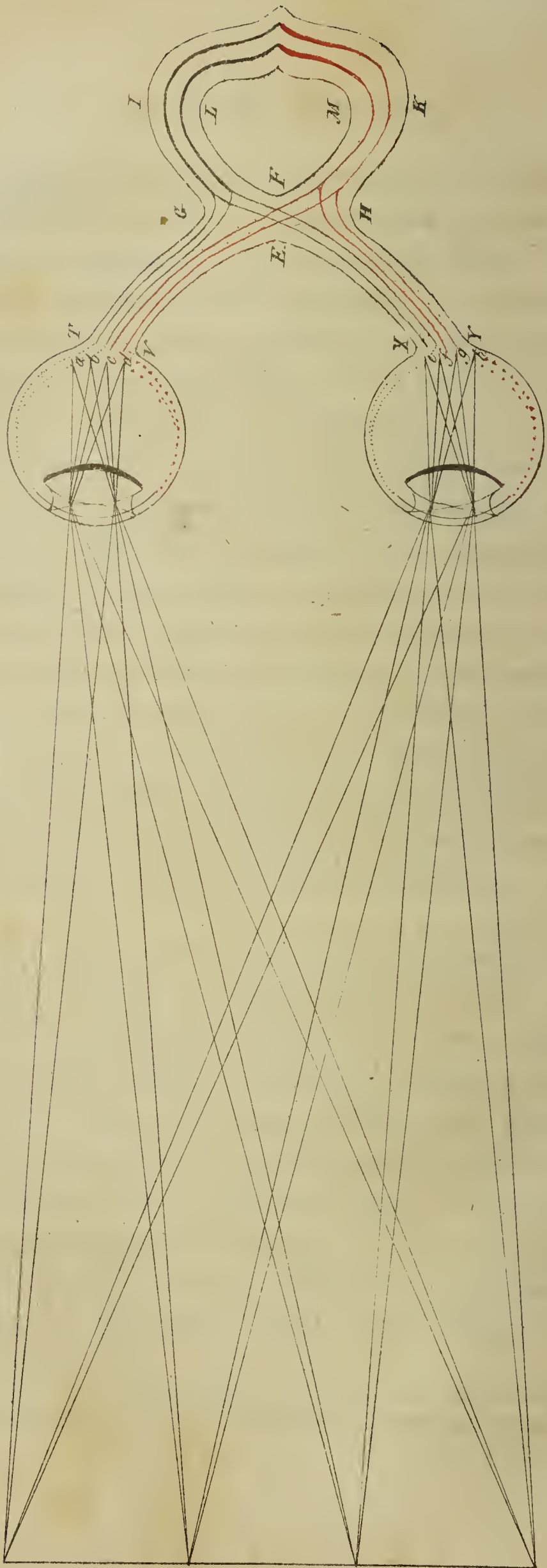
Now the structure which Dr. Wollaston imagines to exist in man, namely, the semidecussation of the optic nerves, and the formation of retina thence supposed to arise; so that the nasal side of the retina in each eye, is formed by fibres arising from one thalamus; and the temporal side of the retina by fibres from the other thalamus; if admitted in the fullest extent that he requires, only accounts for double vision when there is disaccordance of the optic axes in a horizontal direction. But we find that non-accordance of the optic axes in a vertical direction, will also produce double vision, which is not accounted for by the structure which Dr. Wollaston imagines. Moreover I think the cases and dissections presently to be stated, will be admitted as evidence that such structure does not exist in man.

A person might probably subject himself to be accused of adopting an indefinite idea, instead of adducing a demonstrable explanation of the inte-

resting phenomenon under examination, were he to say, that the consent of action of the retinas and optic nerves, whereby we see objects single with two eyes, is dependent on sympathy*. Nevertheless the anatomy and physiology of the human body afford several examples, where in like manner we find sympathy, or coincidence of action even of distant parts, to arise from the structure, and depend on juxtaposition of nervous fibres at their origin. This is nowhere more beautifully shewn than in the associated action of the internal, with several of the external or accessory muscles of respiration. The latter being chiefly supplied by the spinal accessory nerve of Willis, which, though it passes out of the skull with the eighth pair, does arise within the spinal canal, from those pairs of cervical nerves, which externally give off the phrenic nerve to supply the diaphragm.

The sentiments of Sir Isaac Newton on the subject of single vision, entirely accord with the reasoning of Dr. Wollaston; indeed on some points there is almost a verbal accordance between these two authors. The following extract and annexed diagram, from Harris's posthumous treatise on optics, published in 1775, proves that the genuine spirit of philosophical analysis is the same in all ages; and shews how the inductive reasoning of great minds on the same points, leads them to similar conclusions.

* Rohault appears to have entertained an opinion of this sort.



*Sir Isaac Newton's Diagram
showing the semidecussation which he supposed to ex. t. at the union*

“ And so there are a vast multitude of these slender pipes*, which flow from the brain, one half through the right side nerve *J L* till they come to the juncture *G F*, where they are each divided into two branches, the one passing by *G T* to the right side of the right eye *a b*, the other half shooting through the space *E F*, and passing by *X* to the right side of the left eye *e f*. And in like manner the other half, shooting through the left side nerve *M K*, divide themselves at *F H*, and their branches passing by *E V* to the right eye, and by *H Y* to the left, compose that half of the retina in both eyes, which is towards the left side *c d* and *g h*.

“ Hence it appears,—

“ 1st. Why the two images of both eyes, make but one image in the brain.

“ 2d. Why when one eye is distorted, objects appear double.

“ 3d. Why though one thing may appear in two places, yet two things cannot appear in one place.

“ 5th. Why if one of the branches of the nerve beyond the juncture should be cut, that half of

* This allusion to the transmission of nervous influence through pores, and their union at the sella turcica, is precisely in accord with the doctrine of Hierophilus and Galen.

both eyes towards the wounded nerve would be blind, the other half remaining perfect.”

This opinion of Sir Isaac Newton, though connected with a belief that the influence of the brain is communicated through the nerves by a most subtile nervous fluid, still mainly rests on the assumption of a semidecussation of the nervous fibres. I have only copied such parts of Sir Isaac Newton's explanation, as immediately apply to the point in question: his reasoning and the diagram will be found at p. 108, of Harris's Treatise on Optics.

The following anatomical observations respecting the structure of the optic nerves and thalami, and the effects of disease on those parts, appear sufficiently to establish the fact, that no decussation or semidecussation of the optic nerves exist in the human subject.

OBSERVATION 1.

Mrs. Scot had a fungus of the left eye, for which the eye was extirpated. Several months afterwards, the patient died; and on dissection, the left optic nerve was of inky blackness, and this dark color extended backwards from the orbit far beyond the point where the nerves join. The diseased nerve within the cranium, was as thick as the little finger, and the corresponding thalamus nerv. optic. was about a third larger than the

opposite one, but of natural structure. The dark color above mentioned was confined to the left side. On the right side the nerve was of its natural size and color, and was merely attached to the black diseased nerve of the opposite side, by cellular shreds, where the nerves come in contact on the sella turcica.

This patient had never observed any affection of her eye until two years before the operation, when the morbid changes commenced; and in the course of four months she became gradually blind of the left eye.—See Burns's *Surgical Anatomy of the Head and Neck*, p. 349.

OBSERVATION 2.

Morgagni states, that Hildanus had dissected a subject that had been blind of one eye, and found the corresponding optic nerve wasted, even beyond the usual union of the nerves on the sella turcica.

OBSERVATION 3.

A man was afflicted with paralysis of the left side of the body: there was no perception of light with the left eye, and the lids of both eyes were closed. The man died, and on dissection an ounce of coagulated blood was found in the right thalamus nerv. optic. extending into the lateral ventricle. Here we find an injury beyond the junction of the optic nerves, produces blindness of one

eye, not half blindness of both eyes, which it might be expected to do, if the semidecussation of the optic nerves did exist.—See Sir E. Home's Attempt to ascertain the Functions of different Parts of the Brain.

OBSERVATION 4.

A patient was affected with paralysis of the right side of the body. Dissection discovered erosion of the right thalamus nerv. optic. Hemiopsia not noticed in this case.—See M. Bayle on paralytic Affections on same Side of the Body, with organic Lesions.

OBSERVATION 5.

A patient had hemiplegia of the right side, and lived four years after the first attack. On dissection after death, an effusion of blood was found in the right thalamus nervi optici. Hemiopsia was not observed in this case.—See M. Bayle on paralytic Affections on the same Side of the Body, with organic Lesions of the Brain.

Rostan mentions, in his work *Sur le Ramollissement du Cerveau*, that the disease, when deeply seated, most frequently affects the corpora striata, and *Thal. nerv. optic. of the right side*. He states, that imperfections of sight or blindness are frequent symptoms in that disease, and sometimes one pupil is more dilated than the other. But he has not mentioned hemiopsia as a symptom.

OBSERVATION 6.

Cæsalpinus says : “ Repertus est aliquando in anatome, alter ex nervis visoriis attenuatus, alter plenus; visus autem erat imbecillis in oculo ad quem nervus extenuatus ferebatur, habuit enim vulnus in capite circa eandem partem : nervus autem extenuatus non ad oppositam partem procedebat, sed ad eandem reflectebatur. Visum hoc est Pisis, anno 1590. Unde omnes spectatores argumentum id certum existimaverunt, nervos visorios nequam se intersecare, sed coire et regredi ad eandem partem.”

OBSERVATION 7.

Vesalius thus relates the dissection of the brain and optic nerves of a woman, in L. iv. cap. 4. de Corporis humani Fabrica :—“ Mulier nobis obtegit, cui dexter quoque oculus ab ineunte ætate emarcuerat, sinistro interim integerimo. Mulieri dexter nervus toto progressu longe tenuior sinistro visebatur, non solum extra calvariæ cavitatem, verum in exortu quoque et in dextra congressûs nervorum sede. Ac præterquam quod dexter tenuis erat, durior quoque et rubicundior cernebatur, uti sane et in adolescente: sed dexter non admodum neque crassitie, neque mollitie adhuc sinistro cedebat.”

After looking with particular attention to such instances of diseased structure in the optic nerves and their thalami, as have been observed connect-

ed with impaired functions of the organs of vision: we may reasonably attempt farther to elucidate the subject under consideration, by referring to the most accurate researches relating to the structure of the human brain and optic nerves in a sound state.

The labors of anatomists have not as yet detected any decussation of fibres at the union of the optic nerves on the sella turcica, in the human subject. Vicq. d'Azyr observed, that when the human brain was hardened by immersion in alcohol, and the union of the optic nerves examined, the medullary fibres of the superior and inferior surfaces go direct to the eye of the same side; but the central part of this union of the optic nerves contains a mixed mass, the direction of whose fibres could not be ascertained. Wenzel observed the same structure of the outer side of the optic nerves at that part, while a smaller portion of the inner side of each nerve is inclined obliquely towards the opposite side; but it was impossible to demonstrate that any of the fibres crossed. Vide Wenzel de penitiori Structura Cerebri Hominis et Brutorum. This precisely accords with the evidences from morbid anatomy, in observations 1st and 6th above stated.

Riel and Haller, who dissected and studied the structure of the brain with unremitting assiduity, have not been more fortunate in their demonstrations than the other authors above named.

It is worthy the notice of the Society, that dissections have shewn some instances, wherein there was not any union of the optic nerves at the sella turcica in man; each optic nerve proceeding directly to the eye of the same side, and no peculiarity of vision resulted from such structure.

OBSERVATION 8.

Morgagni, in Book I. Letter 13. Art 7. mentions, that Vesalius “had observed the optic nerves to remain separated through their whole course, in a man who had always very strong sight.” He refers to Epist. Anat. 16. p. 14. Morgagni also states, that Aquapendente and Valverda had found the optic nerves in like manner not united; but that these two authors had not ascertained if any peculiarity or disorder of vision existed in those persons during life. Vesalius says: “His ille accessit cujus nervos visorios illo de quo hic sermo est, congressu invicem non connasci, neque sese contingere, vidimus: sed dexter nonnihil ea sede, qua calvariam aggressurus fuerat, sinistrorsum, et sinister nonnihil dextrorsum reflectebatur, quasi non coalitûs occasione nervi congregerentur, verum ut commode per suum foramen e calvaria prociderent: notissimum quum etiam hoc ductu progredientes, in oculi posterioris sedis medium non inserantur. Quam sedulo autem ac sollicitè ejus viri, cui in eum modum nervi debiscebant, familiares, num illi omnia gemina perpetuo oculis obversarentur, interrogaverimus, neminem naturæ

operum cognitione flagrantem ambigere sat scio ; at nihil aliud rescissere licuit, quam ipsum de visu nunquam conquestum fuisse, visuque præstante semper valuisse, familiaresque de visorum duplicatione nihil unquam intellexisse.”

OBSEVATION 9.

Mr. Cheselden relates the case of “ a gentleman who had strabismus, with double vision, produced by a blow on the head. By degrees, the most familiar objects came to appear single again ; and in time all objects did so, without any amendment of the distortion.” See Note to p. 171 of Travers’s *Synopsis of Diseases of the Eyes*. This fact shews, that points of the retinas not originally endowed with the joint possession of the correspondence, supposed by Sir Isaac Newton and Dr. Wollaston to depend on peculiar distribution of the optic nerves in the retinas ; may by habit acquire that correspondence. Therefore, independent of the evidence of the previous observations, we have reason to conclude, that the structure assumed as the basis of their reasoning, is not necessary to the function of single vision.

We must be careful how we attempt to employ the facts which comparative anatomy affords, in explanation of the phenomena of vision, as performed by the human subject. For it is reasonable to conclude, that the organ or instrument of sight, is constructed to accord with the medium

in which the animal lives ; and that the nature and degree of vision in each animal, has that particular modification which is best adapted to the animal's wants and habits of life. We know that double vision has occurred in man, when by accident an aperture has been formed in the iris, besides the natural pupil, so that in fact there were two pupils*. But we have as yet no satisfactory account of the functions of vision in a species of fish, (the *Cobitis Anablebs*,) whose eye is furnished with two pupils. The cornea is opaque in the *mustyphlus*, the *murena cæcilia*, and the *gastrobranchus cæcus*. Both the cornea and aqueous humor are wanting in the *sepia*, in which there is only a thin membrane over the lens. In Lawrence's work on comparative anatomy, we are referred to p. 341 of the *Biology of Treviranus*, who states, that the retina in the mole is formed by an expansion of a branch of the superior maxillary division of the fifth pair of nerves†. Magendie has observed, that when birds are blind of one eye, from the destruction of the cornea, the optic nerve of the blind

* See a case of diplopia from double pupil by Ragellini, in the *Act. Hafn.* No. 1. A. 27.—Also a similar case from two accidental apertures in operating for artificial pupil, in p. 66 of Sir W. Adams's work on artificial pupil, published in 1814.—In page 231, of Saunders's *Treatise on the Eye* (1816 edition) is a case of double vision, arising from two apertures in the opaque lens, in consequence of unequal absorption after the anterior operation for cataract.

† Magendie and Demoulin's ascertained, that the mole has no nerve corresponding to the optic of other animals, and that there exists no foramen opticum in the sphenoid bone for transmission of such a nerve; authenticating fully the observation of Treviranus.

eye is wasted, and this atrophæa extends to the optic thalamus of the opposite side; but he did not find the same occurrence to take place in mammiferæ.

These and other varieties of structure, which comparative anatomy makes us acquainted with, so far from illustrating the mode in which sight is accomplished in man, would rather lead us to believe, that vision is variously modified in different animals, wherever a different structure is provided by nature. Nor does the crossing without any union of the optic nerves in fishes, and some lizards, militate against this general conclusion. It is evident, from the position of the eyes of such fishes as are alluded to by Dr. Wollaston, that they cannot see the same object with both eyes at one time.

The eyes are not the only organs of sense which being double, do communicate a single impression to the sensorium. We have a parallel instance in the sense of hearing. The fact is, that we have no proof that there is any more correspondence between the pictures in the eye, and the sensations produced by them in the brain, than there is resemblance between the sounds of any given words of a language, and the sentiment excited thereby in the sensorium. Nor does it appear necessary towards unity of perception of any given object, that the impression on the organs of sense should be

single. Brown has observed, in his *Philosophy of the human Mind*, that the two words *he conquered*, produce in the mind the same single idea or impression, as the word *vicit*.

I think the aggregate of the foregoing paper, will be admitted as sufficient proof that there is no decussation of the optic nerves on the sella turcica in man. If we wish to ascertain how single vision is accomplished with two eyes, we must seek other reasons for that phenomenon than those which have been assumed by Sir Isaac Newton and by Dr. Wollaston. The facts above stated, appear to me so demonstrative on this subject; that I am satisfied, those authors, with such evidence, would not have adopted the conclusions they have published.

ACCOUNT OF EXPERIMENTS
WITH
THREE SPECIES OF INDIAN SERPENTS,
WITH
A VIEW TO ASCERTAIN THE COMPARATIVE VIRULENCE OF
THEIR POISON.

BY P. BRETON, Esq.

Presented June 4, 1825.

ON the 19th of April 1825, a Cobra de Capello having been brought to me, it was made to bite the thigh of a pigeon, and in three minutes it expired.

April 20.—In the presence of W. Twining, Esq. Surgeon to his Excellency the Commander in Chief, a rabbit was bitten, and it died in three minutes.

Immediately after, a pigeon was bitten, and in four minutes it was dead.

A second pigeon was then bitten, and it survived only eight minutes.

After an elapse of about twenty minutes, a third pigeon was bitten, and it was lifeless in three mi-

minutes. In this instance there was probably a fresh secretion of the poison, which was the cause of its activity.

A fourth pigeon was then bitten, and about a quarter of an hour afterwards blood and lymph resembling sanies oozed from the wounds inflicted by the fangs. The pigeon immediately couched, and remained on the ground without moving, gradually drooped, and in fifty-eight minutes expired.

A fifth pigeon was bitten, immediately after the fourth pigeon was disengaged from the fangs of the snake, and it survived four hours and 20 minutes.

The rabbit and pigeons were bitten by putting the thigh of each to the mouth of the snake, while the latter was held by the throat by the snake-catcher. On diminishing the compression on the snake's throat, the reptile readily seized the part presented to it, and bit it forcibly, retaining its hold till the animals and snake were thrown together on the ground. The very instant the pigeon on the 19th, and the rabbit and four pigeons on the 20th, were bitten in the thigh, the limb became paralysed, apparently from the effects of the poison, and not simply from the infliction of the wounds; for the last pigeon that was bitten, (the wounds in the thigh being very apparent,) manifested not the least affection of the limb until within an hour of its death, when muscular motion, first of

the legs, and then of the body, gradually declined, till the pigeon expired, evincing the weakness of the poison of the snake after a succession of emissions of it.

For about three hours, the pigeon last bitten did not appear at all affected by the poison. It then began to manifest restlessness, by fluttering now and then in the basket in which it was placed, and by throwing its head and neck in every direction, and gasping for breath until it expired. Muscular motion seemed to cease first in the legs, next in the body, then in the wings, and lastly in the neck and throat.

The symptoms manifested in the other pigeons and rabbit were instantaneous paralysis of the bitten limb, torpor, and slight convulsions. In neither of these animals, kept for several hours after death, was there apparent more than ordinary tendency to putrefaction.

On the 23d of April 1825, at 23 minutes after 10 A. M. in the presence of Assistant Surgeons Eger-ton and Macfarlane, a full-grown young dog was bitten by a Cobra de Capello in the thigh, and he instantly expressed pain, and limped a little. The wound appeared to remain painful, for he gently licked it several times. For upwards of an hour, no general effect of the poison was apparent. The dog then began to manifest restlessness and

languor, lying down, and rising at short intervals, with but little power to support himself in a standing posture. He gradually drooped; was latterly slightly convulsed; his tongue a few times ejected from the mouth, and with difficulty retracted; had a little foaming and discharge of saliva; a few successions of tremors of short duration of the body; and he expired at the expiration of two hours and 31 minutes after being bitten. The dog had no vomiting; the bitten limb was slightly swollen; and the body, although kept several hours, presented no other than ordinary tendency to putrefaction.

The slow action of the poison on this dog, may possibly be ascribable to the snake having been three days before made to bite a rabbit and five pigeons, which may have in some degree weakened the action of the poisonous secretory organs.

At 25 minutes after 10 A. M. a second dog, three parts grown, was bitten in the thigh. He instantly manifested pain, and limped a little, but remained the whole day lively, and apparently well, and at night eat as usual his food. The following morning the whole of the bitten limb was swollen and paralysed. At about nine A. M. languor was apparent, which continued till the evening, when he revived, and gradually recovered from the effects of the poison, and of the paralysis of the limb.

During several hours, the evident symptoms were torpor; very slow and difficult respiration; languid circulation: a little foaming and discharge of saliva; a convulsive ejection from the mouth a few times of the tongue, with difficulty of retracting it; dilatation of the iris; and now and then a tremulous motion of the body.

In this experiment, a fact is established, that although the effect of the venom of a serpent may be for several hours very evident, an animal is capable, without any remedy whatever, of surviving its action; for the day after being bitten, the dog remained several hours apparently in a dying state; but in the course of the following day recovered perfectly.

The third and fourth, half grown whelps, were bitten in quick succession to the second dog; and although they both manifested pain, and limped after being bitten, no effect of the poison occurred.

These experiments prove, that after the first or second emission of the poison, it becomes too weak to destroy even a whelp three parts grown.

Immediately after the fourth dog, a pigeon was bitten in the thigh by the same snake. The limb was instantly paralysed, and it gradually drooped, and died in twenty-one minutes.

From the above experiments, it would appear that the venom, although not sufficiently powerful to kill either of the three whelps, was yet active enough to destroy a small animal, as a pigeon, in 21 minutes.

Experiments with a second Cobra de Capello.

An innoxious water snake, called Dhonr, was bitten towards the tail. For an hour and a half, it shewed no sign of being affected by the poison. It afterwards lost the use of the portion below the bitten part, gradually became languid, and without any other symptom than gasping for breath, died in two hours and fifteen minutes.

2d. A rabbit, bitten in the thigh immediately after the water snake, had its limb instantly paralysed; and with no other symptom than torpor and slight convulsion, died in eleven minutes. The part bitten became black, and there was a little extravasation of dark colored blood around the bitten part.

3d. Immediately after the rabbit, a pigeon was bitten, and it died in twenty-seven minutes.

4th. The second pigeon, bitten in immediate succession, died in one hour and eleven minutes.

5th. The third pigeon bitten drooped, and died in three hours and forty-two minutes.

6th. The fourth pigeon bitten, shewed no symptom of the poison.

7th. The fifth pigeon bitten, was not at all affected.

The water snake, rabbit, and five pigeons, were bitten in immediate succession, while the Cobra de Capello was held by the neck by the snake-catcher. And these experiments prove, 1st. That an innoxious snake can be killed by the venom of a poisonous serpent. 2d. That the second emission of the poison is speedily fatal to a small animal, as the rabbit. 3d. That the poison becomes gradually weaker after every successive emission of the poison, until it becomes inert; or possibly, after a certain period, there is for a time a cessation of the secretion of the poison, for the two pigeons last bitten remained unaffected.

Rabbits and pigeons appear to be equally speedily killed by the venom of serpents. They generally die in two or three minutes after being bitten by a Cobra de Capello. Full grown dogs are killed by the venom of this snake in full vigor, in fifteen or twenty minutes.

On the 30th of April, the snake-catchers brought me a venomous snake, called by them Bora. On examination, it was identified with the Kutuka Rekuia Poda of Dr. P. Russell, which in Behar

is known by the name of Amaiter and Seeah Chunder. In the upper jaw of this snake there were four poisonous fangs, two on each side; and as they were, with their muscular sheaths, large and very distinct, they were exhibited to the medical students, and to others who were present.

The fangs of this snake were by the snake-catcher forced into the thigh of a whelp three parts grown. He immediately limped, but for upwards of an hour manifested no other effect of the poison. He then seemed restless, breathed with difficulty, gradually lost the use of his hind legs; and without any vomiting, and with but slight convulsion, drooped and died, in four hours and eight minutes.

Immediately after this whelp was bitten, another half grown whelp was wounded in a similar manner by the fangs of this snake, but without any effect of the poison being evinced.

In the same manner, and in immediate succession, a third whelp, and a pigeon, were punctured in the thigh by the snake's fangs, but no effect was produced in either of these animals.

In forcing the fangs into the thighs of the animals, one of the fangs was torn off from its sheath, and it fell on the ground. I had it picked up, and

it is now in my possession, with a horse hair passed through the hollow of it.

After the last experiment, the Bora was bitten by a vigorous Cobra de Capello, but no effect whatever of the poison appeared.

Immediately after, and by the same Cobra de Capello, a pigeon was bitten in the thigh, and it died in 16 minutes,—a proof of the activity of the poison, even after the second emission of it.

May 1st.—The Bora and Cobra de Capello were irritated, and then brought together, and made to bite each other a few times. No impression of the teeth of either of the snakes being visible, a few of the scales on the belly of both the snakes were scraped off, and the fangs of each forcibly introduced, and retained a few seconds in the wounds. The punctures were distinct in the belly of both the snakes, but neither of them were affected by the poison.

From this experiment, it would seem that a poisonous snake is unsusceptible of the poison of another species of snake.

May 3d.—The same Cobra de Capello, in full vigour, bit a whelp in the nose, and it died in 16 minutes.

An attempt was made to make the Bora bite a whelp; but in the act of biting, two of the three fangs remaining in the Bora's upper jaw, being torn off from their sheaths, fell on the ground. These are preserved, and a horse hair passed through them, to shew they are poisonous fangs. The Bora being unable to renew its bites, was put in a bottle of spirit of wine.

On the 3d of June, the snake-catchers brought me for experiment, a third kind of venomous snake, named, in Russell's work on Indian Serpents, *Bungarum Pamah*, and in Shaw's Zoology, *Boa Fasciata*, and called in Bengal *Saunkenee*. Its poison proved less virulent than that of the *Cobra de Cappello* and *Katuka Rekula Poda*; for of four pigeons bitten at intervals of a few minutes, the first died in 19 minutes; the second in 20 minutes; the third in 52 minutes; and the fourth in 46 minutes. Two of the pigeons were opened immediately after death, and the heart and large vessels examined. The blood was not in any part coagulated, and none was contained in the ventricles of the heart.

The *Boa Fasciata* is oviparous, for the snake-catchers brought with the snake four of its eggs, containing its young. Two of the eggs were opened, and two living serpents taken from them, and preserved in spirit. These, with the remaining

two eggs, were presented for the inspection of the members of the Society.

In Dr. P. Russell's splendid work on Indian Serpents, are enumerated eight distinct species of venomous snakes, which came under his own observation. These are, 1. The Cobra de Capello, (*Coluber Naja*,) Gomun.

2. The Katuka Recula Poda, (*Coluber Russellii*,) called in Bengal Bora, and in South Behar, Amaiter, and Seeah Chunder.

3. The Bungarum Pamah, (*Boa Fasciata*,) called in Bengal Saunkunnee.

4. The Gedi Paragoodoo, (*Boa Lineata*.)

5. The Boddroo Pam, (*Coluber Gramineus*.)

6. The Horatta Pam, (*Boa Horatta*.)

7. No native name given, (*Coluber Melanurus*.)

8. The Bitin, (*Coluber Lachesis*.)

Of the Cobra de Capello species, 11 varieties are enumerated by Dr. Russell, to which names in the Telinga language are given.

ON THE CLIMATE

AND

DISEASES OF BENCOOLEN.

BY R. TYTLER, M. D.

Presented December 4, 1824.

THE settlement of Bencoolen has been long remarked for the unhealthiness of its climate; and under this article, in Hamilton's East India Gazetteer, it is affirmed, that "So early as 1698, this settlement had already cost the East India Company £200,000, and was at the same time so unhealthy, that in the year 1705, the Governor, three civil servants, and 41 slaves died." The account communicated by Mr. Miller, which is contained in the 78th volume, Part 1st, of the Philosophical Transactions, also commences in this manner:—"Fort Marlbro' is situated about a mile and a half to the south of the Malay town (Bencoolen,) where the Company formerly had their factory; but removed from thence about the year 1710, on account of the unhealthiness of the place." Yet the same writer states, upon the opposite page, that "The English settled here (exclusive of the military) are between 70 and 80; of which about 50 are at Marlbro'. They live full as freely as in England, and yet we have lost but one gentleman during the last six months, a proof that this climate

is not very unhealthy." In the accuracy of this inference, so far as experience enables me to form an opinion, I am disposed to acquiesce; and notwithstanding the mortality which has occasionally taken place at Bencoolen and in its neighbourhood, shall proceed to submit, for the consideration of the Society, a detail of facts, that induce me to conclude the sickness not to be inherent in the climate, or in any way imputable to effects of atmosphere. To my feelings, the temperature of this place generally is greatly preferable, from being more equable, than that of any station to which I have been attached on the continent of India, or even the salubrious island of Java. At Bencoolen, the thermometer rarely rises in the shade, during the hottest period of the day, and in the very warmest weather, above 89 or 90 degrees, and for the most part is found below 86; and ranges between that standard, taking all hours of the day, and 77 degrees. In consequence of this comparatively low state of atmospheric temperature, those excessive heats are not experienced in this country, which require the use of tatties to mitigate their fervor in Bengal and Hindoostan.

The close and exhausting hot nights, which tend so greatly to debilitate the constitutions of the inhabitants of continental India, are likewise unknown in Bencoolen; and the settlement seems far less subject to violent thunderstorms and heavy falls of rain than Java; while the sea breeze sets as re-

gularly into Marlbro', and is accompanied with equally salutary effects, as along the shores of that island.

The most unpleasant, and perhaps unhealthy portion of the day, is towards the approach of evening, between the commencement of the land, and termination of the sea breezes, when a disagreeable closeness prevails, that is usually relieved by a current from the hills, or a heavy shower, frequently attended, as in Java, with bursts of thunder, and strong gusts of wind, of short and unequal duration.

The town of Marlbro' is not erected in what can with justice be deemed an insalubrious situation; because the houses for the most part are placed on elevated spots of ground, are in their mode of construction well raised from the soil, and generally exposed to the circulation of the air from the sea; but a quantity of water occasionally collects in the ravines that run between some of the houses, and much rank vegetation is seen covering the banks of those ponds, and a vast number of trees are planted in the different compounds, which, on account of their great luxuriance, there can be little doubt obstruct the free circulation of air, and indeed completely exclude it from many of these dwellings. Yet notwithstanding the aspect of Bencoolen, and its bad reputation for salubrity, it will appear, that on the whole, less

disease occurs at this place, and much fewer deaths, than could be expected. And nothing has been witnessed since my arrival, which can shew that such diseases as do occur are more inveterate in their nature, or less capable of being relieved by medicines, than similar disorders occurring in other quarters of India.

I reached Bencoolen on the 30th of November 1823; and previous to my arrival, a number of deaths had taken place, chiefly from fevers, I understand, which had tended to throw a gloom over the settlement, and to impress the inhabitants generally with the idea that some unusually unhealthy season was about to take place in Sumatra. Events have not, however, verified these melancholy anticipations; and the following statement of deaths which have occurred since the month of December 1823, will shew that the proportion of mortality is not more, if it be not less, than has taken place at any settlement of equal magnitude on the continent of India. During the month of December last, one European died, affected with symptoms of severe fever; and another with symptoms nearly as bad, recovered, though with difficulty. The fatal termination took place in an officer of a ship at anchor in Rat Island bason; and he was affected with symptoms of fever at least 11 days before he applied to me for assistance. During that period, he had taken medicine administered by himself, without receiving any effectual relief; and

also was in the habit of frequently rowing in an open boat in the sun, between the ship's anchorage, Fort Marlbro', and Rat Island. When I first saw him, he was affected with symptoms indicating the worst species of putrid fever,—in other words, the Typhus Gravior of Europe, or yellow fever of tropical climates. The usual remedies were all applied, without the most distant prospect of success; and all the symptoms increased rapidly till his decease, the 11th day of his arrival on shore, having been affected with illness about 22 days from the commencement of the malady. Previous to his dissolution, an unusual, and to appearance very formidable symptom took place. A number of leeches had been applied to the temples, with the view of mitigating the severe delirium with which he was affected; and the wounds formed by the bites of those animals, which had been closed for upwards of 48 hours, suddenly burst forth, and a profuse discharge of thin, bloody matter occurred, that medical aid was incapable of restraining. At the same time his urine was deeply tinged, or rather entirely consisted of the same description of sanguineous fluid; stools containing similar matter, also passed frequently without pain; and it was evident from this and other symptoms, that the whole system was fast advancing into a state of putrescency, or gangrene, which would admit of no relief; and accordingly the patient expired, as I have stated, laboring under every symptom distinguishing the most fatal kind of fever that is

supposed to be peculiar to warm countries. In this case, the subject was a stout young man, a native of Scotland, about 27 or 28 years of age. In the course of January, a soldier belonging to the European Artillery, died in the General Hospital from dysentery. This man had been long ill, and no particular symptom characterized his case. At the beginning of February, an officer attached to the local corps became suddenly affected with symptoms indicating the existence of serous apoplexy, and expired suddenly. He was of a habit inclining to great corpulency, and it was understood had been accustomed to expose himself to the rays of the sun. At this period also, the unfortunate circumstance took place, of the destruction by fire of the Honorable Company's ship "Fame;" and in consequence of this unexpected occurrence, the crew, consisting of 18 Europeans, besides officers, were furnished with accommodation in Fort Marlbro'. Of them three died in the course of the months of March and April, including the period of nearly three months from the arrival of the "Fame," in Bencoolen Roads. These men were of course, from being attached to no ship, and under no restraint, allowed to ramble at liberty through the streets and bazars of Marlbro'; and, considering the course of life which they pursued during their stay, it may be deemed surprising that not more fell victims to the excesses in which there can be little doubt they freely indulged. The first who died, perished from symptoms of intermittent

fever, suddenly followed by an effusion into the brain, that rapidly terminated in death after it took place. The symptoms of the second were hardly distinguished by any febrile marks whatever: the patient, scarcely affected with fever, became suddenly delirious, and died, under symptoms indicating copious effusion into the ventricles of the brain; and accordingly, upon examining the head after death, upwards of two ounces of water were discovered in those cavities. These two cases were men of middle age and ordinary habit of body. The third was a young man about 18 years of age, tall and slender in his make: he died after 13 days illness. In this instance, the fatal symptoms of fever were slowly, yet steadily and regularly developed; he became daily worse, without medicine producing in him any sensible benefit; and upon dissection of his body, the internal coat of the great intestines was found in a state of deep inflammation bordering closely upon mortification. The exterior coat of the bowels was perfectly natural; and hence this case affords a very strong confirmation of the fact, that the immediate cause of fatal fevers in this country is inflammation spreading along the villous coat of the abdominal viscera. In March, a young married lady, who had arrived from Calcutta not quite a month, died from complaints with which she appears to have been previously attacked in Bengal, and which could not in any manner be construed into connection with the climate of this place. These, together with two chil-

dren, one of whom died from convulsions, and the other, who will be mentioned hereafter, constitute the only examples of mortality during the last five months amongst the European population of Bencoolen; and it will from them be distinctly perceived, that not a disease has occurred that can be considered peculiar to Sumatra, or may not have taken place in any quarter of the world.

In the General Hospital, during the same period, the mortality cannot be esteemed great; and on an average of about fifteen hundred cases in the month, or 50 in hospital daily, not more than five or six can be reckoned to have expired monthly, including accidents, and others who have fallen victims to sudden deaths. In the course of the last month, not one convict died in the General Hospital, and only one pauper, which is certainly an indication of health beyond what ought generally to be calculated upon. Since my arrival, no native has expired in the hospital from the effects of what I should be disposed to name pure fever; the fatal cases consisting chiefly of men who have been long debilitated through means of poor living, and repeated attacks of disease. But a formidable class of disorders, several examples of which have terminated fatally, does exist amongst the natives at this station, totally different from any that has been mentioned, as well as any that I before have had an opportunity of seeing in India; and it is to this species of malady I am anxious to turn the atten-

tion of the members of the Society. To explain the disease in question, I shall adduce the following example. A native of Hindostan, belonging to the police department, of middle age, and apparently good constitution, was admitted into the hospital on account of a small sore situated over the inner ankle of the right leg. In spite of every remedy that could be suggested, and diet given as freely as the man chose to partake of it, the ulcer became vitiated, and a few spiculæ of diseased bone were discharged from the sore. No benefit followed; and though slowly, the ulcer became gangrenous, and the patient died from the effects of an extensive and incurable mortification. Upon examining the leg after death, the tibia, through the whole course of its extent, was found diseased, and appeared dry, as if it had belonged to a skeleton. The periosteum was separated, and so much thickened, as to present the resemblance of ligamentous substance. In this case, the disease, therefore, appears to have originally existed, or first manifested itself in the bone; and the man died from an ineffectual attempt on the part of nature to throw off from the system, parts that were actually dead long anterior to the decease of the patient. It is obvious, that in a case of this description, amputation would prove of no avail; because no symptom existed to ascertain the extent to which the disease in the bones proceeded, or to afford security against the stump, after the operation, becoming affected with the same kind of mortification that

had occasioned the limb's removal. This opinion is confirmed by the fact, that previous to my arrival, out of several cases in which amputation had been performed, not one proved successful, the patients all dying from the effects of sphacelus. In a sepoy, or lascar, attached to the military, I had also an opportunity of witnessing the same fact. When I first saw this man, his left foot was not affected with any ulceration, but was completely mortified from the ankle downwards. The foot and toes were livid and cold, as if they belonged to a corpse which had been dead for a considerable period; and the foot was in the course of a few days removed by me at the ankle, with a pair of common scissors. No hemorrhage succeeded this operation, and the lower extremities of both tibia and fibula were perceived in a state of terrible disease. Portions of these bones were subsequently removed by the help of a saw, and I began to entertain hopes that the man would so far recover, that a line of demarcation would become drawn between the sound and diseased parts, and amputation with some chance of success might be performed above the knee. Unfortunately, however, symptoms of gangrene began to shew themselves quite unexpectedly high upon the leg, and the man died in spite of every effort which was made for his recovery. A native Malay pauper, when I first assumed charge of the hospital, was affected with what could scarcely be considered a severe ulcer of the great toe: the skin in the neighbourhood appeared

red, or attacked with erysipelatous inflammation, and during the course of a single night, a large black-colored fungus, resembling a mass of clotted blood, spread above the surface of the sore; and in the lapse of a day or two, was followed by the protrusion of several of the metatarsal bones, in a state of frightful disease. The malady extended above the ankle, and the patient died, in the greatest misery.

Many other instances of a similar nature might be adduced, and with cases of this kind the general hospital was crowded, and had been so for several months previously to the period of my reaching Bencoolen. The ordinary means of correcting vitiated ulcers had been resorted to in vain for the relief of those fatal sores. Bark appeared to have been productive of no effect; and local fumigations, which were liberally employed, seemed to produce mischief. The state of the hospital at that time may be judged from this fact, that not only the ulcer ward was crowded with sores in a state of gangerene, but the prison or conjee house, attached to the building, was also filled with cases considered of too loathsome a nature to be admitted into the wards of the hospital; and of these latter unfortunate beings, two have since been recovered, through the gracious mercy of God, after having the operation of amputation performed upon their limbs. The disease, thus existing in the Bencoolen hospital, comes properly under the

name of that destructive malady called the hospital gangrene ; but its causes, as the result proves, depended upon circumstances widely different from conditions of atmosphere, or the existence of contagion within the hospital. At the time these disorders so lamentably prevailed, the patients appeared to have been very indifferently supplied with a sufficiency of food ; for not only was grain of all kinds almost unprocurable in the bazars, but the patients were known to gamble, or make away with what was supplied to them by Government ; and that to such an extent, that one man, in the presence of the Assistant Surgeon of the hospital, declared to me he had not tasted food for nearly 10 days. The food of the convicts, and that supplied from the Company's stores to those who were sick in the hospital, consisted almost entirely of rice, and of that description which from a long course of investigation, and experimental research, I had ascertained on the continent of India to have become vitiated by means of the excessive rain, to which the grain is exposed whilst growing.

In consequence of the similarity which existed in the dreadful sores raging at Bencoolen, with those ascertained to be produced by the use of noxious grain, I suggested to Government the benefit that might probably result from allowing the patients in hospital diet of a more nutritious, and in many respects a different nature, to that to

which they had hitherto been accustomed; and accordingly, with that active liberality for which Sir Stamford Raffles is distinguished, the following acquiescence was returned in reply to my application.

10th January 1824. Par. 4.—“ With regard to the diet of patients in hospital, the Lieutenant Governor can see no possible objection to the Surgeons of this place being allowed the same degree of latitude as is authorized in all other hospitals attached to civil stations, garrisons, &c. and he should exceedingly regret that the sick here were deprived of any indulgence or consideration which is consistent with usage elsewhere.”

The attention thus paid by the Honorable the Lieut. Governor to my medical suggestion, it is with the greatest satisfaction, I am enabled to say, has been attended with marked benefit. From the time that an alteration of diet has been introduced, and the patients no longer supplied with rice alone, but have had liberal allowance of milk, flour, and meat, the gangrene, I may state, has entirely disappeared, and cases such as I witnessed upon my arrival are at present nearly unknown. The good effects resulting from the use of liberal diet is shown from the success obtained in operations that had not been performed without death succeeding, anterior to the alteration I have mentioned. Two men, as already noticed, have since then been subjected to amputation of the lower

extremities; in others, fingers and toes have been removed, and in all recovery has been the result. So that the fact I consider unequivocally established, that under proper regimen, ulcers even of the most terrible description, may be treated with as much success in this hospital as any in India or Europe. This conclusion is supported by the result of several cases that have lately taken place; particularly the instance of a Malay prisoner, of the jail of Marlbro'. This man had been in hospital for a considerable period, in consequence of a severe ulcer, situated upon the anterior part of the leg. He was under the use of liberal diet, discharged cured, the sore being perfectly cicatrized; but upon his return to the jail, he was of course placed upon his former food, and in about a month came back into the hospital with the ulcer broken forth into a state of horrible gangrene. The effects of the food are also remarkable, and deserving attention; for in one or two instances, its use has been attended with no sensible benefit; but in these cases, the viscera were much affected, and I have every reason to conclude the lacteal system did not properly perform its functions. A child of about three years of age was admitted, affected with extensive ulcerations upon the back. These degenerated into gangrene, notwithstanding food to the most liberal extent was afforded; but in this child the abdomen was swollen, and symptoms existed indicating marasmus, or obstructions of the mesenteric glands. I therefore conclude, that in this

instance the chyle was not freely absorbed, and did not pass through the thoracic duct into the system. Analogous examples have been also observed in adults; but wherever the food has taken its full effect, the gangrenous appearances and fatal symptoms have uniformly subsided. To afford the Society a testimony of the dreadful extent to which the disease arising from insufficient nutriment has proceeded in different cases, I submit the accompanying specimen of diseased bones, prepared from subjects in the hospital. The first is the tibia of a sepoy, who would not submit to amputation, till unfortunately the system had become too weak to sustain the effects of the operation, which was accordingly performed at his earnest desire, as a last hope, but with little prospect of affording relief; and he died in a state of exhaustion, two days posterior to the removal of the limb. The second is a portion of the tibia belonging to one of the cases, in which the operation was performed successfully by myself, and from which large pieces of bone had been previously discharged, two specimens of which are also submitted. The third is the cranium of a convict, who was originally admitted into hospital, affected with slight symptoms of fever. In the course of being cured from that malady, a tumor made its appearance over the left temple, towards the anterior part of the head. From the tumor a quantity of matter was discharged, together with several pieces of bone, including both tables of

the skull. A large opening became thus formed, through which the dura mater was distinctly seen, and the pulsations of the brain. The case continued to aggravate, till at last the patient accidentally fell from his bed upon the floor, and died in consequence of the blow. Upon opening the cranium, the surface of the brain beneath the dura mater, exposed through the wound, was of a dark color, but no further traces of disease were discoverable in the cerebrum. The inner table of the cranium, it will be remarked, is very generally affected with disease, which is well represented in the accompanying drawing of the preparation that has been made by Mr. Bullock; but the external table, excepting in the immediate vicinity of the ulcer, appears sound. This patient was probably between 20 and 30 years of age, and nothing was observed remarkable in his appearance from that of an ordinary Hindoo.

In aid of the beneficial effects resulting from the employment of liberal diet, the use of Benteering rum has been resorted to, and with manifest advantage; assisted by the administration of bark, given under the form of tincture, and a grain of opium in the worst cases, twice or even oftener in the course of 24 hours.

In the administration of food, a difficulty arises, however, in the treatment of cases under my care, that would not be anticipated by the practitioner

in Europe, because it happens not unfrequently that natives of Hindostan persist in obstinately refusing food of the kind absolutely necessary for the cure of the ulcers, under pretence that its employment would be prejudicial to their caste. Yet this assertion is very often observed to be either erroneous, or founded on the most childish prejudice; because a man who has refused fowls or beef, has earnestly solicited to be supplied with pigeons, that are nearly unprocurable in Bencoolen. It is therefore observed, that the worst description of sores for the most part occur in Hindoos, or those who confine themselves to a poor and unwholesome system of living; and hence many more ulcers exist amongst the sepoy, in comparison with what occur in the convict hospital, where the patients are found less scrupulous regarding their diet: and the Assistant Surgeon of the sepoy corps has informed me, that the sores have rapidly amended, in instances where the patients have been induced to adopt the liberal system of regimen; and that cases formerly inexplicable to him are now rendered intelligible, by the alteration that he has witnessed since the introduction of extra diet into the hospital. It is with pleasure I record this testimony to the candor of Assistant Surgeon Stevenson, whose zeal in the hospital is only surpassed by his knowledge and observation.

A second class of diseases, which appear also dependant upon food, is termed *Namby* by the

natives of Bencoolen. This disease is universally observed affecting Asiatics of all description who reside at Marlbro'. It is characterized by large elevated horny scales appearing on different parts of the surface of the body, which repeatedly fall off, and are reproduced as large as before in a short space of time. It is a very obstinate disease, and appears to resist the effects of some of the most powerful remedies in the *Materia Medica*. *Namby*, properly so called, is commonly the attendant of gangrenous ulcers; and indeed the spots of *Namby* in their worst stage run into mortification. I therefore infer, that it is but one stage, in the evolution of symptoms manifesting that cachectic disposition of body which leads to gangrene, in many instances, while it is restricted to *Namby* in others. A case of *Namby*, admitted into the hospital about three weeks ago, is evidently relieved by the treatment, chiefly consisting of liberal diets, that has been adopted; and the use of mercury, exhibited as an alterative, has manifestly been productive of good in the same case. Other cases have also been relieved, and are at present undergoing cure in the general hospital, while one has been dismissed cured within the last three days. Yet the pathology of this disease I candidly acknowledge to be known to me far more indistinctly than the preceding. Many circumstances, however, exist to prove the determination to the skin, and liability of the inhabitants of this country to cutaneous disorders, over the in-

habitants of continental India. But this, in all probability, may arise from the diminished temperature of the atmosphere, that allows the perspiration to pass less freely, and therefore, when acrid, renders it more liable to produce irritation of the skin, than is found in a warmer climate. It is to be observed also, that food such as rice, which is procured in abundance in Bengal, and employed in large quantities by the natives in their meals, is here more sparingly used; and consequently those dreadful bowel complaints which prevail on the continent, are unknown in Sumatra, where the evil effects attending the unwholesomeness of the grain, become developed in gangrene and virulent cutaneous disorders.

The appearances mentioned to have been discovered in the young man who died of fever, belonging to the ship *Fame*, as well as the tendency to mortification in the other fatal case that has been noticed, also sufficiently indicate the immediate cause of those fatal disorders to consist in unwholesome nutriment, which first inflames the bowels, and this inflammation is ultimately succeeded by gangrene, terminating in the death of the patient; although exposure to the sun may no doubt produce deleterious effects, in consequence of which, what otherwise might have passed without detriment through the system, becomes hurtful, and even destructive to it. From all that has been delivered above, the Society will readily anticipate the remedy I am

about to propose, viz. that attention should be paid in the settlement to the rearing of wholesome aliment; and if obstacles exist (but which however I perceive no reason for existing) that obstruct the general cultivation of wheat and other farinaceous grains, without the employment of which it is impossible for human society to advance beyond the stage of the lowest barbarity, for the immediate relief of the natives in the employ of Government, and the convicts, I should propose the establishment of a public garden in the vicinity of the station, whence they could at all times be supplied with nutritious vegetables and other articles, of which they are at present totally deprived; and the absence of which, there can be no doubt, constitutes the great operating cause of the prevailing maladies at this settlement; that, in respect of atmosphere and temperature of climate, is as healthy as any station existing in India.

ON THE
ENDEMIC FEVER OF ARRACAN,
WITH A SKETCH
OF THE
MEDICAL TOPOGRAPHY OF THAT COUNTRY.

BY J. GRIERSON, Esq.

Presented September 3, 1825.

IN the following communication, I shall not enter minutely into the nature and treatment of the sickness which prevailed among the troops; but confine myself to the relation of such facts and observations connected with it, as appear to me best entitled to notice.

On the important subject of climate, I need scarcely mention the well known difference that exists between the Upper provinces, where our Sepoy regiments are raised, and the Lower, where a great portion of the native army is necessarily employed in the common course of duty. Extensive tracts of unwholesome jungle are to be found in every part of India, and much sickness and loss of lives have *occasionally* been experienced by particular

detachments, in passing these tracts at certain seasons of the year; yet it has long been remarked, that, in the usual annual relief of corps, those ordered to Bengal, Orissa, and the lower parts of Behar, *never fail* to suffer, in a greater or less degree, from the endemic fever of these provinces. And it may perhaps not be undeserving of enquiry, whether the prevalence and virulence of this fever in any given corps is not (*cæteris paribus*) in proportion to the distance from which it comes, the suddenness of its removal, and the nearness of its approach to the S. E. frontier. The general rate of sickness and mortality among the troops at Dacca and Chittagong, will probably be found to confirm, in part, this conjecture; and the recent state of the 30th Regiment N. I. removed from Allygurh to Chittagong, is also a strong instance in point. At the latter station, and others in the Lower provinces, it sometimes happens that a regiment remains healthy for the first season, to suffer perhaps in a double degree the second; but it is nothing uncommon to see a corps of up-country sepoy reduced to half its effective strength, after a very short residence in the S. E. districts; and as we proceed still further in that direction, viz. into Arracan, our late melancholy experience has proved that the same rule continues to apply there. Some of the native regiments serving with this division had marched, at a rapid rate, from the opposite extremity of India, and were consequently exposed unseasoned to a climate very different

from their own*. To all who knew the nature of these climates, and the constitution of the Sepoy, it appeared nothing extraordinary when the men began to droop towards the end of their arduous journey, and were left sick at different stations in its course. But while many anticipated the prevalence of unusual sickness in such a campaign, few were prepared for the vast extent to which it has proceeded since the troops were cantoned in Arracan.

The most obvious difference between the climate of the N. W. and S. E. of India, is in regard to dryness and moisture. The beautiful verdure of Bengal throughout the year, contrasted with the parched appearance of the Higher Provinces, is a familiar proof, that the atmosphere of the former is at all times charged with moisture; but at Cawnpore and Meerut, where Europeans of all classes are accustomed to sleep in the open air without any covering, the bedclothes are found in the morning perfectly free from damp. As far, however, as regards the thermometer, the difference is not so striking; and even what is observable, seems rather to be in favor of the Lower Provinces, as the steadier climate of the two. For the last three months, and during the height of

* In diet also these men suffered a sudden change, from wheat flour to rice; and from the difference of soil, it is probable that the *water* contained different impregnations: but this latter subject, though highly interesting, has not been sufficiently investigated to afford ground for any plausible theory.

our sickness at Arracan, the thermometer ranged between 76 and 88, once or twice only rising to 90. A more convincing proof need scarcely be required of the very partial utility of observations, for medical purposes at least, founded on that instrument alone.

Before describing the localities of Arracan, it may be proper to allude to such circumstances as are generally considered *predisposing causes* of fever. The long and painful marches above mentioned, (1200 miles and upwards,) which some of the native soldiers underwent previous to their arrival at this fatal spot,—the state of rest after extreme fatigue,—relaxation of mind after high excitement,—exposure to cold and damp,—indifferent food and bad quarters, with other matters incident to a soldier's life,—all were experienced by the troops now so universally visited with disease. The Bengal regiments were the first to feel its effects; and it is to be remembered, that they had arrived wearied, and exhausted from their march, among the swamps and jungles of Arracan; while the Europeans and Madras troops landed in health, with constitutions refreshed and invigorated by a voyage to sea. It soon became evident, however, that no class of men was to be entirely exempted. Fresh arrivals from Calcutta, Lascars of ships, and such of the camp followers as were not subjected to any particular hardships or privations, had their share in the prevailing sickness.

That the presence of simple humidity in the atmosphere, or the alternations of heat and cold, which are by no means considerable at this season, should thus affect all classes of men, and so totally disable an army, sheltered tolerably well from the inclemencies of the weather,—or that from such causes, fever alone, and not rheumatic, pulmonic, or inflammatory disorders should arise, is not to be supposed. We are constrained, therefore, to look to some other peculiarity in the climate—to that unknown condition, in fact, of the air, which in other quarters of the Globe besides this, is productive of fever. Though the nature of this poison eludes all research, the situations in which it is generated have been pretty well ascertained.

The medical topography of Arracan becomes naturally the next subject of consideration, and I would willingly pass over this, as I feel inadequate to the task of affording that minute and satisfactory information which the subject deserves; but its importance requires the attention of every man: and as the few superficial and general observations which I have been enabled to make, may possibly be useful in the absence of more scientific intelligence, I shall not withhold them.

The Town of Arracan lies in $20^{\circ} 30'$ N. Latitude, and about $93^{\circ} 15'$ E. Longitude. Its site is such as one would at first sight pronounce to be prolific of

those noxious exhalations, whatever they may be, that are generally allowed to engender Intermittent fever. It lies on the banks of a muddy river, or rather the ramifications of a river, buried among hills, at a distance of nearly 40 miles from the sea, and invested on every side with jungle and morass. The tide overflows the flat borders of the river to a considerable extent; its reflux converts these into a noisome swamp; and in this swamp, strange to say, great part of the town of Arracan is built; the water flowing under the houses, which are raised on posts, after the manner of the Mughhs, Birmahs, Malays, and other Eastern nations. With the exception of the swampy ground, the soil consists of rock, crumbling on the surface, and forming itself into gravel well adapted for roads or the floors of houses. There is a gentle inclination of the soil towards the neighbouring streams, of which there are abundance, as well as springs of the purest water, close to the town. The hills generally assume the conical shape, some being insulated—others connected by narrow ridges—all scattered in an irregular manner, and divided by many deep ill ventilated ravines, vallies, and confined plains, each occupied by a stream, a lake, or a marsh. None of the hills in the immediate vicinity of Arracan seems to exceed 500 feet in height, but they are to be found of all elevations below that. A thin layer of loose black soil, the product no doubt of decayed vegetation, covers the mouldering rock; and where this has not been washed away by

the rain, grass and jungle shrubs abound ; but few or no trees are seen of any considerable growth, except in the vallies. A range of mountains, 15 miles to the eastward, and 2000 feet perhaps in average elevation, appears to take a direction nearly parallel to the coast. Another range of much less height, skirts the shore. Between these the distance varies ; but in the direction of Arracan, may possibly amount to 50 miles. The alluvial plains that intervene, are intersected by a labyrinth of small rivers, in communication with the principal channel, which takes a northerly course, and diversified with detached groups and ridges of hills, none exceeding 600 or 800 feet. The surface of these extensive plains is partly under rice cultivation, and interspersed with villages ; but chiefly occupied, as the hills are, with jungle.

While the army under General Morrison was on its march from Chittagong to Arracan, (a distance of 150 miles,) in the months of January, February, and March last, the weather was particularly favorable, with the exception of occasional heavy fogs. In April and May, the heat during the day became considerable. By that time, however, all the officers and European soldiers, and many of the Sepoys, had been comfortably hutted. The rains and sickness set in together, in the month of June, but it was not till the following month that both became extreme. From the 20th of June, till

the end of July, there was scarcely one dry day ; and at different periods during the latter month, it rained incessantly for several days and nights in succession. In the course of that period, it will be found, I believe, that the numbers of sick in the Native corps, were nearly doubled, and that the Europeans, who had hitherto resisted the effects of the climate, began to share in the sickness, as also the Madras Brigade stationed at Mahatty, five miles to the southward. In the meantime, some of the Bengal regiments of up-country Sepoys, had scarcely 50 men fit for duty. It is not improbable that (besides the causes already mentioned) the moderate use of spirits, superior diet, clothing, and accommodation, lighter duty, and less exposure, may concur in explaining this partial exemption from the prevailing malady on the part of the European soldier ; and some of the above circumstances, with the difference of situation, may possibly account for the lateness of its attack on the Madras troops, among whom its ravages were latterly equally severe. It may here be observed, with reference to the rainy weather throughout July, that our experience seems to be rather at variance with the common opinion of the general salubrity of a country immersed in water ; but when we take into consideration the jungle-covered hills, on which no water can long rest, as a fertile source of pestiferous miasma, the apparent contradiction is perhaps sufficiently explained.

By the middle of July, therefore, the sickness had become universal. Many officers were now on the sick list; and their servants also being useless from sickness, their situation, from want of attendance, was often distressing. Medical officers in particular, from their continued exposure, fatigue, and anxiety, suffered severely. Of the first five deaths that occurred among the officers, four were in the medical department. Public establishments, and camp followers of every description, having no hospital to resort to, fell ready victims; and it was common to see many poor wretches stretched dead or dying on the road, or their bodies floating down the stream. Cattle too began to be in the same deplorable state. The camels, with the exception of one or two miserable skeletons still retaining life, had all perished. Horses, elephants, and bullocks, diminished daily. The hardy little Birmah ponies alone, ill fed and harassed as they were, continued healthy. With regard to the Mugh population, most of those who had hitherto been employed as coolies, obtained leave to return to their homes. Of those who remained in the town, it did not appear to me that many were sickly, and there is no doubt that the men of the Mugh levy, serving with this force, experienced no remarkable degree of sickness.

As we are but little acquainted with this race of men, a few remarks on their general appearance, habits, and condition, in connection with the topo-

graphy of their country, may not be unacceptable. In external appearance, the Mugh is of moderate stature, and very robust. The face broad, cheek-bones wide and high, nose flat, and eyes somewhat oblique, like those of the Chinese. He differs not more from his effeminate neighbour of Bengal in form, feature, and physical strength, than in general habits, particularly in regard to diet. Though, like the Birmah, he stands upon some punctilio in taking the life of any animal for the supply of food, he is at all times ready to devour such as have been killed, or died of disease. From the rat to the elephant, inclusive, there is hardly any animal food too gross for the palate of a Mugh. Some species of maggots, and a variety of the vegetable products of every jungle, are said to form a meal, where nothing better is procurable. It is almost impossible indeed to suppose a situation short of absolute confinement, where an individual of this race would starve. The houses have been already described, as raised from the ground. They are constructed of bamboo, with walls and floor of the same material, and leaves for the thatch. The interior, though ill ventilated and lighted, is not particularly dirty, as any rubbish thrown out of the door, or through the floor, is regularly removed by the tide.

Besides being a most foul feeder, the Mugh is addicted to personal filthiness and to indolence, faults to be expected in the present semi-barbarous

state of his country. The former idea is perhaps more strongly impressed on the mind of a stranger, from the offensive appearance of black teeth and red saliva, occasioned by the practice of chewing tobacco and paun.

To return to the subject of this communication. The fever so prevalent at Arracan, does not differ in any material respect from the intermittents of other countries. Its general type seems to be the quotidian and tertian; for though there are not wanting instances of the obstinate quartan and the dangerous remittent, yet these forms, especially the latter, more frequently succeed, than constitute the original disease. It would be wandering from the subject to describe the rare cases of typhus, or those attended with biliary congestions, or determinations to particular organs, as they depend either on idiosyncrasy of constitution, or the casual operation of agents not generally prevalent, and are therefore to be considered exceptions to the common rule. If hepatic and splenic affections are frequent, they are also so in other fevers, particularly in the endemic of Bengal. There is one peculiarity, however, not so easily accounted for, and which seems to me too remarkable to be passed over,—the tendency to sudden and fatal “collapse,”—a term too vague perhaps to admit of distinct definition, though familiar to the profession, and understood to resemble syncope, though not preceded by any immediate, obvious, and adequate

cause. It is noticed by Dr. Mellis, in his account of the epidemic of 1824, as occurring at Rangoon, where indeed I had occasion to know of some cases of it. This unexpected, and almost instantaneous sinking or failure of the principle of life, takes place among convalescents, or those patients who have probably been pronounced out of danger. The outline of one striking case may perhaps better explain what is meant.

Lieut. H. was attacked with Quotidian intermit- tent, which in a few days assumed the remittent type: the intervals distinctly marked, and no alarming symptom at any time present. His bowels had been freely opened at the commence- ment of his illness, and were kept in a lax state throughout. On the sixth day, he had sustained an attack of fever not unusually severe. At 10 A. M. of that day, when I last saw him alive, his pulse was soft and moderate; the tongue clean, and a general warm and copious moisture over his body: no confusion of head, no local pain; his spirits by no means depressed, and his mind perfectly clear. I ought also to mention, that his mouth had just become slightly sore, from the effects of calomel and antimony. He was directed to beware of cold and damp during the sweating stage, and afterwards to refresh himself with a change of linen. This had been attended to, and at 3 P. M. he was seen by a brother officer in a state of apparent relief and comfort, after which it appears he fell

asleep ; and at six he was found in the same calm sleeping posture, but—*dead*. This unfortunate patient resided on the spot allotted to his corps, at what is called the *Oondye* stockade, about two miles from the fort of Arracan—a spot, it may be added, now about to be abandoned as unhealthy. Lieut. B. and Assistant Surgeon C. of the same corps died at the same place, and nearly at the same time, under circumstances very similar : the former considerably advanced, I believe, in convalescence, when the fatal change occurred. The case of Assistant Surgeon W. might probably be cited, as another instance of unlooked for death, at a time when to all appearance the disease was yielding, and every symptom promising a favorable issue.

A frequent termination of the fever among Se-poys is, in diarrhœa or dysentery ; which, if unchecked, is apt to be followed by that deplorable state of debility and general dropsy, from which few Asiatic constitutions ever rally ; and if suddenly subsiding of itself, or too hastily checked by medicine, death, or a return of fever, is the usual consequence. When a patient can be seen at the commencement of his illness, and regularly visited, the use of purgatives, followed by common febrifuge remedies, (Bark for instance,) seldom fails to effect a cure. General bleeding, or leeches to the temples, and a blister to the back of the neck, the moment that any confusion of ideas, hurried speech, inordi-

nate fretfulness or impatience, appear, especially in European cases, where congestion in the head and effusion are apt to ensue, were highly advantageous. The practice in general among this class of patients would seem not to be so successful as among natives. A voyage to sea is a measure frequently advisable for the European convalescent ; and if we advert to the state of their sick in hospital, it will be found, that while the numbers are much fewer, the mortality is infinitely greater. I take at random a European and native regiment for the month of July.

	Sick, 1st July.	Sick, 1st Aug.	Died, in July.
H. M. 54th Regt.	103	154	28
62d Regt. B. N. I.	299	407	14

The latter corps is therefore about 60 short of its proportion of fatal cases.

From my own experience, principally among natives, I should not be inclined to consider this fever as either dangerous or unmanageable ; and to account for the many lingering cases that still continue to crowd our hospitals, it is necessary to touch upon matters connected with the sick, and enter into some of the many perplexing and unwonted difficulties which their medical attendants have to meet.

First. In respect to the situation and condition of hospitals. The former either low, swampy,

confined, or ill ventilated ; or at such a distance from the lines as not only to preclude the possibility of prompt aid, but to cause exposure of the sick to the inclemencies of the weather, while on their way to hospital—to rain and cold, for instance, while the patient is in a copious perspiration. The building itself being either old, or run up in a hurry, is pervious to rain in many a quarter, and so little raised from the ground, as to prevent the removal of filth, constantly falling through the rotten mats and bamboos that compose the floor. Other hospitals, free from some of these faults, have others of a different nature. The *Muchawns* being left in an unfinished state, subject the sick to the necessity of lying on the uncovered betel trees, of which the platform is made—the floor of loose stones or gravel not beat down, a very material obstacle to cleanliness. But there are other wants of equal moment, not supplied, as far as I know, to *any* native hospital in the division. Cooking places, and necessaries, for the use of the sick. It is needless to describe the consequences. With double or treble the usual establishment of servants, a due degree of wholesome cleanliness could scarcely have been preserved ; but where two thirds of the hospital attendants were sick, and no others procurable, the condition of the patient was at times extremely uncomfortable. Another evil experienced to a lamentable extent in native corps, was the insufficient size of hospitals. As many were not capable of containing

one half, or even one third of the sick, the worst cases only could be accommodated. The rest remained in their various huts and hovels during the day; and at the morning and evening visits, some resorted to the hospital for advice and medicine; and those who did not, remained unsupplied, unless at the discretion of the native doctor. No such thing as regular practice could, under such circumstances, be expected. The attendance became most unsatisfactory to the Surgeon, and of very uncertain benefit to the patient.

Secondly. Paucity of Medical officers; and under this head must be reckoned the services required of them; which will appear in the sequel, to be much more than mere professional aid to the sick. From the commencement of the campaign in January until the capture of Arracan in April, and for some time subsequent to this period, there was no very urgent demand for medical aid, the sick having been left in the Field hospital at Chit-tagong. But as duty increased in the hot and rainy seasons, the effects of fatigue and exposure began to be apparent in the medical department. It has been already stated, that of the first five deaths that occurred among the European officers, four were in the medical branch of the service. This blank was severely felt; but twice the above number were soon on the sick list, and at length only eight medical men remained for the whole duties of the division, the sick at that time amount-

ing to near 5,500 men, besides the public establishments and camp followers. They were distributed in their various hospitals in the manner above mentioned, at the distance of even two miles. Almost every Surgeon had charge of two corps, some had more; and if we reckon 700 patients as the average charge of each, we fall rather short of the truth. To examine each of these twice a day, or oftener, if necessary; to keep a regular diary of cases; and with an establishment of servants so reduced by sickness, to preserve that correct degree of order and cleanliness required by the Regulations, and generally observed in hospitals, will appear a labor scarcely within the compass of one man's exertions. But when we take into consideration the state of the weather, the separate visits to officers in their own quarters, on the sides or summits of hills not to be ascended on horseback, the various circumstances regarding the state of hospitals, but above all, the voluminous accounts, registers, rolls, and returns, to be furnished daily, weekly, and monthly, without the assistance of a writer, the task becomes, both morally and physically, impracticable. The latter occupation alone is abundant employment for one individual; and when required at the hands of the Surgeon, cannot but impede, even in common cases, the discharge of his professional duties.

As the existence of these evils has been some time known, the means of alleviating many alrea-

dy in progress, and the mode of removing others sufficiently obvious, I shall limit the few remarks I have to make to one subject only, viz. the expediency (in a medical point of view) of establishing a general field hospital for this division, in some situation more healthy than Arracan. The subject of such an arrangement would, of course, be two-fold, —humanity to the brave, suffering, and uncomplaining soldier, and restoration of the army to an effective state, without the necessity of reinforcement.

If the generally acknowledged opinion be admitted, that miasma is the grand exciting cause of our prevalent malady, the idea of removing from its influence is the first that naturally presents itself. In addition to what has been stated regarding the site of Arracan, it may not be unimportant to advert to a rumour in general circulation, viz. that during the Birmese government, it was the custom among the wealthy inhabitants to shift their residence in the rainy season to a certain spot of elevated tableland at no great distance. Whatever may be the value of this argument, we possess, I fear, but too many proofs of the insalubrity of our present ground. But while it may be granted that the febrific poison prevails here in that concentrated or partially diluted state, as to respect the constitutions of few strangers, the removal of the sick and convalescents to any given place farther inland, may appear (as it does to myself) an experiment of dubious benefit. If we turn our eyes, however, towards

the sea, only 35 miles distant, some situation far more eligible might probably be found on its shore. By reference to the map, it will be observed, that the Arracan coast trends to the S. E., and that consequently, from March till October (the most sickly period of the year), it is exposed to the full, untainted influence of the sea breeze. We are well aware how advantageous this proves as a restorative to European constitutions; and though our experience of its effects on natives is less established, the information we do possess is decidedly in its favor. In the account of the Coimbatore fever, it is mentioned, that daily immersion in the sea checked agues that had resisted every remedy. I would instance also the general health of troops on board transports; the comparative health of the detachment from this army at Mayo Mooa, and more particularly that of the 40th Regiment Native Infantry so long stationed at Cheduba. Resting on these latter facts alone, the plan of forming an hospital on the coast would seem to deserve enquiry at least, and consideration.

In conclusion, I beg leave to offer, as an apology for the defective and desultory remarks I have ventured to submit, the circumstances under which they were written, the want of references and documents, and the uncertain hours I could command from the pressure of regimental duty, which at my own request, I have been performing during the suspension of the field hospital.

ON THE TREATMENT
OF
PERSONS BITTEN BY VENOMOUS SNAKES.
BY DONALD BUTTER, M. D.

Presented June 4, 1825.

CONSIDERING the dangerous nature, and in many parts of India, the frequent occurrence, of bites from venomous snakes, it is surprising that so little has been written on this interesting subject. The only two essays which, so far as I am aware, have appeared since the publication of Dr. Russell's work on Indian Serpents, are those of Mr. Williams and Mr. Boag, in the second and sixth volumes of the Asiatic Researches. Mr. Williams's has the more practical tendency, being devoted to the recommendation of ammonia as an antidote ; while Mr. Boag's object appears to have been the establishment of a fanciful pneumatic hypothesis of his own, and an inefficient mode of treatment, founded on his view of the proximate cause of the disease.

Mr. Williams's plan is therefore, I believe, very generally adopted in this country, especially by the non-medical part of the European community, to whose care these urgent cases frequently fall. But as I thought it probable that some of my professional brethren, who have had opportunities of

seeing such cases, might have been in the habit of employing a more active treatment, I endeavoured, in a letter printed in the Calcutta "John Bull," of the 20th October, 1823, to draw their attention to the general advantage which would arise from a publication of the results of their practice. In so doing, I was besides actuated by a hope, hitherto disappointed, of procuring the sanction of a more extended experience to a mode of treatment which the symptoms exhibited by snake-bitten persons had led me to adopt: and as another year's trial has confirmed my opinion of the superior efficacy of this plan, it now appears to me that its re-publication may be useful.

The sufferers, chiefly Sipahes, were generally brought to me at night, from five to twenty minutes after the accident happened. In one or two cases, the only symptoms were a very weak circulation, coldness of the surface, nausea, and giddiness: but in most of them, these symptoms were accompanied by insensibility, and difficulty of swallowing, and occasionally by violent spasms of the muscles of the back, and complete syncope.

My first care was to apply two turns of a stout cord round the limb, immediately above the wound, so as to arrest the circulation through the superficial veins. A dram of laudanum and an ounce of brandy were then administered in two or three ounces of water, warm when procurable, with a

little sugar and essence of peppermint : and this dose was repeated according to the urgency of the symptoms, till the returning circulation and heat of surface indicated a favorable change,—which was, I think, in all cases accelerated by making the patient walk about, supported by two men.

This was the most essential part of the treatment ; and, in a few instances, two or three such doses cured the patient. But in the more severe and numerous class of cases, additional measures became necessary to recal the vital energy : the patient was exposed to a large fire, and his throat, chest, and extremities were rubbed with laudanum, ammonia, and sulphuric ether, while frequent attempts were made to make him swallow the usual dose ; and when he recovered in a slight degree the use of his legs, he was walked or dragged about, and repeated doses of the laudanum and brandy administered, till every unfavorable symptom disappeared. The ligature was then removed ; an ounce or two of Epsom salts prevented any injurious effect from the strong stimulants, in whatever quantity they had been used ; and the patient, if a Sipahce, returned to his duty, so that none of these cases have appeared in my official reports.

These accidents generally happened at a time unfavorable for taking notes of the progress of the symptoms and quantity of medicine given : and I did not think it of importance to note down even

the number of the cases : to the best of my recollection, however, nine or ten cases were successfully treated in 1823, and about the same number in 1824.

Under this treatment, two cases terminated fatally, in 1824. One of the patients was a boy of about twelve years of age, to whom the accident happened at a moment when more immediate duties required my attention. I left him in a very favorable state ; but, on returning a few minutes after, found that the ligature had been untied from his leg, the consequence of which was a state of collapse, from which no efforts of mine could recover him.

Although this unfortunate event could not with fairness be said to invalidate the character of universal efficacy, which I consider due to the plan of treatment above detailed, there being little room for doubt, that the untying of the ligature was the cause of death ; I resolved, as Mr. Williams says that ammonia *never* failed, to give that medicine a trial in the first case that offered.

The subject of this, which formed the second fatal case, was a middle-aged man, a camp follower, who when first brought to me, complained of severe spasms in the throat. I gave him ammonia, three or four doses of half a dram each, combined with laudanum and brandy ; and he recovered per-

fectly. At day-break, he was sent into hospital; but feeling quite well, was discharged in the afternoon: the spasms of the esophagus returned in the evening, and carried him off in a few minutes.

This case forms an anomaly which I do not profess to explain: it may, however, be remarked, that another man, bitten at the same time by the same snake, died before I could give him any medicine, and in a very few minutes after he was bitten; from which circumstance some peculiar virulence of the poison may be suspected.

Being still inclined to give the ammonia a fair trial, I commenced the treatment of the next two cases with it alone. I gave it in sufficient quantities, and of the usual strength; and I may say that those two cases were the most troublesome I have seen: the ammonia shewed little power over the symptoms, and I was in both instances obliged at last to resort to the laudanum and brandy, of the superior efficacy of which I am now thoroughly convinced.

Even were they not possessed of this decided superiority, the introduction of these narcotics into practice, in cases of snake-bite, would be an obvious advantage, as they are always at hand, and less perishable, and more uniform in strength than ammonia. Lastly, they are *safer*. I learned, in 1823, the particulars of a case of this kind, which ter-

minated fatally, as it would appear, from the ammonia exciting inflammation of the pharynx; and this circumstance determined me to try a safer stimulant, should a case requiring it ever come under my observation.

My object having been to simplify the treatment as much as possible, I paid little attention to the local injury; being satisfied, also, that the ligature rendered all attempts at washing out or destroying the poison superfluous, while the depth and narrowness of the punctures made them nearly nugatory. Another strong reason which deterred me from the use of the knife, cautery, caustics, cantharides, &c. was my having seen a case where such "*nimia cura medici*" cost the patient the use of his ankle.

Mr. Boag's failure should warn us against indulging in doubtful speculations, and still more against bending our practice to them, in desperate cases like these. But as the treatment here described has fairly arisen from the view which I took of the immediate cause of all the symptoms, and which forms the principle by which I am now guided, it is necessary to state, that the proximate cause of the disease appears to me to consist in an universal diminution of irritability, caused by the poison acting as a direct powerful sedative. From the rapidity of its action, when unobstructed by a ligature, and, analogically,

from the poison of the viper in Fontana's experiments having been found harmless and quite inert when applied to the tongue, it is most probable that the poison acts by entering the circulation through the veins: and from the weakened circulation, and consequent giddiness, nausea, and spasms and coldness of the surface, it would appear that the heart and arterial system are the first class of organs affected by the poison. These are insulated links in the chain of cause and effect, the complete series of which, in this as well as in many other instances of obvious *final* causes, we are unable to perceive. If a conjecture may be hazarded, with the view of supplying deficiency, we may suppose that the poison acts upon the blood alone, and, by inducing in it some unknown change, diminishes its power of stimulating the heart: so that, in fact, the hypothetical result is the same, whether we suppose the circulating mass or the nervous system to be first affected; and both suppositions are equally favored by the success of the stimulant treatment, it being equally probable, that by the former hypothesis the stimuli impart to the ventricles the *additional* irritability necessary for making them propel a *less* stimulating mass of blood; and by the latter, that they simply *restore* to the heart the irritability which it had *lost*. The former idea is countenanced by the result of Mr. Boag's experiments, in which it was found that the blood of dogs poisoned by a cobra de capello was deprived of its proper-

ty of coagulating. In Fontana's experiments with vipers, it is true, this effect was not perceived; but the apparent discrepancy is clearly ascribable to the very different degrees of power of the two poisons.

The remark that narcotics (or diffusible stimulants) are sedatives, when given in these large doses, is here inapplicable. Not only the above hypothesis, if well founded, but facts also, show that in these instances they act as stimulants only. I have frequently given laudanum to the extent of half an ounce within one hour; in only one instance did it produce any soporific effect; and that effect was not greater than what twenty-five drops would have caused to the same person while in health.

I prefer a combination of laudanum and brandy to the exclusive use of either, because I imagine that the brandy has a more speedy action; but from its greater bulk, and pungent taste, it is with difficulty given in sufficient quantity. To render the effect still more speedy, a dram or two of sulphuric ether might be added to each dose.

It can hardly be necessary to remark, that the powerful remedies here recommended must be given with extreme caution. During their exhibition, the patient's life vibrates like a balance between two violent opposing forces; and too great a deviation to either side will equally prove fatal.

I shall conclude this paper with the following desultory observations.

The above, in principle, but not in degree, or efficacy, is the very plan of treatment recommended by Mr. Latta, in the third volume of his *System of Surgery*; but the almost incredible doses which I have had occasion to administer, do not properly come under his denomination of "cordials." Olandah, quoted in Dr. Good's *Nosology*, under *Tresis Punctura Venenata*, found rum and Cayenne pepper useful;—Latta recommends the use of wine;—Fontana says that *Theriaca* (laudanum?) has been frequently employed, but that in his experience it proved useless or hurtful;—and systematic writers generally state, in a vague way, that opium has been found of some service in allaying irritation, &c.—but I nowhere find narcotics of the strongest description laid down as the principal means of cure.

Considering the great depth to which the fangs sometimes penetrate, it is questionable whether the ligature should not be applied with sufficient tightness to stop entirely the circulation of the limb, due care being taken not to go the length of inducing inflammation.

Dry cupping, or, in extraordinary emergencies, sucking the wound, might expedite the cure, or be the principal means of saving the patient.

Sudorifics, recommended by some writers, would probably be found of no more use than the "viper's fat" of Dr. Mend. Emetics, suggested by that author, would in all probability arrest the depressing influence of the venom.

Snakes begin to appear at Goruckpoor in the hot season (April and May,) and are most numerous and mischievous during the rains, (June, July, August, and September.) As the sufferers were almost always bitten at night; the species of the snake was ascertained in one or two instances only: but of all the poisonous snakes seen at this place, the Coluber Naja is the most common, and has from the natives the greatest character of biting without provocation; and as nearly all my patients had in a remarkable degree the spasms of the esophagus, considered by Mr. Williams as pathognomonic of the bite of the Cobra de capello, it is probable that most of them were bitten by snakes of that species. This snake, as every one knows, is at once recognized by its unvariegated colour,—either dark grey, or black, with a blue metallic lustre,—its expansile neck,(whence its name of the "Hooded Snake,") and the whimsical representation of a pair of spectacles on the back of its neck*.

The symptoms following the bite of the Indian species of Coluber, (or, in modern nomenclature,

* Found in some, but not *all* the varieties of the species.

Vipera,) and Boa, the Cobra de Capello, Karait, &c. are very different from those occasioned by the *Crotalus Horridus* (rattlesnake), and *Coluber Carinatus* of the West Indies. I have never observed any degree of swelling beyond the edge of the wounds themselves; and even there, the swelling when perceptible, was very slight: I could perceive no discoloration of the general surface; and the patients sometimes complained of pain in the bitten limb, but in no other situation.

The symptoms have not in my experience been increased by the passion of fear. Several persons have been brought to me who were bitten by snakes not venomous, but none of them shewed any of the symptoms of poisoning, and no medicine was given to them.

From the rapid progress and mortal tendency of the symptoms, it appeared to me that in all cases the patient's fate, if left to himself, would be decided within an hour,—certainly that he could not linger for 12 hours. When the bite was speedily followed by death, it is probable that the poison was conveyed directly into a large vein; setting aside the quantity or concentration of the venom, and susceptibility of the patient. This is suggested by Mr. Boag.

A few hours after writing the above, a snake-bitten patient was brought to me,—the first in

1825,—of whose case I have noted the following particulars.

April 22d, 1825. Soobhan Khan, Sipahce 6th Company Gorukhpoor Light Infantry, aged about 18 years. About 55 minutes after midnight, bitten in the left instep and shin by a snake, supposed from its size to be a Cobra de capello. At 1 o'clock 5 minutes A. M. when brought to me, was speechless and insensible, but had the power of moving his legs. Ligature instantly applied, and *R. Opii dr. i.* with brandy oz. i. and *Sp. Ment. Pip. m. x.* administered. Pulse hardly perceptible, either in the heart or arteries : surface cold. Made to walk about, between two men. At 1.10 minutes, heat and circulation returning. At 1.15 minutes syncope. Gave a second dose as above, soon after which circulation again returned ; and at 1.20 minutes he was perfectly well, and described very clearly the manner in which the accident happened. He now walked about unassisted ; and at 1.35 minutes, half an hour after he took the first dose, I removed the ligature, as I had been in the habit of doing when the patients had completely recovered. At 1.40 minutes he suddenly fainted : ligature was instantly re-applied, and a third dose as above given, and the wounds well washed with hot water. Circulation still continuing very weak, with foaming at the mouth, occasional syncope, and convulsive twitches of the arms. At 1.45 minutes a fourth, and at 2 A. M. a fifth dose, all in the

above proportions, were given; after which he rapidly recovered from all symptoms of collapse, but still complained of giddiness, which I now ascribed to the medicines, as his pulse was full and regular. His wounds were again well washed with hot water; and at about 3 A. M. he became slightly delirious, his imagination being haunted with the idea of a snake coming to attack him. I gave him at 4 A. M. an ounce and a half of Epsom salts. This dose I repeated at 7 A. M. and untied the ligature. The salts now having taken effect, he felt perfectly well, with the exception of a little weakness, and a very slight redness of the eyes, which gave him no uneasiness. At eight A. M. as a precaution, I sent him into hospital, whence he was dismissed in the afternoon, free from all complaint, except a trifling degree of vertigo and debility, for which the walking about and the Epsom salts might sufficiently account; and he is now at his duty.

The quantity of stimulants taken by this lad, within two hours, amounted to five ounces of brandy, five drams (accurately ascertained by a minim measure) of laudanum, equal to about 500 drops; which enormous doses, entirely swallowed, produced no soporific effect, and but a very trifling degree of intoxication.

The circumstance, however, which chiefly gives interest to this case, is its shewing that the liga-

ture cannot in all cases with safety be removed, till the lapse probably of an hour or two after the patient's recovery ; and that he should be strictly watched for several hours after. On the slightest recurrence of the state of collapse, it is obvious that the same treatment must be repeated.



MEDICAL TOPOGRAPHY

OF THE DISTRICTS OF

RAMGHUR, CHOTA NAGPORE, SIRGOOJA, AND
SUMBHULPORE.

BY P. BRETON, Esq.

Presented October 1, 1825.

THESSE countries, which have been the theatre of my travels during a period of several years, are mountainous, and abound with forests and deep jungle, vallies, and plains. The plains in some parts are extensive, and covered with grass, such as is used for the thatching of houses. The plains of Chota Nagpore and Sirgoojah (latitude $23^{\circ} 6' 11''$ N.) extend in some parts many miles, and are for the most part cultivated. The chains of mountains run east and west. Some are continuous many miles, others interrupted, and the highest does not probably exceed 2,000 feet above the base, or 6,000 feet above the level of the sea*. Ramgurh, Chota Nagpore, Sirgoojah, and Sumbhulpore, are intersected by considerable rivers, from which issue innumerable branches, forming nuddies and nullahs; from which, for several months after the termination of the rains, the

* The valley of Sumbhulpore, according to the late Dr. Voysey's observations, is only 410 feet above the level of the sea.

water is used for irrigation. A part of Ramghur and Chota Nagpore may be considered table land. The surface undulates, is intersected by deep ravines, and is partially covered with low jungle. Hurricanes do not usually prevail in India. Tempests, called north-westerns, which seldom continue longer than two or three hours, now and then occur during the hot season. The principal rivers of these provinces are the Maha Nuddee, the Ebe, Koel, Sunk, Baira, Hutsoo, and Dummoodah.

The provinces are from three to four hundred miles from the sea. Villages are interspersed indiscriminately in them, and many are built near the base, and on the tops of the mountains, that the villagers might readily avail themselves of the soil around their villages, which is found to be more fertile than that of the plains.

The plains in some parts of these provinces extend uninterruptedly many miles. Those of Chota Nagpore are for the most part cultivated with rice, different kinds of pulse, wheat, barley, cotton, a little sugar-cane, and esculent plants. Enclosures as in England are seldom made by the natives. The fields are seldom fenced, but partitions are made in them by small ridges of earth, by means of which water is retained in them *ad libitum*. The soil of Ramghur, in the declivities, is principally loam; in the high ground, it consists of a mixture of loam, clay, and gravel, with Mica. On

this are grown different kinds of pulse, and cotton. The soil of Chota Nagpore in many parts is a peculiar kind of red earth, which is extremely fertile. It requires very little ploughing or preparation of any kind. The surface, slightly raised by any implement, is quite sufficient to fit it for the reception of seed. In this soil, cotton thrives luxuriantly. A species of pulse called Kullae (Phaseolus Max) is extensively cultivated in this soil; and whilst it is fit for the produce of this grain, it is found unfit for the growth of gram (Cicer arietinum.) The declivities consist of very rich loam; and from the circumstance of the existence of innumerable springs, the whole year, a few feet below the surface, rice is abundantly produced with but little trouble to the husbandman. The soil of Sirgoojah is somewhat similar to that of Ramghur. In some parts it is sandy, and contains a smaller proportion of clay and gravel. Its produce differs little from that of Ramghur; but it has one peculiarity, in yielding in the vallies vast quantities of Tikhoor (Curcuma Angustifolia,) from the roots of which the natives prepare a farinaceous powder, not distinguishable from the West India arrow-root, for which indeed it is found to be an efficient substitute*. In Sirgoojah

* In 1821, a specimen of this farinaceous powder was sent by me to Dr. Wallich, Superintendent of the Honorable Company's botanic garden, who found it on examination to resemble so nearly the West India arrow-root, that he requested to be furnished with as large a supply as could at that period be procured, with a view to its being made

there is a remarkable hot spring, the temperature of which, when examined by myself in 1819, was 186, (F.Th.) It is called by the natives Tatta Panee, which means hot water. Of this hot spring, and the hot well of Pinnarkoon in Ramghur, a description will probably ere long be laid before the Medical Society of Calcutta. The soil of the valley of Sumbhulpore is of an alluvial nature, and is very fertile in rice, wheat, and sugar-cane. Rice of the finest quality is produced in this district, and wheat and the sugar-cane grow as luxuriantly as in any part of India. The natives declare the soil to be peculiarly adapted for the growth of the poppy, which was cultivated very advantageously under the Mahratta government. It seems also favorable to the culture of indigo, since the wild indigo abounds on the banks of the Maha Nuddee. Sumbhulpore is particularized by its production of the finest Oriental diamonds in the world. A class of people called Jharas, or diamond finders, are annually employed, from the termination to the commencement of the rains, in searching the bed of the Maha Nuddee for diamonds: and if proper means were adopted, much useful information of the formation of the diamond, of its matrix, and of other circumstances connected with the production of this precious gem, might be obtained.

known in Europe as well as in this country. Forty maunds were furnished him, the greater part of which I believe was sent in 1822 by that gentleman to different parts of Europe, as a specimen of the East India arrow-root from the district of Sirgoojah.

Swamps are common to all these provinces till the month of April, when they dry up and disappear. Lagoons or Jheels, with aquatic vegetation, are also to be found in many parts of these countries. They, however, become dry in the course of April and May, and fill again at the commencement of the rains. Stagnant water is not deemed by the natives deleterious. In stagnant water in India, vegetation is wonderfully rapid. The surface is covered generally with ephemeral plants, and particularly with those substances which give out a large proportion of oxygen, as if it were intended by nature to counteract the noxious effluvia arising from vegetation in a gradual state of decay. The natives, insensible to the effluvia arising from stagnant water, never think of making drains for its egress. On the contrary, they preserve the water as long as possible for the irrigation of their lands, and seldom suffer from the effects of its decomposition.

The range of Fahrenheit's thermometer in the plains of Ramghur, Chota Nagpore, and Sirgoojah, may be said to be from 72 to 88 in the 24 hours during the rainy season; from 78 to 98 in the hot season, and from 66 to 32 in the cold season. In Sirgoojah, I have seen the thermometer at sunrise in January as low as 28. The nights, in the cold season, which are accompanied with heavy dew, are generally damp and chilly. The most prevalent wind in the dry season, from October to June, is

the south west. In the rainy season, the north east wind prevails.

The first fall of the rains does not occasion offensive smells in the jungles ; but after the rains have set in for 10 or 12 days, noxious effluvia begin to arise, particularly in low spots, where the air is confined by thick jungle and condensed ; and also from stagnant water, in which vegetable substances and impurities from the high ground, carried into it by the rains, gradually decay and putrify.

The sources of supply of water for domestic purposes are rivers, rivulets, nullahs, jheels, tanks, and wells. Tank water is generally preferred by the natives to river water ; but both are indiscriminately used by them, according to their proximity to the villages. Water that is clear and void of taste they esteem the best ; and as the water of nullahs in mountainous and woody countries is usually impregnated with mineral and vegetable substances, which impart to it a perceptible taste, they avoid drinking it, if they can obtain supplies from any other source. The water of the large rivers in these provinces is generally good, and when transparent may at all times be partaken of with impunity. Although the rivers derive their source from the mountains, and must be frequently contaminated by mineral and vegetable substances, yet when these substances are diffused in a large body of water constantly flowing, the impregnation is

scarcely perceptible. Troops marching through mountainous and woody countries experience no evil from drinking river water, but generally suffer from the water of the nullahs, which occasions affections of the stomach and bowels, and is one of the causes of diarrhœa, and dysentery. For purposes of irrigation, rivers, nullahs, jheels, tanks, and pools of water called Dah, from which water-courses are made, constitute the principal resource of the natives.

The seasons in India may be denominated the cold, the hot, and rainy. The cold season may be said to commence about the end of October or beginning of November, and to terminate about the middle or end of March, when the hot season commences, and lasts till the middle of June. The rains then set in, and continue usually till the middle of October, when they terminate. Every year there is a little variation in the commencement and termination of the seasons, which renders precision impossible in the statement of them.

The healthy season may be said to be from November to the setting in of the rains, and the unhealthy season during the period of the rains, and a short time after their termination. In mountainous countries abounding with jungle, the most unhealthy months of the year are September and October. Troops marching in these months in the jungles invariably suffer dreadfully from remit-

tent bilious fever, called in India the jungle fever, and flux, caused by the combined influence of heat, moisture, and putrid exhalations. This fever is generally accompanied by violent symptoms, attended with delirium almost from the commencement, and extraordinary accumulations of bile; and if active remedies be not speedily employed, it terminates fatally in four or five days. This is one of the most fatal maladies incident to Europeans and natives travelling through woody countries, the climate of which they have not been accustomed to. The jungle fever appears to bear the same relation to the yellow fever of the West Indies, as the putrid fever does to the plague, being apparently a gradation of the same disease. In September and October, in the jungles, dysentery is much more frequent than the remittent bilious fever, and is consequently infinitely more destructive to troops marching in these months than any other malady with which they are afflicted. Without evident necessity, troops should not be allowed to march in a woody country during these months. Indeed they cannot take the field without risk of sickness until the middle of November, from which period to the commencement of the rains the jungles may be safely traversed.

In the plains, the most prevalent diseases are intermittent fevers, diarrhœa, rheumatism, and the small-pox, and these in general yield to simple remedies.

The rivers of these provinces for the most part are shallow, and are never full but in the rainy season, when the streams become very rapid. The banks are covered with weeds and ephemeral vegetation of various kinds, and these are repeatedly carried into the rivers by the force of the torrents. Rivers that contain in the rainy season ten, fifteen, or twenty feet of water, fall shortly after the termination of the rains to the depth of two or three feet, and become in the hot season entirely dry. Many villages and a few towns are built on the banks of large rivers, and many at a remote distance from them. Many are also erected at the foot of, and in the vicinity of mountains, the elevation of the highest of which may be computed at about 6,000 feet above the level of the sea. The mountains are wholly covered with wood and underwood, and the forests and jungle that extend from them contain a great variety of trees, plants, and vegetation, common to the forests of Hindostan. In the forests of these provinces, the Saul tree (*Shorea Robusta*) seems to predominate. Between Singhbhoom and Sumbhulpore there is a forest of these trees, extending uninterruptedly thirty or forty miles; and from their extraordinary loftiness and magnitude, they may be esteemed the finest in India. The Toon, (*Cedrela Toona*, Roxb.)—the Seesoo, (*Dalbergia Seesoo*, Roxb.)—the Neem, (*Melia Azedirachta*)—the Seemul or cotton tree, (*Bombax Heptaphyllum*)—the Rohun, (*Swietenia Febrifuga*)—the Kheir, (*Mimosa Ca-*

techu)—the Babool and other varieties of the Mimosa—the Pilas, (*Butea Frondosa*)—the Burr, (*Ficus Indica*)—the Peepul, (*Ficus Religiosa*)—the Goolar, (*Ficus Glomerata*, Roxb.)—the Tar tree, (*Borassus Flabelliformis*)—the Khujoor, (*Phœnix Silvestris*, Roxb.)—the Khoormu, or date tree, (*Phœnix Dactylifera*)—the Umultas, (*Cassia Fistula*)—the Sagoon, or Teak tree, (*Tectona Grandis*)—the Caronda, (*Carissa Carandas*;)—the Champa, (*Michelia Champaca*)—the Bel, (*Sida Rhombifolia*)—the Bhillawun, marking nut, (*Semicarpus Anacardium*)—the Kuchila, (*Strychnos Nux Vomica*)—the Tendook, ebony tree, (*Diospyros Ebenum*)—the Rhododendron—the Mahwa, (*Bassia Latifolia*)—the Kheree, from which pill boxes are made—the Dhamin, and bamboos, are commonly to be met with, interspersed with other trees; and the Euphorbia, of different kinds;—the Byur, (*Zizyphus Jujuba*)—the cane and rattan, (*Calamus Rotang*)—the Bughrendu, (*Jatropha Curcas*)—the Konch, the rutti weight of the jewellers, (*Abrus Precatorius*)—the Rihan, (*Ocimum Pilosum*)—the Koosoom, (*Carthamus Tinctorius*)—the Mudar, (*Asclepias Gigantea*)—the Dhatura, (*Datura Fastuosa*)—the Cheronjee, (*Chironjee Sapida*)—creepers of various kinds, and a great variety of trees and plants unknown to Europeans, abound. In the different parts of these provinces, the forests extend uninterruptedly many miles, and in many parts are impenetrable. In Palamow, the Mimosa Catechu

abounds: this tree the natives call the Kheir, from the wood of which they prepare the extract called by Europeans Catechu, and it is considered the best produced in India. Of the process in preparing this article, named by the natives Kuth, and of its physical and chemical properties, an admirable description has been given by Sir Humphrey Davy. The range of the thermometer, at varied elevations of the mountains, is inconsiderable; and the temperature differs little from that of the plains in their vicinity. The mountains are not at all subject to daily showers, nor are changes perceptible in the atmosphere of them, materially different from those of the atmosphere of the plains. The summits of mountains derive their moisture from the attraction and condensation of the clouds which pass over them in the dry season, and in this way partial showers are frequently received which do not extend to the plains. The inhabitants of these hilly districts, whether living on the mountains or in the plains, seem equally susceptible of diseases incident to the natives of Hindostan.

The habitations of the natives are of the simplest construction, being composed of bamboos, plain timbers, coarse mats, and a thin thatched roof. The walls of the huts are principally wattle and mud, and they are plastered inside and outside with mud mixed with cow-dung. A native's hut seldom exceeds in length 14 or 15 feet, and in breadth 8 or 10 feet; and in this small space a family of 8 or 10

members usually reside. Each family has a separate hut, and an indefinite number of these huts constitute a village. No order is observed in the building of these habitations, nor are streets regularly formed: small spaces are left between the huts for the ingress and egress of the inhabitants; and no attention seems to be paid either to ventilation, draining, or cleanliness. In towns, something like order is observed in the building of the huts; and there is in general one main street, communicating with a number of narrow alleys. Many villages are near pools of stagnant water, and surrounded with vegetation, and yet the inhabitants are not more liable to diseases than those in more open situations: but if a malignant epidemic disorder, like the Cholera Morbus, as it has prevailed in India since 1817, and the small-pox break out amongst them, the mortality is much greater than with those who live in a free circulation of air. The natives of these districts are principally agriculturists. Many are occupied in trades of different kinds, and some are engaged as soldiers. They are in general temperate, industrious, and tolerably cleanly in their houses and persons.

The principal diseases to which the natives are liable, which do not affect Europeans in India, are the leprosy, elephantiasis, goitre, the naukhra or nose disease, and the ratundha or night blindness (Nyctalopia.) The natives appear susceptible of every disease incident to Europeans in India.

The most favorable season for the arrival in India of Europeans is unquestionably the cold season, on account of the serenity of the atmosphere, mildness of temperature, and the facilities which are then presented to them in the pursuit of their various occupations.



APPENDIX.



Description of the Animals and Reptiles met with in the Districts of Ramgur, Surgoojah, and Sumbhulpore, and of the principal mineral Productions of these Provinces.

The wild animals which inhabit the mountains and woody parts of these provinces are, first, the Gaour, a non-descript of the Bos tribe, marked by peculiarities which distinguish it from the Bison, to which it was formerly supposed to bear some resemblance. The height of the male I fancy generally exceeds 18 hands. A male Gaour killed on Myn Paut in Surgoojah, on the 29th January 1816, was measured in my presence by Captain J. N. Jackson, and its dimensions were,—

	<i>Feet.</i>	<i>Inches.</i>
Height from the hoof to the withers, . . .	5	11 $\frac{3}{4}$
Length between the withers and the lower part of the chest,	3	6 $\frac{3}{4}$
Girth,	7	7
Length from the tip of the nose to the extremity of the tail,	11	11 $\frac{3}{4}$

The form of the head and horns approaches very nearly to that of an English bull, and short tufts of dirty white curled hair cover the upper part of the forehead. The color of the hairs of the skin on the body is dark brown; but owing to the fine-

ness and density of the coat, it assumes in the sun's rays a jet black color, which gives to the animal, from its being sleek, and generally in high condition, a very handsome appearance. The legs, from the knee and hock to the hoofs, are covered with dirty white colored hair, much coarser than that of the body. Its legs are large and well proportioned, combining apparently strength and elasticity. The animal is very muscular, and has great width of chest and quarters; and its legs being short in proportion to the magnitude of its body, there is an appearance of immense strength. But what characterizes this animal from others of the Bovine species, is a thick and elevated spinous ridge, which extends in the form of an arch from the end of the cervical vertebræ, to half way down the dorsal vertebræ, the elevation over the shoulders being near seven inches above the line of the spine, where this ridge gradually terminates. At a distance, this ridge has somewhat the appearance of the hump on bullocks; but instead of flesh, it is formed of the spinous processes.

The Gaour is gregarious, and in defence of its young is considered one of the fiercest animals that inhabit the jungles. I once saw in the valley of Myn Paut a herd of Gaours with their young. I counted upwards of fifty; but as the herd was in motion, I might have erred in my calculation. On Myn Paut, the haunts of the Gaour seem to be in the deepest jungles in the vallies, probably from

the verdure being there more abundant than in the plains. I have, however, seen a few grazing singly on the plains, as if strayed from herds; and in this situation they appear very timid, for they would not allow any thing to approach them within musket shot, but scampered off into the jungles the moment they descried people in pursuit of them. The natives attach to this animal great fierceness; for when they are wounded and brought to bay, they will attack any thing that approaches them.

The Gaour, if it could be domesticated, would, from its size, structure, and activity, form the finest draught cattle in India. They are however so wild and ferocious, that it is very difficult to catch them or their young; and when the latter are accidentally caught, they cannot, from some unaccountable cause, be reared. The natives declared, that every one of the calves that had been taken, died a few months after being separated from their dams. In the latter end of 1822, a Gaour calf, more than quarter grown, was caught at Jushpore, bordering on Surgoojah, and it was suckled by a tame buffalo for about a month, when it was sent with the buffalo by the Rajah to Lieut. Syers at Hazareebagh. I saw the calf on its arrival, and am confident it was the Gaour. It was as tame as if it had not been born of wild parents. For a few days after its arrival at Hazareebagh, it appeared to be well and healthy: it afterwards began to loathe its food, gradually drooped, and died of looseness of the bowels.

Notwithstanding these failures, there is ground for believing, that the Gaour might be reared and domesticated, if proper means were resorted to: and with reference to the probable utility of these animals as draught and carriage cattle, and in yielding abundance of milk, over those of the Bovine tribe in Hindostan, it would probably repay any one, who could spare time and a little expense in the pursuit, to try the experiment of bringing into use probably the noblest species of the Bos tribe, evidently designed by nature for something more than as mere beasts of the chase.

The native story of the Urna or wild buffalo not frequenting, through dread, the haunts of the Gaour is, I am inclined to think, a fiction. Wild buffaloes have been seen in the haunts of the Gaour, but probably never discovered intermingled in a herd of those animals. I have seen the Gaour grazing promiscuously with the Samur, (a species of elk,) the Neel-gao, and other deer; and it is not improbable that in an immense expanse of plain and jungle like those of Myn Paut, it might graze also with the buffalo. The Gaour unquestionably is the more powerful animal of the two, and would probably attack the buffalo, were it to mix immediately with its own herd.

The Gaour is doubtless often killed and devoured by tigers, when a stray one comes unwarily within the spring of these carnivorous animals;

for the tiger possesses strength sufficient to overpower any animal, when unprepared for the attack, but the elephant.

Although Myn Paut seems to be the principal abode of the Gaour, a few are to be met with in the other districts in the south west frontier. They have to my knowledge been killed in Ramghur, Palamow, and Chota Nagpore, and they are said to exist also in Sumbhulpore. The natives regard them with much greater indifference than they do the wild buffalo, since the former are by no means so injurious to their corn fields as the latter are.

Next to the Gaour, as the wild inhabitants of these districts, are the wild buffaloes. They are more numerous in Sumbhulpore than in any of the other provinces, and they do much mischief to the peasants in destroying their crops, there being no fences to the fields to defend them from the ravages of wild animals. In Ramghur, Palamow, and Chota Nagpore, the wild buffalo is not often met with. They have, however, occasionally been seen in these three districts by the natives. The wild buffalo is too well known to need any additional description from my pen.

The other animals which exist in the forests of these provinces are the Samur (species of elk,) two kinds of Neel-gao, (one which is very tall, and is of

a bluish slate color, the other a little smaller than the Samur, and of a fawn color ;) the spotted deer ; the antelope ; the hog deer ; the Kotaree, a deer with four separate horns ; the red deer ; and the Mirgee, or mouse deer, as it is called, probably from the form of its head being that of a mouse. This pretty little animal is I believe the smallest of the deer species, being about the size of a full grown English fox. It has no horns, is of a greyish color, but its four legs from the knee to the hoof are black. It is far less numerous than any of the deer species, and is not often caught. It was in England considered so rare an animal, that a present of one made several years since by the late Sir Ewen Baillie to the late Queen Charlotte, seemed very acceptable.

The ravenous animals of these provinces are the tiger, panther, leopard, Cheeta or ounce, the black leopard, hyæna, bears, wolves, jackals, and foxes. There is also an animal in these provinces called by the natives Qyo, conjectured to be a kind of wild dog. It is a non-descript, is of a reddish brown color, size larger than that of a jackal, and has more the general appearance of a dog than that of any other animal, although it has a bushy tail similar to that of a jackal. I have seen several of these wild animals full grown in the jungles, and opportunities have been afforded me of minutely examining their whelps brought in by the natives.

The Qyo appears to be a distinct species of animal. Whether it be so or not, must be left to naturalists to decide. In 1823, a half grown Qyo was sent by Captain R. B. Fergusson of the Ramghur Corps to General Hardwicke, as a proof of the existence of this animal in Ramghur. The natives attach to it great ferocity, and say the Qyo in packs hunt deer and other animals for their prey. It is also asserted by the natives, that where Qyos haunt, the tiger is never to be found, as the latter dreads the former in packs. This, however, is evidently an error, for I myself saw one evening in 1816, a number of Qyos together on Myn Paut, which was so infested by tigers, that the natives who built villages on this mountain were compelled to abandon them, from the destruction which the tigers occasioned among the members of their families.

The lion, although not enumerated by the natives as one of the inhabitants of the jungles of these provinces, has been actually seen and killed. A lion in 1814 was shot by the natives near the village of Koondra, in Palamow, and its skin was seen, and recognised by Mr. W. M. Fleming, the then magistrate of Ramghur, to be that of a lion. Possibly this may have been a stray animal; for the lion is very little known in South Behar, although the name of Sheer Bubber (lion) is familiar to the more intelligent of the natives.

The other animals met with in these provinces are those which are common to other parts of Hindostan, such as different species of monkeys, wild hogs, hares, porcupines, pole cat, weasel, and racoon. The pangolin is now and then seen. It is called by the natives Bajorokit, which in the Sanscrit language implies the "diamond reptile," probably from the shape of its scales. A pangolin that was brought alive to me at Hazareebagh in 1806, could not be made to take any thing whatever, and it died in two days after I received it. Its stomach was filled with pebbles and bits of limestone, and not a vestige of animal or vegetable matter was apparent. The natives believe that the pangolin, on account of the length of its tongue, lives on white ants: this however is not likely, from the structure of its stomach; and probably it is not yet fully decided in what manner this animal derives its nourishment.

A great variety of serpents and reptiles are also inmates of these provinces. The venomous snakes which have come under my observation are, the several varieties of the Gomun, or Cobra de Capello; the Amaiter, or Seea Chunder, the Katuka Rekula Poda of Russell, called in Bengal (Bora;) and the Sankunee (Boa Fasciata.) Another snake is also confidently mentioned by the natives as being venomous, the Kutkurar: this I have never seen, and therefore can say nothing of it. The natives, although sometimes correct in their opi-

nion of venomous serpents from their external appearance, are yet not infallible in their discrimination. They have frequently pronounced snakes to be venomous, when on examination they have proved to be innoxious. They are not at all acquainted with the criterion which distinguishes a venomous from an innocent serpent. They have no idea of the existence of peculiar fangs in the upper jaw of venomous snakes, and the want of them in those devoid of venom. They judge from the appearance of the skin merely, and therefore their opinion should never be depended on.

According to Russell, in his History of Indian Serpents, there are in India eight distinct species of venomous serpents : they are,—

1st. The Coluber Naja, or Cobra de Capello, called by the natives Gohuna and Gomun ; and the eleven varieties of this serpent enumerated by Russell, have each a distinct native name.

2d. The Katuka Rekula Poda, named Bora by the natives of Bengal ; and of Behar, Amaiter and Seah Chunder.

3d. The Boa Fasciata, (Bungarum Pamah, of Russell,) called by the natives of Bengal San-kunnee.

4th. Boa Lineata, (Gedi Paragoodoo of Russell.)

5th. *Boa Horatta*, (Horatta Pam of Russell.)

6th. *Coluber Gramineus*, (Boddroo Pam of Russell.)

7th. *Coluber Melanurus*, (no native name known.)

8th. *Coluber Lachesis*, (called by the natives of Bombay *Bitin*;) and possibly the greater number of these eight species are to be found in South Behar: and one more may be mentioned, the *Kurait*.

The *Boa Constrictor*, the largest and most powerful of the serpent tribe in India, has been met with in these provinces. The skin of one, upwards of 23 feet in length, that was killed in *Sirgoojah* many years ago, was shewn to me. I have never seen one alive in these provinces, and believe them to be far less numerous than the other species of serpents.

The other noxious reptiles in these districts are the scorpion (*Beehook*), the centipede (*Kunkhujoorah*), and the tarantula (*Ghundeh*, *Rootylaw*, *Bud Mukra*.) The two former at *Sumbhulpore* are of an extraordinary size, and more numerous apparently at that place than in either of the other ceded provinces. They possess no active poison, for they are incapable of destroying small animals, as kids, fowls, &c. Their bites and sting, however, are

very painful; and in bad habits of body, so great a degree of irritation may be excited as to occasion death. In general, the irritation is not greater than that which is excited by the sting of a wasp or hornet, both of which abound in these provinces.

Several kinds of bees, differing in size and color, exist in these provinces; and there is a difference in the quality of the honey they produce. The granulated honey, of a deep yellow color, is by the natives esteemed the best; and that which is of a greenish color, and of the consistence of thick syrup, is considered the worst.

The bees usually construct their combs on the thick branches of large trees; and a swarm of them, when disturbed, are very formidable. I once saw several officers and men of the Ramghur Corps in Sumbhulpore, considerably annoyed by a swarm of bees; and they avoided a continuance of their stings only by flight from the spot. Several valuable pointers and greyhounds, belonging to the Commanding officer of the corps, that were fastened to a tree, and could not get loose, when the dog-keeper ran away and left them tied, were stung to death. A tattoo (poney) and a bullock were also killed by the bees. Of this occurrence Mr. Assistant Surgeon J. Grant, who was present, and was himself stung, can bear testimony.

In the forests in different places, is found a large species of caterpillar, (*Bombyx Paphia*,) which in its nature resembles in some degree the silkworm. This worm attaches itself to a branch of a tree, the Ausun (*Terminalia Alata Tomontosa*,) common to the jungles of India, and forms on it a cocoon, called by the natives Koau, of the size of a turkey's egg. The tussur, which is a kind of coarse silk, is obtained from it in a similar manner to that of silk from the cocoon. The manner in which the worm fabricates the koau is curious. I once had an opportunity of witnessing the process. Having accidentally in the jungles met with a worm that had just formed the frame-work of a koau, that is, the longitudinal threads suspended from a small branch of a tree, I broke off the branch, and took it with the worm and threads home to observe how the koau was woven. After the longitudinal threads were spun, and suspended from the branch forming the frame-work of the koau, the worm fixed the lower part of its body on the threads at the bottom of the frame-work, and with its head raised to the upper part of it, commenced weaving one side from above downwards, moving its head laterally, and drawing with its mouth the threads from side to side, like the figure of eight, placed horizontally (thus ∞ ,) stopping now and then in its progress downwards, and stretching itself lengthwise for a second or two, to tighten and to attach to each other the threads spun. It then changed its position, and weaved in the same manner from below upwards.

The other three sides were woven in the same regular manner several different times, till the interstices between the threads were scarcely perceptible, and the koau assumed the appearance of an oval bag of fine network. It then ejected from its mouth a white glutinous liquid among the threads in every direction, to fill up the interstices of the network, and to glue the threads together. This substance, on drying, gave consistence and density to the whole koau, and the task was finished, the worm having enclosed itself in the cavity of the koau, for the purpose of depositing its eggs in it, and undergoing the natural changes from a crysalis to a moth. Allowing half an hour for the fabrication of the frame of the koau previously to my seeing it, the koau, from its commencement, was completed in about $7\frac{1}{2}$ hours. After the completion of the koau, I cut it open in several places with a pair of scissors, and observed how dexterously the worm brought together and united by weaving, the divided parts. The Tussur is wound off the koau in the same manner, I believe, as silk is from the cocoon, and is used as a substitute for silk, in manufacturing different kinds of cloths, called Soosee and Mushru.

The Lac insects abound in the jungles, and the lac produced by them is one of the principal articles of traffic among the natives. There are two kinds of lac, and probably two species of lac insect. One kind of lac contains much coloring matter, the

other an inconsiderable quantity. That which contains the most coloring matter (which in fact is the insect itself,) is preferred for the manufacturing of lac dye: the other, which has but little coloring matter, is selected for the making of shell lac.

Lac, which is a resinous substance, and is the nidus of the insect which forms it, is attached to the branches of trees in the forest. That which is found on the Pilas (*Butea Frondosa*) is eagerly sought for, being the kind which yields the largest quantity of coloring matter. The lac dye manufactured from this coloring matter is an efficient substitute for cochineal in the process of dying. The color it imparts to cloths is not quite so vivid as that of cochineal, but it is more durable than the color produced by the American insect.

Minerals of all kinds are, I fancy, to be found in these provinces; and very valuable mines and ores might doubtless be explored, if experienced mineralogists were employed to search for them. Mineralogy is a science which seems to be but little cultivated in India, little or no encouragement being given to its pursuit. We have no conception of the mines which lie hid in the bowels of the earth of India. It is confidently believed by the natives, that in Gangpore, on the confines of Sumbhulpore, there is a rich mine of gold; for in the beds of the rivers which intersect that country, grains of

gold are frequently found in considerable quantities.

In the district of Ramghur, near the cantonment of Hazareebagh, at the foot of a mountain called Mukungunge, from the name of a village adjacent to it, a lead mine is said to exist; and the probability is, that silver is also to be met with in this mine. Antimony is also reported to exist in different parts of Ramghur. Iron is found in every part of this district. At Bulleeah, in the mountains, the iron ore abounds, and is smelted there on an extensive scale by native merchants, who have established themselves on the spot for the express purpose. The quantity of iron daily smelted from the ore is averaged at about 100 maunds (8000 lbs.), and the iron is bartered for merchandise of various kinds, brought from the neighbouring countries. The quality of the iron is not, I imagine, very good, being of that kind which is called siderated iron, and is consequently brittle, and unfit for ship building. Iron is common to all the ceded provinces on our south-west frontier, and in many of them the quality varies.

A few miles east of Hazareebagh, are beds of very fine Mica, from which large transparent laminae are procured. In this neighbourhood there are several gravel pits.

The district of Chota Nagpore and Sirgoojah are not marked for their mineral productions; but

Sumbhulpore has been from time immemorial distinguished for its production of the finest Oriental diamonds in the known world. They are occasionally found in the bed of the Mahanuddee, and at the mouths of other rivers which terminate in it. The following is an extract from the observations of a gentleman, whose source of information on this interesting subject was the best that could be obtained in Sumbhulpore.

“The Mahanuddee is navigable for six months in the year, though not without obstructions and difficulties for boats of three to four hundred maunds burthen, from the sea to Sooreenarain, which cannot be less than 380 miles, and for smaller vessels as far as Sumbhulpore for ten months. Diamonds of various sizes, and of the first quality, are occasionally found at the mouths of the rivers Maund, Keloo, Eeb, and others, which all have their sources in the mountainous parts of Koorba, Sirgoojah, Raegurh, Jushpoor, and Gangpoor, and fall into the Mahanuddee, on its left bank; they are also picked up after the termination of the rains, amongst the mud and sand deposited on the beds of islands on the left bank, where the stream being resisted, makes a sharp turn, by persons of a peculiar class, whose occupation it is to search for them. I cannot learn that diamonds have ever been found on the right bank of the Mahanuddee, or on the left bank, above its confluence with the Maund at Chunderpore, or below Soanpore. It

would appear therefore that they are washed down from the sides of the streams which flow from north to south through the mountainous, and almost inaccessible tract, which occupies in Arrowsmith's map the 83d and 84th degrees of E. longitude, and 21st and 22d degrees of N. latitude. This inference is farther supported by the fact of their being not unfrequently met with in the beds of nullahs in Raighur, Jushpore, and Gangpore, though I have no reason to think that any attempt has been ever made to discover and open their mines or beds; and this may be chiefly accounted for by the state of society and government in these wild regions. Any attempt on the part of a private individual to appropriate to himself or conceal a diamond would, if discovered, have been assuredly punished with death; and the rajahs have naturally preferred this scanty and uncertain acquisition of precious stones in the manner I have described, to the publicity, and consequent interference of the Mahomedan or Marhatta sovereigns by whom they were in turn ruled, which would necessarily have resulted from the establishment and working of mines. Another obstacle has doubtless been the extreme insalubrity of the climate of the tract under consideration,—an insalubrity which the observation of many years has convinced me is always attached to mountainous and woody districts in which gold and diamonds are indigenious. None but natives of the wilds, whose appearance sufficiently marks the ravages of disease, can enter them with impunity,

excepting in January, and the three succeeding months; and this would form the chief objection to the employment of skilful European mineralogists, whose researches, if they could be adequately persevered in, would, I am sanguinely of opinion, be attended with very interesting and important results.

“ There are two tribes or castes of diamond searchers in Sumbhulpoor, of whose origin, or of the period of their settlement in this part of the world, I can learn nothing. They have the appearance, however, of aborigines. The names of the tribes are Jhara and Tora. Sixteen villages of the poorer description have been always enjoyed by them in rent free Jagheers. Of these, four are in the hands of the Toras, ten possessed by the Jharas, and two have been given to their tutelary deity Bukeser Pat, an appellation of Mahadeo. They are under the direction of three chiefs or sirdars, two of the Jhara tribe, called Pater and Buhera, and one of the Tora, stiled Seeree Ghakur. They search for gold as well as diamonds, and are allowed to dispose of all of the former article they pick up. Their habits are extremely dissipated; and when they find a diamond, they spend the money it procures for them in a continued scene of debauchery. In the pergunnahs of Raegurh, Sonepoor, Jushpoor, and Gongpoor, are also to be found persons of this kind. In the two last mentioned, a species of gold mine is to be found, the aperture only just

large enough for a man to descend, but of considerable extent below. An account of the mine in Gongpoor, from which it is stated to me that specimens of pure gold of considerable size have been obtained, remains to be submitted."

The diamond searchers, with their women and children, amounting to between 4 and 500 persons, are annually employed from the month of November till the commencement of the rainy season, in searching the bed of the Mahanuddee for diamonds. They examine such parts of the river as are obstructed by rocks, from Chunderpoor to Sonepoor, a distance of about 120 miles; and all the hollows in the bed of the Mahanuddee, in which alluvial matter is deposited. The process pursued by the searchers is extremely simple, and three implements only are used by them. The first is a kind of pick-axe with one pick, called Ankooa; the second a plank of about five feet in length, and two feet in width, made a little concave towards the centre, and a rim of three inches in height on each side, called Doer; and third, a board of similar form, but only half the size of the former, called Kootla. With the pick-axe the earth is dug out of the hollows, and collected in heaps near the stream. Pieces of this earth are then placed by the women on the large board, which is so inclined as to allow the earth, when mixed with water, gradually to run off. The pebbles and coarse gravel are then picked and thrown away, and the

remaining mass is afterwards removed from the large to the small board, and spread over the latter, to admit of every particle being minutely examined; and gems and grains of gold, if any be present, being collected. The earth in which the diamond is usually found, consists of a mixture of stiff reddish clay, pebbles, and a small proportion of sand, and a little oxide of iron. This earth the searchers take particular pains to find, and they examine every particle of it with the greatest attention.

Although employed exclusively in this occupation from time immemorial, the Jharas have not the remotest idea of what constitutes the matrix of the diamond. Mr. Mawe, in his account of the diamonds of Brasil, states, that “The only places where diamonds have certainly been found in modern times, are the central and southern parts of India proper; the peninsula of Malacca; the island of Borneo; and the mountainous district called *Serro do Frio*, and other places in Brasil. Neither the rock in which it occurs, nor the other minerals with which it is accompanied, in Malacca and in Borneo, are at all known. In India, it is found in detached crystals, in a kind of indurated ochery gravel; but whether or not this is its native repository, is uncertain.

“The diamonds of Brasil, like those of India, are found in a loose gravel-like substance, immediately incumbent on the solid rock, and covered by

vegetable mould, and recent alluvial matter. This gravel consists principally of rounded quartz, pebbles of various sizes mixed with sand, and oxide of iron, and enclosing rounded topazes, blue, yellow, and white, and grains of gold. In some parts of the diamond territory of Serro do Frio, which I visited, the gravel is cemented by means of the oxide of iron into a considerably hard conglomerate, forming rocks, and low hills: on the sides of these are water-courses produced by the torrents during the rainy season, the beds of which are very unequal, and excavated. In these hollows, diamonds are not unfrequently discovered. The usual, and regular method of searching for diamonds, is to collect the disintegrated conglomerate in which they are found at the bottoms of rivers, and of ravines, and by a laborious process of washing as long as the water comes off discolored, to separate the mud from the distinct grains. The residue thus cleaned is subjected to an accurate examination for the diamonds which it may contain. These are distinguished partly by their crystalline form, but principally by their peculiar lustre, slightly verging on semi-metallic, but which cannot be adequately described by words."

"If the above mentioned conglomerate is not the real matrix of the diamond, its true geological situation is unknown; for it has never as yet been discovered in any other rock."

Now although the Sumbhulpore diamond is more frequently found in the red earth above described, yet it is now and then met with in other kinds of compositions. The proof of this red conglomerate being the matrix of the diamond, is by no means established.

In the late Dr. Voysey's description of the diamond mines in the range of mountains in Southern India, it is stated, that the only rock in which the diamond is found, is the sandstone Breccia.

“The sandstone Breccia is frequently seen in all pits of these mountains, at various depths from the surface. In one instance I observed it at a depth of fifty feet, the upper strata being sandstone, clay slate, and slaty-limestone. The stratification of the whole face of the rock is here remarkably distinct, and may be traced through a semicircular area of 400 yards diameter. The stratum of Breccia is two feet in thickness; and immediately above it lies a stratum of pudding-stone, composed of quartz and limestone pebbles, cemented by calcareous clay and grains of sand. It is very likely that this stratum would be found productive in diamonds; and I have no doubt that those found at present in the bed of the Kistna have been washed down from these their native beds during the rainy season.”

“Diamonds are found in the bed of the Godavery, near Buddrachillum. The nullahs and rivers which run into it near that place, have their origin in a rock formation exactly similar with those above described. I think it very probable that the diamond mines of Sumbhulpoor, of Punnah, and even of Bijapur, are situated near similar rocks.”

We know nothing of the means which are employed by nature in uniting particles of carbon so as to form a diamond. That it is the work of ages, appears probable from the extreme scarcity of this precious gem. As plausible a theory of the formation of precious stones, and of their color, as any which I have met with, is the following.

“By the slow and regular work of ages, perhaps of hundreds of ages, earths may be gradually dissolved by water, and as gradually deposited by their solvent in the slow and undisturbed process of crystallization. The regular arrangement of their particles, during their reunion in a solid mass, gives them that brilliancy, transparency, and beauty, for which they are so much admired, and renders them in appearance so totally different from their rude, and primitive ingredients.”

“It can be imagined, that when water, holding in solution some particles of earth, filters through the crevices of hills or mountains, and at length

dribbles into some cavern, each successive drop may be slowly evaporated, leaving behind it the particle of earth which it held in solution. Crystallization is more regular and perfect, in proportion as the evaporation of the solvent is slow and uniform; nature, therefore, who knows no limit of time, has, in all works of this kind, an infinite advantage over any artist who attempts to imitate such productions.”

“ It can also be conceived, that the arrangement of the particles of earth during crystallization may be such as to occasion transparency, by admitting a free passage to the rays of light; and the beautiful colours of the ruby, emerald, sapphire, topaz, &c. are probably owing to such an arrangement of the particles of the gems, as to transmit some of the colored rays of light, and to reflect others: in which case, the stone must appear of the color of the rays which it reflects. But it frequently happens, that the color of a stone is owing to a mixture of some metallic matter.”

In the reign of the former Rajas and Ranees in Sumbhulpoor, the right to all diamonds found in the bed of the Mahanuddee, was invariably established by them: and on a diamond of magnitude being found by the Jharas, the fortunate finder or finders were rewarded by a grant of a small village in jagheer, and by presents in money and clothes. When detected in secreting a diamond, they were punish-

ed with death, or by being severely beaten, and deprived of their jagheers, and of the privilege of ever again searching for diamonds.

The facility with which a diamond, when found by the Jharas, can be secreted, (for instead of vigilance being exercised over them, they are left to use their own discretion in searching for this gem,) and the extreme difficulty in detecting the fraud, render it more than probable, that many very valuable diamonds are at this moment in the possession of the finders, which they are afraid to disclose. For in 1818, on the power of the British Government being established in Sumbhulpoor, a diamond, which had been secreted by the searchers from the former rulers of Sumbhulpoor, was actually brought and delivered to the late Political Agent, and by him sent to Government as a part of the property of Sumbhulpoor, which, by right of conquest, became the property of the State. It weighed 84 grains, and was valued at 5,000 Rupees.

At Sumbhulpoor, the quality of the diamond is named after the four tribes of the Hindoos. A diamond of the 1st quality is called Brahmin; the 2d is named Chetree; the 3d Bysh; and the 4th Soudra: and from experience, the native jewellers judge pretty accurately of their respective qualities. The weights they employ for weighing the diamond are the Ruttee and Masha. The former is a fraction less than two grains Troy weight,

and 7 Ruttees make a Masha. Rough diamonds are estimated according to their quality. The 1st quality is valued at per Masha 500 Sicca Rupees; the 2d at 400 Sicca Rupees per Masha. This mode of valuing a rough diamond is somewhat different from the rule laid down by Jeffries for ascertaining the value of this gem in its native state. According to Jeffries, the Carat weight of a rough diamond is squared, and then multiplied by 2, and the product is the value of the gem in pounds sterling. E. G. a diamond of 20 Carat weight, $20 + 20 = 400 + 2 = \text{£}800$ sterling. If the product of the square of the Carat weight of a cut diamond be multiplied by 4 instead of 2, its total will be the value of a cut diamond in pounds sterling. This rule applies only to diamonds of small weight; for the value of a diamond of magnitude increases, without any established rule, rapidly with its size.

The only account of rough diamonds found in the Mahanuddee, and delivered by the finders to the legal owners of them, that I have been able to trace, is the annexed, given by respectable authority, embracing a period of about fourteen years, from 1804 to 1818.

Years.	Number.	WEIGHT.			By whom received from the diamond finders.
		Mashahs.	Ruttees.	Troy Weight. Grains.	
Unknown.	1 Diamond.	20	4	288	Ranee Ruttun Coher.
1804.	1 Do.	4	0	56	Do. do.
1805.	1 Do.	7	0	98	Do. do.
1806.	None.	0	0	0	
1807.	1 Diamond.	22	0	308	Do. do.
1808.	1 Do.	1	0	14	Do. do.
1809.	1 Do.	48	0	672	Chunderjee Bhoonsla, commanding in Sumbhulpore.
....	3 Do.	0	3½	7	Do. do.
....	1 Do.	1	0	14	Sacca Ram Gopaul.
1810.	2 Do.	2½	0	35	Chunderjee Bhoonsla.
1811.	1 Do.	4	0	56	Do. do.
1812.	None.	0	0	0	
1813.	1 Diamond.	2	0	28	Mahadeo Rae.
1814.	None.	0	0	0	
1815.	1 Diamond.	2	0	28	Do. do.
1816.	1 Do.	0	6½	13	Do. do.
1817.	1 Do.	2	0	28	Do. do.
....	1 Do.	0	2	4	Do. do.
1818.	1 Do.	6	0	84	Do. do.
....	1 Do.	1	0	14	Do. do.

“The large diamond found in 1809, was of the third (Byshes) quality. It was picked up in the month of October, at a place called Herakode, in the bed of the Mahanuddee: and its delivery to Ranee Ruttun Coher was unluckily delayed, on account of her being engaged in performing the funeral ceremonies of her husband’s mother; and before they were finished, the Maharatta troops arrived, and expelled her from the country. A traitorous servant of hers betrayed the secret of the valuable stone to Chunderjee Bhoonsla, the commanding officer, who persuaded the diamond finders to sur-

render it to him, by promises of the grant of a fine village, and a thousand Rupees. On the following morning, when they appeared to claim performance, they were reproached for bringing a stone instead of a diamond, and driven from his presence.”

ON THE BURNING IN THE FEET OF NATIVES.

BY J. GRIERSON, Esq.

Presented November 5, 1825.

THERE is a disease, peculiar as far as I know to the natives of India, which it has been my wish for some time past to bring to the notice of the Society; but the laborious and incessant duties that have fallen to my lot, in common with the other medical officers of this division of the army*, have hitherto prevented me from turning much of my attention to any subject not immediately connected with our prevalent and destructive maulady.

The disease to which I allude, having no familiar nosological term, I shall describe in the words of the patient: "A burning in the soles of the feet." Such members of the Society as are conversant with the practice of native hospitals, will readily recal to their recollection many cases of the disorder in question. It occurs very often after, or together with fever and bowel complaints; but is also found totally unconnected, to all appearance,

* The Arracan Division.

with any constitutional or organic disease whatever. It exists in various degrees of severity, from an uneasy harassing sensation of heat and tingling, to the painful extreme of burning, destructive of sleep and appetite, in the first instance, and latterly of serious injury to the general health. The sensation of heat is often experienced at the same time in the palms of the hands; and when severe in the feet, occasions an aching also along the tibiæ as far as the knee. There is no inflammation, tension, discoloration, or visible change in the limb; the excruciating burning pain being the only symptom present; and the spot principally referred to as its seat, is the extremity of the foot, the heel and instep being less affected.

Whether such causes as travelling barefoot over arid sandy plains, or through brackish swamps, have any share in producing this disorder, (as I have heard alleged;) or whether it is always the consequence of constitutional derangement, obvious or obscure; or if it depends in any way on the state of the weather, or quality of food, I am not competent to determine. The disease, in its Idiopathic form, is certainly of more frequent occurrence among that class who are exposed to the first mentioned causes; but we also find cases of a different kind, in which the general constitution or temperament is concerned; the supervention, for instance, of giddiness in the head, when the affection of the feet has been arrested by the applica-

tion of cold. In England, the complaint perhaps never exists unconnected with other diseases, and we are familiar with it in Phthisis Pulmonalis. In regard to climate and food, it may be remarked, that a disease of a similar nature would seem to be known in Lapland, where we are told the natives are in the habits of applying the bark of the beech to the planta pedis, as a remedy for unpleasant symptoms resulting from checked perspiration. The proximate cause seems also involved in obscurity. Among the natives, whose knowledge of anatomy goes little further than a general idea of the humoral pathology of the ancients, a certain faulty condition of the blood, and other fluids or juices of the body, is received as a sufficient explanation. Being myself ignorant of the particular texture affected, or the precise nature of such affection, I shall abstain from offering any vague conjecture on the subject: but my object being to excite attention to it, and obtain information, I shall proceed to mention what remedies I have myself employed, and those that have been suggested to me by native practitioners.

Having, as already observed, noticed the disease in connexion with, or in succession to febrile and bowel complaints, I have used various alteratives, and other remedies, without effect. Some cases of leprous affections preceding the disorder, as also more frequently enlargement of the spleen, induced me to try the medicines in common use for these

complaints: and as the burning heat seemed at other times to assume an intermittent or remittent form, I have made partial trial of the bark, and arsenic, without decided benefit. The internal use of what are called cooling medicines, such as nitre and cream of tartar, had no effect. Opiates in large doses, though sometimes useful as a palliative, often failed to procure even a few hours rest, and were in no case productive of essential or lasting benefit. The local remedies have been bleeding, blistering, liniments of different kinds, sedative applications, cold lotions, warm fomentations, &c. all without material advantage; though a blister on the instep, and the vapour of the Decoct. papav. sometimes procured temporary relief.

My enquiries among native practitioners have tended little to elucidate the subject. One person mentions the use of Dhaee and Sherbet, occasional purgatives, together with topical bleeding; and friction with stimulating oils, as the common mode of treatment. Another adds the application of lime and sem leaves. A third, more scientific, divides the complaint into three different species, and specifies the remedies for each. When attended with a moist skin, a cold infusion of Mhendee is prescribed internally; and as a topical application, a mixture of Geroo (red ochre,) black pepper, and Kudoo. If an eruption of watery pimples is present, pills the size of a grain of gram, composed of equal parts of the Buttooa, Butkuteia, and Akir-

kura, are to be prepared, and one taken thrice a day. The contents of the pustules to be gently pressed out with a soft cloth. In the third species, where the nails assume a yellow color, Mhendee leaves, with Chunam and lime juice (equal parts) form a sort of poultice or plaster for the part affected, while the pills above mentioned are to be taken internally. If these are ineffectual, general bleeding and purgatives are to be resorted to, and mercurials as a last resource.

None of my medical brethren are aware of any thing like a specific remedy for this disease: but regarding the affection as nervous, many have used opiates, and local means of cure, similar to some of those I have already detailed, with equally unsatisfactory results. One medical friend indeed, spoke with confidence of a solution of Mur. Hydrarg. and Mur. Ammon. as a lotion, being led to the use of this remedy from its frequent employment in chilblains. In an obstinate case of burning in the feet (in a European,) succeeding ulcerated ringworm of long standing cured by strong astringents, I witnessed good effects from Mhendee, and the occasional use of the Linim. Sapon. c.

The frequency and obstinacy of this complaint, —its apparently trifling nature, often subjecting the sufferer to the injurious imputation of skulking, —the excruciating pain attending it,—and the se-

rious ravages which its long continuance is sure to make on the general health and constitution,—are circumstances calculated to make the subject worthy of consideration ; and I would fain hope that the result will be, the communication of some remedy that may enable us to erase the disease from the list of *opprobria medicorum**.

* The following extract of a letter from Mr. Playfair, relates to the same subject.

“ This affection I have often met with, both in the hands and feet of natives ; and though I do not consider it incurable, yet I must confess I have found it very obstinate and untractable for a great length of time, resisting a variety of remedies, such as sudorifics and alteratives, and the external application of stimulants, astringents, cupping, and leeches.

“ There are two kinds of this disease usually met with, both in the feet and hands : one kind, in which the parts affected are in a constant state of moisture from sudor ; the other, in which the extremities are dry, and sometimes scaly : but there are a number of varieties. In some, the feet only are affected ; in others, the hands : in many, both hands and feet. In a few, the feet are dry, while the hands are bathed in sweat ; but in all, the disease is very distressing, generally preventing all natural rest, and disordering the animal functions in a remarkable degree. The patients describe their sufferings as nearly insupportable, and I scarcely know a complaint in which the patience of the sufferer is so speedily and completely exhausted.

“ The natives have two methods of curing the disorder, applicable to its peculiar variety. In the moist kind, they use an unguent composed as follows :—

- Chook, (inspissated Lime Juice.)
- Khoot, (a root, *Justicia Ganderussa* ?)
- Lahorie Nemuck, each 2 pice weight.
- Oil of Black Till, 12 pice weight.

The ingredients pounded and well mixed, and the application continued 14 days.

“ The dry kind they cure by fumigation. A hole is dug in the ground about two feet deep, sufficiently large to contain the feet and legs. In

this wood is burned till the earth has become well heated. The fire is then removed, and the bottom of the excavation covered with Mudar leaves. Milk is then sprinkled in till the fume arises, when the feet are inserted, and covered over with a blanket, and the application continued till the earth is nearly cold. This is repeated daily for seven days, when the cure is said to be complete.

Within my own observation, relief has certainly been obtained in both ways ; but I have not been able to ensure the attendance of the patient, so as to ascertain the ultimate result. The native practitioners, however, speak with confidence of its success.



ON THE
NATIVE PRACTICE IN CHOLERA,

WITH REMARKS.

BY H. H. WILSON, Esq.

Presented Sept. 3, 1825.

I HAVE obtained for the information, and probably for the amusement of the Society, the following account of the treatment of Cholera by Bengali practitioners, from a respectable and intelligent member of the native community, Baboo Ram-comel Shen. The practice he describes is for the greater part the most barbarous empiricism, in which ample advantage is taken of ignorant credulity. It may be urged, however, in favor of the practitioners, that they are upon a level with their patients, and equally impressed with a belief in the efficacy of the crude compounds which they administer.

It is not the less true, however, that an opinion very generally prevails amongst the most enlightened native inhabitants of Calcutta, that the resources of their own physicians are more worthy of confidence, in cases of a purely medical description, than those at the command of European practitioners. The notion may possibly be erroneous; but its prevalence indicates the propriety of our investigating the means employed by native medicine, in order

that we may avail ourselves of such as may be beneficial, and expose the mischief or absurdity of such as may be ridiculous or detrimental.

Native mode of Treatment in Cholera.

It is unusual with the natives of Calcutta, to conceive medical aid necessary upon the first accession of Cholera. Ascribing it to a temporary derangement of the stomach and bowels, they are content with keeping themselves quiet, in the hope that nature will be sufficient for the cure.

When the disease can no longer be mistaken, it is not very uncommon to apply to the remedies recommended by European practitioners, as Laudanum and others; but those whose prejudices prevent their employing such medicaments, have recourse to various preparations of vegetable substances. These are known generally by the name of *Mushti Jog*, and are often very simple, as cardamom seeds and honey. One commonly administered, is called the *Dhanya Chatushka*, being a decoction of four substances: *Dhanya*, Coriander seeds; *Bala* root (Andropogon Schoenanthus;) *Bel Sutha*, dried Bilwa fruit (*Ægle Marmelos*;) and *Mutha* root (*Cyperus Rotundus*.) The object of these medicines is to stop the vomiting and purging.

When the extremities begin to be cold, the pulse sinks rapidly, and the body is covered with cold perspiration, the patient is rubbed with an absor-

bent powder, as one of calcined *cowri* shells, *Abir* powder (the red powder used at the *Holi*,) the pounded luting of furnaces, or the bruised leaves of the *Ganja* plant, and of a species of bean.

If the symptoms continue unabated, the case is regarded desperate, and the native practitioners uniformly have recourse to what is considered by them and their patients a desperate remedy,—the *Rasayana* or *Bishaprayoga*, the exhibition of animal or vegetable poison, with different metallic preparations. In administering this, they always think it necessary to procure the assent of the patient or his relations; and it is not unusual for the former, if capable of making any objection, to refuse to take the medicine; it being the general belief that its effects are felt through life, and that it brings on peculiar susceptibility to disease, and premature decay.

The animal poison said to be employed in these prescriptions, is the venom of the *Gokhura* or *Keuta*, a species of the Cobra. This is collected by pressing the head of the snake upon a palm leaf, and irritating him so as to make him bite it: the drop or two of venom so obtained is immediately mixed with the other ingredients, and suffices, it is said, for a vast number of pills. There is much mystery, however, about this matter; and there is reason to doubt whether the asserted employment of this kind of poison is not an imposition.

The use of the vegetable poison is not equally doubtful, for the substance is well known, and it is extensively employed in a variety of cases, particularly in fevers. It is a dry root, called *Bish* or *Bikh*, and may be had at any time of the native druggists. It is not a native of Bengal, but is said to come from Nepal.

The compounds of which the venom forms a part, vary with the choice of the practitioner. Several formulæ are given in the books, and others are common in practice: of the latter class the most usual go under the following appellations.

Mritasanjivani Rasa.	The recoverer of the dead.
Mrityutthápana.	Raising from death.
Aghora Nrisinha.	The formidable man-lion.
Takipuri.	The medicine of Takipur, a village in Burdwan, where it was first employed.
A'dabati.	The pill taken with ginger.
Ekabati.	The single pill.
Kálántakabati.	The death-destroying pill.
Nandakumára Chatí.	Nandakumar's extract.
Súchikábharaṇa.	The medicine of which the pill may pass through the eye of a needle.

They consist for the most part of the same articles, but the precise preparation is generally kept a secret, and each practitioner follows a recipe of his own.

The following is the composition of one of the most popular of these preparations, the *Súchikábharaṇa*.

Metallic Quicksilver.

Calcined Copper.

„ Iron.

„ Lead.

„ Zinc.

„ Mica.

Pure Sulphur.

Calcined yellow Orpiment.

„ Red Orpiment.

„ Swerna Makshika.

„ Vermilion steeped in lime juice.

Bish, or poison. An equal part of each.

The whole being mixed together, and pounded, is triturated in a glass or stone mortar, with a quantity of vegetable juices, those of the Nisindha (*Vitex negunda*), Siddhi (Hemp,) Ginger, Kákmáchi, Lime, and Hatisunda (*Heliotropium Indicum*), and being well rubbed, it is digested in the sun: these operations are repeated several times.

The semi-liquid mixture is put into a bottle, which is covered with cloth and luting, and is placed in a vessel filled with sand over a fire, when the contents are boiled for five or six hours, and are then left to cool for a day.

The contents being taken out, are again mixed with ginger juice, and formed into a thin paste, to which is added the Pancha Pitta, or animal gall, said to be taken from the gall-bladders of a fish, a goat, a peacock, a hog, and a buffalo. The mixture is set some time in the sun, when it is ready

for use. It is made into pills, each pill being as much as may be taken upon the point of a knife, or a stick, or a needle: they are of so small a diameter that they may pass through the eye of a moderately sized needle, whence the name is derived: they are kept in glass phials.

The pills are not administered in that form; but from two to four, according to the state and strength of the patient, are triturated with cocoa-nut water, and the mixture is given him as a draught. Cocoa-nut water is also given him to drink every 15 or 30 minutes. In general, the pulse begins to rise shortly after the medicine is taken, and the natural heat of the body to return. As soon as this is the case, the body is anointed with mustard oil, into which nutmegs are ground. The patient is allowed to drink cocoa-nut water occasionally till his thirst abates. Warm water is also from time to time sprinkled over him.

If in an hour or two no favorable change is perceived, a second dose is given, and as need requires a third or fourth; and a dose is administered sometimes even after the patient has been carried to the river side.

It sometimes happens that the relief is temporary, and the patient relapses after the medicine ceases to act: perseverance in the plan is in that case necessary.

The treatment sometimes fails; but many instances are known, in which patients have recovered from such a hopeless condition, that it may be said they were raised from the dead.

REMARKS.

It seems not improbable that one of the substances alluded to in the preceding account, is entitled to further investigation. As noticed by the writer of the paper, the use or efficacy of the animal poison of the venom of the Cobra is very questionable; but there is no mystery about the vegetable poison, and if it be true, that *ubi virus ibi virtus*, there can be little doubt of its powers. The root comes from Nepal, and is readily procurable.

Bish, or Bikh, or Vish, means poison simply, but is ordinarily applied to the drug in question. This is described in the *Bháva Prakása*, as “the root of a plant, the leaves of which resemble those of the Sindhuvara (*Vitex-trifolia*,) and the knots on the stem of which resemble the navel of a calf. No tree thrives near it.” The synonymes given in the *Rájá Nirghanta*, are *Amritam*, *Vatsanábha*, *Visham*, *Ugram*, *Mahoushadham*, *Grahana*, *Máranam*, *Nága*, *Stokakam*, *Pránaháraka*. It is said to be very sweet and pungent, curative of phlegm and bile, diseases of the throat, and complicated affections of all the humors. According to Dr. Carey, in his *Bengali Dictionary*, *Bish* is a kind of Aconite (*Aconitum ferox*,) and consequently is one of a

family already known to possess deleterious properties. As synonymous with Vatsa Nábha, Mit'ha, or Mit'ha Zaher, (sweet poison,) it was made some years ago the subject of some experiments by the late Dr. Hunter and Dr. Tytler, who ascertained that a young cat was killed by three grains in four hours. Nine grains were given, but six were recovered from the stomach upon dissection. Dr. Hunter tasted the substance, and found it strongly astringent, and that it left a slight, but unpleasant sweetness in the mouth. In like manner the Aconitum Anthora, although not poisonous, is said to have an acrid bitter taste, constringing the fauces and throat, accompanied with a kind of nauseous sweetness: so also the A. Pardilianches has a sweetish somewhat astringent taste. The A. Napellus has no particular flavor. These three kinds have been employed in European medicine, and their noxious nature been the subject of controversy. Their use has been abandoned, in consequence of the uncertainty of their action. The Aconite of the ancients, which is described as first constringing the tongue, and then leaving a sweet taste, was used by hunters to poison beasts of prey, by pieces of meat in which it was concealed*. And according to Dr. Buchanan, the *Vish* is in universal use throughout India for

* Τὸ δὲ ἀκονίτον εὐθέως ἅμα τῷ πίνεσθαι γλυκαίνει τὴν γλῶσσαν μετὰ τινος στύψεως. Aconitum statim in lingua inter bibendum, cum adstrictione quadam dulcescit. Dioscorides, l. vi. c. 7. So in the translation of Ætius, we have, Aconitum, statim dum potatur linguam edulcorat cum quadam adstrictione.

the purpose of poisoning arrows. The Gorkhas, he adds, looked upon it as one of their defences on their frontier, along which it grows, as it enabled them to infect all the water on the route by which an enemy could advance. The measure was adopted in the war with Nepal, although to very little purpose.

The result of the experiment alluded to above was decisive as to the fatal properties of the drug; but it is to be observed, that the quantity employed was considerable, and that many articles in common use, if given to a like extent, might be productive of similar results. On the other hand, we cannot judge from the exceedingly comminuted dose of the Hindu practitioners how much of it might be administered with safety.

There is, however, another question of importance to be determined on this subject. It has been made a matter of doubt whether the drug that is used in native medicine be a poison at all. The poisonous root named *Bikh* may perhaps be sometimes used medicinally; but the root, which is an efficacious febrifuge, although bearing a similar appellation, is considered by Buchanan, (*Account of Nepal*, page 99,) to be wholly distinct from the poison, though possibly of the same genus. I shall conclude these observations with the following extract from the intelligent traveller I have just referred to.

“ Singgiya Bikh, or Bish, is a plant much celebrated among the mountaineers. The plant was brought to me in flower, but was entirely male; nor did I see the fruit, which is said to be a berry. So far as I can judge, from these circumstances, I suppose that it is a species of *Smilax*, with ternate leaves. To pass over several of its qualities that are marvellous, the root, which resembles a yam, is said to be a violent poison. The berries also are said to be deleterious; but when applied externally, are considered as a cure for the swelling of the throat, which resembles the goitre of the Swiss, and is very common among the mountaineers.” P. 86.

“ The term Bish or Bikh, is applied to four different plants with tuberous roots, all in great request. I have already mentioned the Singgiya Bish, and supposed it to be a species of *Smilax*. The others have not the smallest resemblance to it, but are so strongly marked by a resemblance to each other, that I have no doubt of their all belonging to the same genus, although I have only seen the flower and fruit of one. This is called Bishma or Bikhma, and seems to me to differ little in botanical characters from the *Caltha* of Europe. The Bishma or Bikhma, is also I believe called *Mitha*, although I am not certain but that this name may be also given to the following species; which deserves the most serious attention, as the Bikhma is used in medicine as a strong bitter, very powerful in the

cure of fevers, while the plant that will be next mentioned is one of the most virulent poisons.

“This dreadful root, of which large quantities are annually imported, is equally fatal when taken into the stomach and when applied to wounds. Its importation would seem to require the attention of the magistrate. This poisonous species is called Bish, Bikh, and Hodoya Bish, nor am I certain whether the *Mitha* ought to be referred to it or the foregoing kind.

“The Nirbisi, or Nirbikhi, is another plant of the same genus, and like the first kind has no deleterious qualities, but is used in medicine.”
P. 98, 99.

ON THE
INDIAN PENANCE OF GULWUGTY,
OR
CHURUK POOJA.

BY R. H. KENNEDY, M. D.

Presented Dec. 3, 1825.

I DO not recollect to have seen a description by a medical writer of the Indian penance of Gulwugty, or swinging with the whole weight of the body suspended on a pair of hooks perforating the integuments of the loins. The process itself is so appalling to an ordinary spectator, and the after consequences seem so singularly disproportionate to the apparently serious nature of the injury endured, that it deserves consideration, and would justify a short letter to the Society, even if I had not professional suggestions to ground on my observations.

On the western extremity of the old cantonment of the Bombay Dekkan division, was the village of Seroor, whence the station was named, and on the south eastern extremity of the camp was the village of Hingny, the distance betwixt the two being about three miles. At each of these villages was a pagoda of peculiar sanctity; and at certain periods, as far as I can remember, once in 19 years, it was deemed a necessary ceremony that the car of Gulwugty penance should be dragged

from Seroor to Hingny, with devotees suspended from the mast during the whole route. The car was dragged by as many volunteer labourers from the spectators as could be yoked to it, and proceeded at a rapid rate when a sufferer was undergoing the torture; but it remained still in the interval of unloosing one, and fixing another, no progressive motion being lawful unless with a devotee pendant from the hooks. The spectators and officials assured me, that such a circumstance had never occurred as the car's being unable to reach its destination through the want of mortifiers of their flesh: the penitents or devotees were always sufficiently numerous to keep the hooks occupied from one pagoda to the other.

The car was four-wheeled, and about the size of an English farmer's waggon, rather broader, but not so lofty, of the coarsest possible construction, being built of half beams rather than planks, and exceedingly heavy: upon this was a platform, ample enough to hold about twenty persons. A mast twelve feet high was erected in the centre, across which, fitting on an iron pivot, was balanced transversely a pole about fifteen feet in length, divided however unequally, the iron ring which fixed on the pivot being inserted into it about four feet from the heavy end, and of course about eleven from the smaller. To the first was suspended a square scale of wood, capable of containing four or five persons; and from the latter the hooks hung by a chain.

The process of the penance was as follows. A devotee, having the hooks fixed in his back, as shall hereafter be described, the number of persons that were requisite to balance his weight and the lever, from his greater share of the pole, generally four or five, stepped into the scale at the short end of the transverse beam, and depressing it by their weight as low as the pivot would allow, to an angle of about 70 degrees, they gave the cross beam a circular motion on the pivot, by pulling themselves round the mast, which they could touch, or were pushed round by other assistants who crowded on the platform; whilst the poor penitent, dangling at the fearful height of at least twenty feet from the ground, was swung round with a rapidity scarcely describable, and the car mean while dragged forward by the multitude, till the sufferer himself prayed to be released from his painful and perilous situation. The longest period I witnessed any one person endure the torture, was seven minutes and a half; the generality were satisfied with two minutes. The bold and heroic went up with "sword in hand, and shield on arm," as if accoutred for action: the meeker characters held their beads in their hands, and continued repeating the names of their gods. The total number who underwent the penance was about fifty, and the time required for the car to travel from one village to the other was more than seven hours, two of which were spent within the limits of the village which closed the proces-

sion, the car at that time scarcely moving onwards a foot with each individual, in order by such slowness of advance, to indulge as many as wished to offer themselves for the ceremony.

The hooks were precisely similar in shape, but rather stronger, than the flesh hooks of the London markets; the points by no means particularly sharp, nor the iron polished to any remarkable brightness. No preparatory perforation of the integuments was made previously to introducing the hooks; but they were forced through, one after the other, with as much unconcern as can be imagined, the operator no more interested to be tender in the office, than as if he considered the patient as accustomed to the ceremony, and as little affected by it, as himself. The only care was to avoid a flesh wound; and the extent to which the integuments were disengaged from the muscles beneath, even in the youngest and stoutest persons, exceedingly surprised me. To effect this the patient was laid on the ground, and his back violently rubbed with abundance of oil: this being dried off with sand, another friction equally violent took place, with soap, scraped into such thin fragments as powdered and disappeared under the hand. This being again dried with sand, the operator's principal assistant, sitting on the patient's shoulders, commenced with his heels a process of kneading, jerking, and working the integuments over the loins, so as to loosen or slacken them, with a roughness of ma-

nual, but completeness of success, that, as I have already said, struck me with astonishment. This being done, or rather in the intervals of this process, the operator continued gathering up by little and little a fold of the integuments in his left hand, as we would raise up the skin for the introduction of a seton; and when he had mastered as much, as he could, with his utmost exertion, force up, he then shoved his hook slowly and deliberately through it, always directing the point outwards. One hook being fixed, the other was speedily introduced on the opposite side in the same manner, the operation of fixing both taking generally about three or five minutes, depending upon the muscularity of the subject. After the patient had swung to his own content, he was taken down, by the cross pole being lowered nearly to the ground, from the weights at the opposite end removing from the scale: then being laid flat on the ground, the hooks were drawn forth, but without the least precaution to save pain. I did not observe a single instance of the skin having yielded or being rent. The appearance was invariably four wounds in a straight line, thus *o o o o*, the two made by one hook being always four, and sometimes five inches apart from each other. The curative process was simplicity itself. The principal assistant again seated himself on the patient's shoulders, and applying his heels to the wounded parts, labored to squeeze out any blood or lymph that might be extravasated. One operator sucked the wounds, and another applied a

kind of dry poultice of cow-dung and turmeric, the Hindoo specific for every shock that "flesh is heir to." The sufferer's Kumur-Bund* supplied the bandage, which was tightly applied round his loins, and he forthwith joined in the ceremony of swinging his comrades, as alert and unconcerned, to appearance, as if the whole he had undergone were but a jest. I had an opportunity of examining daily, until their perfect cure, seven of the devotees, who were our battalion sepoy's or camp followers. In no one instance was pus formed, or did inflammation of any consequence whatever follow; nor did one quit his duty, or apply for hospital relief. And further, I had reports to be relied on, of nearly 20 others from distant villages, whither I sent hospital servants to make enquiries after the poor people who had swung, not one of whom suffered in any important degree, beyond a temporary soreness and stiffness in the loins. None but a medical man who has witnessed the process, could suppose it possible that so little injury should result from so apparently serious an operation. The natives of course think it the miraculous interference of the god Cunda Row, in whose honor the torture is endured: a very natural conclusion, for even among our officers, who in great numbers attended to witness the spectacle, there were not a few whom it was difficult to impress with a satisfactory conviction, that the whole was but a natural result

* Girdle.

from natural causes ; and that the skill of the operator, and the antiphlegmonous habit of his own constitution, was the safeguard of the patient.

The first professional suggestion that I would offer, originating from having witnessed this ceremony, is the comparative fearlessness of inflammation, and hectic to follow it, with which we may undertake surgical operations, on constitutions kept down by regular perspiration, the effect of climate, and meagre diet, as enjoined by religion. To dilate on particular cases would be superfluous ; every Surgeon of any experience must have seen many : but it is well to hold in view a particular standard of how much may be borne without serious inflammation, or any bad consequences whatever following, by the cold-blooded patient, to whom a few cardamoms and a hooka serve as a dram.

The next suggestion is more practical, and it is this,—that I think setons may evidently be introduced with ease and perfect safety, and probably with advantage, in a bolder manner than we are in the practice of using them. The objection to setons by Mr. Pott, that they “ so frequently cut themselves a way out, wearing through the skin before the end be accomplished for which they were introduced,” would be entirely obviated, if instead of its being an inch or an inch and a half under the skin, it were introduced four inches :

and I would venture to remark, very respectfully of course when impugning such high authority, that two such setons might perhaps be preferable, as counter irritation for diseased spine, to “two caustic issues, each forming an oval of an inch in the longest diameter, and of a capacity sufficient to admit a large kidney bean,” as recommended by that truly illustrious writer. The more especially, I would add, where, as is of not unfrequent occurrence in this country, the patient is presented to the Surgeon in that state of exhaustion, and last stage of disease, in which the caustic cautery may be justly apprehended as too severe an irritation in its first application.

As I have myself derived advantage from making these reflections, and have never had occasion to regret my having acted upon them in practice, I hope I may be excused for intruding on the Society by communicating them, and for thinking them, and the history of the singular circumstance under which they occurred to me, as worthy of their consideration.

CASE OF A TUMOR IN THE LIVER.

BY W. THOMAS, Esq.

Presented November 5, 1825.

CORNELIUS SULLIVAN, Gunner 1st Company 2d Battalion of Artillery, *Ætat.* 21, of a spare thin habit of body, and generally temperate in his mode of living, has been two years and four months in the country. Has suffered from liver and bowel complaints at Dum Dum, and intermittent fever for twelve days in December last at Cheduba. Was admitted into hospital on the 14th August, complaining of severe headache, great heat of skin, pain in his loins, and costiveness. He was immediately bled to the extent of oz. xx. when he fainted, and got grs. xx. Hydrarg. Submur. followed by a solution of Magnes. Sulph. with a small portion of Antimon. Tart. every two hours till his bowels were freely opened. He continued well, though weak, till the 19th, when his febrile symptoms returned, but his pulse did not run above the natural standard. Hydrarg. Submur. with Pulv. Antimon. were ordered every four hours.

20th. Had a restless night; pulse natural, skin temperate; two or three stools, nature not ascertained; feels weak and faint. Medicine continued,

and Mistur. Camph. and Æther. Nitr. ordered. Diet arrow-root with a little wine.

21st. Passed a bad night, skin hot, tongue clean, pulse full and steady; severe hickup this morning, and stomach rejecting every thing; green vomiting, two stools during the night. Hab. Hydrarg. Submur. grs. xx. et Tinct. Opii. gtt. xxx. stat. et appl. Emp. Vesicat. ampl. ad Scrob. Cord. Omit. Mistur. Camph. et Æther. Nit.

Noon. Much the same as at the morning visit. Rep. Hydrarg. Submur. and Tinct. Opii. Leeches to the sides.

Evening. Stomach tranquil, slight hickup, tongue parched and brown. Skin very hot, pulse quick and small. Three stools, very dark and slimy. Rep. Hydrarg. Submur. and Tinct. Opii. Leeches were applied.

22d. Very restless night, severity of hickup much increased. Heat of stomach. Pulse good, skin temperate, tongue foul, and conjunctiva yellow; great debility. Had three scanty stools during the night. Hab. Ol. Ricini oz. ss. in Tinct. Opii. gtt. xxv. quam prim. Contin. arrow-root with wine.

Evening. Hickup continues, pulse full and quick, tongue cleaning, eyes still yellow; vomited

some dark green matter. Took the castor oil, and had two scanty dark and slimy stools. Rep. Ol. Ricini in Tinct. Opii. gtt. xl. hora som.

23d. Died at 2 A. M.

Appearances on Dissection, at 10 A. M.

On opening the abdomen, the omentum was found considerably inflamed, particularly that part called omentum gastrocolicum. The stomach was white, and very much thickened near the pylorus. It contained about a pint of dark green fluid, similar to what had passed by vomiting and stool.

On the convex surface of the great lobe of the liver, a large tumor of a whitish yellow color was perceived, which adhered so strongly to the diaphragm, that it was necessary to remove a portion of the latter, in order to take the liver out of the body for examination. On puncturing the tumor, it was found to contain about 12 oz. of fluid, as *clear* and *colorless* as pure water. The inner surface of the tumor was lined by a thin semitransparent membrane, which separated, and collapsed immediately the fluid escaped. The substance of the liver was of a dark green appearance, and seemed loaded with blood. In some places its structure was so completely destroyed, as scarcely to bear being handled without giving way. Its weight before the tumor was opened, $5\frac{1}{2}$ lbs.

Avoirdupois. The gall-bladder and ducts were full of green bile. No viscosity or gall-stones. Spleen of the natural size and color.

The morbid portion of the liver shall be sent for the Society's Museum, by the first opportunity that offers. It is suspended in the spirits by the portion of the diaphragm adhering to it: the opening of the tumor (greatly enlarged by accident) is kept asunder by a small piece of wood. The membranous lining is also suspended; but it is so delicate, that I fear it will not bear its own weight on the threads.

REMARKS.

The above case is only novel from the nature of the tumor in the liver, and its contents found on dissection. On the strictest examination of the patient when admitted into Hospital, there was nothing indicating disease of the liver, no pain nor uneasiness on pressure, nor any apparent enlargement of it; and the conclusion I formed of the case was, that it depended on a superabundant secretion of bile, and latterly the passing of gall-stones, in which I was mistaken.

It would be satisfactory to get possession of this man's case from the records of the Dum Dum Hospital, and I have no doubt it will be found that the tumor was formed during his former attack of hepatitis, as it is impossible it could

have attained its structure and consistence during the eight days he was latterly ill. Should this be apparent, it will show that this important viscus may remain diseased, and contain foreign matter in large quantities in its substance for months, or *years*, without detriment to the individual, as Sullivan had performed his duty well during the period I have had medical charge of the detachment, upwards of a year, with the exception of the twelve days mentioned in the case.



HISTORY
OF A
FATAL CASE OF NASAL POLYPUS.

BY R. BROWNE, M. D.

Presented Jan. 7, 1826.

MR. —, Æt. 34., a native of the north of Europe, of a very robust constitution, was the unfortunate subject of the following melancholy case, which may, perhaps, prove interesting to the Society. He became my patient in the month of July 1818, in consequence of an attack of fever, attended with considerable determination to the head, which yielded in a few days to active purgatives, and the free application of leeches. The headache, however, did not disappear with the other febrile symptoms, but recurred in the evening with more or less severity for several days: it at last gave way under the use of cinchona, and for three or four weeks he continued tolerably well, when he was attacked with inflammation of both his ears, which suppurated, but left him suffering from severe headache. Being otherwise unavoidably occupied at the time, the patient came under the care of the late Mr. James Robinson; his head was shaved; one blister applied over the right parietal bone, the principal seat of the pain, and another

a few days afterwards in the nape of the neck ; both were kept open nearly a week. From this treatment he experienced considerable benefit, and returned to business. The headache, however, continued to distress him now and then ; was regularly aggravated by damp weather, sitting under a punkah, or by exposure to a current of air ; and under such circumstances the right eye became red and weeping. These symptoms led to an examination of the nose, when the cause, both of the headache and weeping eye, was discovered, in a fungus occupying the right nostril. By means of a scoop, a considerable portion of the morbid mass, resembling firm jelly, was removed, without occasioning the least pain to the patient, and with considerable relief both to the eye and head. Shortly after a further portion was, at the patient's request, removed in the same manner, with similar good effects, but in a minor degree ; for though the polypus was easily detached from the anterior portion of the nostril, it was obviously increasing posteriorly ; and by the end of September, respiration was completely obstructed through both nostrils, and the headache and weeping of the right eye became constant, and proved very distressing. With the view of relieving the breathing, Mr. Robinson introduced a hollow bougie into the nostril, but it could only be retained for a very short period daily, and having caused great pain without doing any good, its use was relinquished ; and Mr. Nicolson was requested to give his opinion on the

case, which had now assumed a most alarming aspect.

Mr. ——— could afford no particular information as to the duration of the disease; for though he had occasionally felt uneasiness in the nose, he paid no attention to it, having five or six years before been affected in a similar manner, when he was quite relieved by the spontaneous discharge of a dark colored lump from the right nostril, which, being a resolute votary of tobacco, he supposed to consist of hardened snuff.

When Mr. Nicolson was consulted, the polypus completely obstructed respiration through the nostrils, and the descent of the tears from the right eye; the cheek was painful to the touch, the headache incessant, and altogether my unhappy patient was in a most deplorable situation. An attempt was made to remove the polypus by means of the forceps. The operation was but partially successful, the fungus proving to be of a very fragile texture, and coming away in detached pieces of a grisly appearance, and of the consistence of gelatine. The operation gave great pain, and brought on syncope, during the continuance of which the polypus collapsed and eluded the forceps: it was evident too, that instead of being attached by a narrow base, the fungus grew from the membrane lining the upper part of the nostril almost through its whole extent; and considering both the character of the disease

and the symptoms it had already produced, we could only view the probable issue of the case in the most unfavorable light. For several days after the operation, the nose and cheek were extremely painful; but when the coagulated blood and portions of the fungus were removed by means of syringing, and the swelling had subsided, the nostril remained slightly pervious to the air. It, however, soon closed again, and after three weeks it was necessary to repeat the operation to afford temporary relief. As soon as circumstances permitted, a solution of lunar caustic was applied twice a day, as accurately as possible, to the portion of the fungus which the forceps had not broken down; but so far from restraining, it seemed to hasten its growth. It was, therefore, abandoned, and a third operation performed with better success than the former. The cold season was now setting in, and during its continuance the nostril was occasionally pervious, especially in the mornings; and the headache, though recurring frequently, was much less severe, and seldom interfered materially with the patient's attention to business. The only treatment consisted in syringing the nostril daily with warm water, or a mild astringent lotion, and using a plug of lint to exclude the external air from the diseased parts. The patient was also enjoined to be abstemious in his diet, to relinquish wine, and in short to adopt the antiphlogistic regimen as rigidly as possible.

Little or no change took place until the beginning of May following (1819,) when the headache became again a daily and distressing visitor. It was not considered prudent to irritate the parts by resorting to the forceps, and pieces of the fungus were merely scooped away from time to time, when they occasioned severe pain, by pressing on the external parts, but without procuring any further relief. At this period the discharge varied in color and consistence, sometimes resembling well formed pus, at others being thin, greenish, and glairy, but seldom with any mixture of blood. At the end of the month, when the symptoms had become more severe than ever, Mr. Nicolson was again consulted, and removed as much of the fungus as the forceps could reach, but with no better success than on former occasions. The discharge increased a good deal after this operation, notwithstanding the use of astringent injections, and became very acrid and offensive, which it had not hitherto been. Indeed, our attempts to remove this inveterate disease, so far as they could be safely carried, were only made with the view of relieving the sound nostril and the external parts, which were swelled and rendered extremely painful by its pressure. The teeth of the right side of the upper jaw were also painful; and the patient often, and too truly, expressed his apprehension that the disease was extending into the bones of the cheek, and would soon prove fatal.

Severely as the patient had suffered for so long a period from the local disease, his general health continued upon the whole remarkably good. At length, however, about the middle of June, he complained of tenderness in the epigastric and right hypochondriac regions; and though the pulse was little affected, and the appetite continued unimpaired, his food was imperfectly digested, he was greatly annoyed by flatulency, his bowels were irregular, and his motions of an unhealthy appearance. Active purgatives were ordered to be taken daily until these symptoms were removed; but circumstances rendered it inconvenient to resort to them at the time, and on the 2d of July he was attacked by a fever, which I shall now describe.

The paroxysm commenced in the evening with violent shivering. The cold fit, which lasted nearly three hours, was succeeded by intense heat of skin, and in a short time by profuse perspiration. Ten grains of calomel were given, to be followed by two ounces of senna mixture every two hours.— July 3d. During the night he complained bitterly of headache, but it has quite subsided; bowels freely moved; tongue foul and brown; continued the mixture of infusion of senna with sulphate of magnesia. Evening—was free from fever, and easy during the day; bowels frequently and copiously opened; is now slightly heated, and complains of severe pain and weight in the forehead, particularly on the right side; ordered xxx. leeches to the

temples, and the calomel with cathartic extract to be given at bed time.—July 4th. Passed a pretty good night, but the pills not having operated, became restless and uneasy in his bowels towards morning, when a purging enema was administered, and gave him relief; the leeches had acted well, and in a great measure removed the headache. 11 A. M. The senna mixture prescribed in the morning has brought away many copious motions, resembling chopped leaves; feels very chilly at present; pulse 95 and small; tongue very foul; frequent vomiting of green bile. R. Sub. mur. hyd. scr. i. Pulv. antim. grs. vi. ft. mass. et divid. in pil. viii. Two every three hours, and continue the senna mixture. 6 P. M. Has been very sick all day, and has had several dark watery motions; skin moist and warm, pain in the head very severe; apply xxx. leeches, and continue the calomel pills regularly during the night.—July 5. Slept at intervals; had several motions, but not improved in appearance; skin moist and warm; pulse 95; tongue foul and dry. 6 P. M. Fever returned at 10 A. M. with severe shivering. Sixty drops of laudanum were given at the commencement of the paroxysm; is now drowsy and confused; pulse 100; considerable headache: ordered the constant application of cool vinegar and water to the shaven scalp, and the following pills at bed time: R. Sub. mur. hyd. grs. xii. Ext. hyosciam. grs. viii. divid. in pil. iii. The senna mixture to be repeated in the morning.—6th. A restless uneasy night; frequent

dark very foetid stools ; tongue dark brown, and parched ; pulse 90 ; complains of uneasiness in the right side and epigastrium, which are tender upon pressure ; a large blister to be applied to the pit of the stomach and over the hepatic region. Noon : Fever came on about an hour ago, but without shivering ; frequent bilious vomiting ; severe headache. Continue the cold applications to the head ; a claret glassful of a weak solution of tartrate of antimony to be given every half hour until full vomiting is produced. In the evening I found him much easier, sickness gone, skin quite cool, headache very trifling. Rept. Sub. mur. hyd. ut antea.—July 7th. Had some good sleep ; free from fever ; skin moist, and pulse natural ; frequent green foetid stools, more consistent than heretofore. Evening : slight fever about 2 P. M. ; is now in profuse perspiration. R. Sub. mur. hyd. ext. cath. \bar{a} \bar{a} . scr. i. divid. in pil. viii. Sig. Two at bed time, and two early to-morrow morning.—July 8th. Had a very restless night ; got a cathartic enema at 3 A. M. which acted well, stools frequent, and like chopped spinnage ; is now easy ; skin cool ; tongue deeply furred, but moist and white. Two drams of mercurial ointment to be rubbed in morning and evening. 6 P. M. Escaped fever to-day ; skin moist and cool ; Habt. enema. cath. hora somni.—July 9th. Slept soundly ; no headache ; no fever ; tongue cleaning, stools copious and yellow. Evening : Has taken arrow-root repeatedly with appetite ; looks cheerful, and says

he is much better.—July 10th. Free from fever, but complains of pain in the crown of his head and in the nostril, which since the fever abated has been discharging very freely. Removed a considerable piece of the fungus from the nostril. Ordered senna mixture and xx. leeches to the head.—11th. From this date to the 16th, continued free from fever, and gained strength; but subject to returns of headache daily, upon the whole with less severity than before the febrile attack. On the 13th, however, xii. leeches were applied. The mercurial frictions were continued daily, and also mild purgatives. On the 14th, the gums being affected, the frictions were discontinued, and he gained strength and spirits until the 21st, when he went on the river, with better hopes of regaining his health than he had hitherto indulged.

These hopes were soon grievously blasted. On the evening of the 21st the fever returned, ushered in by rigors, and he passed a very bad night. Visited him on the river in the afternoon of the following day. He had suffered greatly from pain in his head in the early part of the day, but became easier towards noon, when the fever returned; pulse now 90; skin warm and moist; bowels costive. Ordered xii. grains of calomel to be taken immediately, and a purging draught of scammony at bed time.—23d. Bowels freely opened during the night; feels generally easier, and has less headache than yesterday; tongue moist, skin quite cool, pulse

66. Evening: Fever returned at 11 A. M. and is now going off; pulse 80, skin moist, tongue white and moist.—24th. Took two calomel pills last night, which operated very freely; is now easy, and has not much pain in the head; skin cool, and moist; tongue not changed. During the day was very sick, and vomited quantities of green and yellow bile; the purging continued briskly. In the evening, there was no heat of skin, but he complained of violent pain and weight in his head; xx. leeches were immediately applied, which acted well; and being weak and exhausted by the loss of blood, sixty drops of laudanum were given at bed time.

25th. Had some hours tolerable rest, but complains of pain in the head this morning, and is very sick; no motion; took two drams of Pulv. Jalap. c. and was very freely purged; stools yellow and watery. The pain in the head continued very violent all day, but abated towards evening. He passed a good night, and awoke next morning easy and cheerful, and took some sago with better appetite. About half past eight A. M. Dr. Wallich, who had come to visit him as a friend, observed several slight convulsive twitchings of the muscles of the right side of the face, which increased rapidly in violence, and speedily rendered him totally insensible. I saw him about ten minutes after the commencement of the attack; had sinapisms applied, and rubbed the spine with pure Aq. Ammonia. In the course of twenty minutes, the con-

vulsions went off, and he soon became perfectly sensible, but unconscious of what had happened. In consultation with Mr. Nicolson, xl. leeches were applied to the head; cold applications to the head continued, and a dose of jalap given, to be followed by a solution of Epsom salts. He continued tranquil and collected all day; the medicine operated well; pulse 84, full and regular; twelve grains of calomel were ordered to be taken at bed time.

27th. Was restless and uneasy, with frequent slight twitchings, until 1 A. M. when he fell asleep, and after some hours awoke easy and refreshed, and only complained of great weight in his head; pulse 84 and regular; at 9 o'clock became convulsed as yesterday. Remained quite insensible for two hours; pupils of both eyes widely dilated, and insensible to light; skin cold and clammy; pulse 100, and very feeble. When the convulsions abated, the pulse returned to 84, with considerable heat, especially in the palms of the hands; but the pupils remained dilated. At 2 P. M. he fell into violent general convulsions, with a loud shriek; continued in them for half an hour; and when he recovered, he suddenly grasped or rather struck his head with both his hands, in a manner that indicated the most extreme suffering. Thirty leeches were applied, and purgative enemata administered. In the evening he was quite sensible, complained of pain and weight in his head, and kept a bearer

pressing it constantly ; body cool, pulse 84 ; pupils still dilated ; head very hot, and the temporal arteries throbbing. Ordered xii. leeches, cold applications, and Seidlitz powders frequently to open the bowels.

28th. Had a good night, and is tranquil this morning ; skin cool, pulse 66 ; great heaviness and dull pain of the head. Evening. Seidlitz powders have operated ; pupils quite sensible ; pulse 72.

29th. Pulse 68, skin cool, pupils natural ; says his headache is "*stringy*," but not severe ; tongue moist, not very foul ; bowels only once moved. R. Tinct. digitalis gtt. xx. every eight hours. Rept. Mist. sennæ ut antea. Evening: Has had several copious, dark, unhealthy looking motions ; hands rather hot, pulse 78. Continue the senna mixture.

30th. Had a good night, and looks cheerful this morning ; head cool, pupils quite sensible, tongue cleaner, pulse 76 ; had two copious motions resembling chopped leaves ; and says he is always easier when his bowels are freely opened. Has taken some soojee and milk for breakfast. 3 P. M. Shortly after the morning visit, he vomited the milk and soojee ; has been very sick all day, and complained of acute and racking pain across the forehead. A glass of senna mixture was taken, but immediately rejected : he is now very restless, sick, and uneasy.

in his bowels. Took and retained a dose of Seidlitz powders, and had a purging enema. 6 P. M. Three very fœtid motions after the enema; headache still severe, sick and uneasy at stomach; eyes rather wild, pulse 78. R. Sub. mur. hyd. grs. x. Pulv. opii. grs. ii. ft. pulv. et habt. quamprimum. 11 P. M. Has dosed at intervals; is now confused; head and hands hot, and he complains of the latter feeling numbed and lifeless; pain in the head still severe, but more diffused than in the morning; pulse 84 and full. Twelve leeches to the head, and Seidlitz powders as often as he can be induced to take them.

31st. Much the same as yesterday; has taken food and medicine easily, and retained both; pulse varying from 78 to 86. Several flakey fœtid stools. The diseased nostril is quite free from pain; discharge yellow, purulent, but not very fœtid.

August 1st. 3 A. M. Became very hot, restless, and incoherent towards midnight, and continues so; pulse 108, tongue parched, pupils dilated; occasional twitchings of the muscles of the face; had a flakey motion from an enema administered about an hour ago. R. Tinct. hyosciam. gtt. lx. pulv. moschi dr. ss. ft. haust. quamprimum sumend. Apply xx. leeches to the head. 9 A. M. Is now lying quietly; great heat, especially of the head and palms of the hands; pulse 94 and good; has had one offensive motion. Apply xv. leeches to the

head. 6 P. M. The pulse came down to 86 at noon; it is now 100. Answers rationally when roused, but wanders when left to himself, and is perpetually lifting his hands to his head. Rept. haust. anodyn. hora somni.

2d. Slept at intervals, and is more collected this morning; heat of skin considerably abated; bowels open; stools not changed in appearance; pupils dilated, but sensible to a vivid light; pulse 100, weak and wiry. Says he has excruciating pain, confined principally to the forehead. Senna mixture to be given every hour until the bowels are opened. Evening. The medicine has operated freely; head hot; pulse 100; breathes with great *ease through the nostrils*, and the purulent discharge is very copious, and of the same appearance as formerly noticed. Rept. haust. anodyn. ut antea.

3d. The night has been passed in constant agony and groans, and perpetual striking of the hands against the head; is now perfectly incoherent, and at times lies for a few minutes in a state approaching to coma; pulse 108, and very weak. Noon. Stupor and incoherence as in the morning, pulse 120 and weak. Apply viii. leeches to the head immediately. 3 P. M. Apply xii. more leeches. Evening. Pulse 120, skin cool; has taken arrow-root; has recognized those about him, and made particular enquiries respecting several of his friends.

R. Sub. mur. hyd. scr. i. Ext. cathartic scr. i. divid. in pil. viii. Two every eight hours. Repeat the anodyne at bed time.

4th. Had a tolerably easy night, and is very collected this morning; pupils continue dilated, skin cool, tongue moist and white; has scarcely complained of his head to-day, or lifted his hand to it. Ordered a blister to be applied to the nape of the neck, and the anodyne draught at bed time; the pills to be continued regularly.

10th. Since the 4th, has taken the purgatives daily, which have operated well; motions copious and fœtid, dark and slimy occasionally; pulse generally steady at 96. On the 7th it rose to 108, but fell again to 96 on the application of eight leeches; tongue generally white and moist, occasionally dry and brown, especially in the morning. From the 4th to the 8th, his nights were pretty quiet, with the exception of heavy groaning; pupils dilated, but sensible to sudden changes of light; has at times been quite collected, but more commonly incoherent. For two days past, the distressing groaning has ceased, but there has been much incoherent talking and muttering; he seldom lifts his hands to his head as formerly; and turns himself in bed with greater facility than for some time past, and with scarcely any assistance, but is greatly emaciated. Last night he was particularly restless and unmanageable, tossing off his bed clothes with vio-

lence. To-day he is quiet, and takes food when it is offered ; tongue very little furred ; pulse 96 ; skin cool ; very copious purulent discharge from the nostril ; gums spongy, with several small ulcerated points on the inside of the lips, which give him considerable pain in taking food or drink.

11th. A quiet night ; has had no medicine ; pulse 100, and very weak ; skin rather warm ; tongue dry ; recognizes people better than for many days past : ordered a dose of senna mixture. Evening. Slept deeply at intervals, no incoherent talking or muttering ; features collapsed, emaciation increasing rapidly. Four bilious flakey stools ; has taken a little sago from time to time.

12th. A very disturbed night ; pulse 108, and very feeble ; skin cool ; tongue parched and brown ; nostril discharging very freely ; breathes quite easily ; when roused, answers questions sensibly, and says he has no pain ; but when left to himself is incoherent, and occasionally utters deep heart-rending groans.

13th. Another restless night ; skin warm ; in other respects much the same as he was yesterday. Repeat the senna mixture.

15th. 6 A. M. Intellects just as described two days ago ; is now tranquil, and has passed the last two nights more easily ; tongue moister ; pulse 108,

ed through the nostrils. The nostrils themselves were filled with decayed portions of the polypus, and their linings covered with a fœtid adhesive matter. In removing the muscles from the right cheek, the fatty matter in the hollow was tinged with a dirty fœtid and greenish matter, which escaped from a hole in the maxillary bone, communicating with the antre of that side. A probe was introduced into this cavity, which met with no resistance, but evacuated more of the fœtid matter, which seemed to be its only contents. The brain itself was perfectly sound; but a very large quantity of serous fluid was found within the ventricles, and between the dura and pia mater, at the base of the cranium. The *liver, stomach, and intestines* were remarked as particularly sound and healthy."

I shall not trouble the Society with any remarks on this melancholy case, whose history has been given at much greater length than was at first intended. It appeared, however, of some importance to give as minute a detail of the symptoms as possible, that they might be studied with reference to the morbid appearances which presented themselves on dissection; and when viewed in this light, the case may, perhaps, be not altogether unworthy of the notice of the Society.

MEDICAL TOPOGRAPHY

OF

AURUNGABAD.

BY D. S. YOUNG, Esq.

Presented March 4, 1826.

AURUNGABAD is situated in N. Lat. $19^{\circ} 45''$ Long. $76^{\circ} 2\frac{1}{4}''$ East. It covers a portion of ground seven miles in circumference, and is supposed to contain about 60,000 inhabitants. Its population had been on the decrease until the year 1815, when by some fortuitous, but no natural cause, it again increased, and may be now rated at what I have laid down, though I cannot by any means speak with precision, as there is no census taken. The river Kow-lah, a mountain torrent, separates the city from its principal suburb the Begumpoorah, over which there are two substantial bridges. On the north, the city is bounded by marshy ground of some extent, beyond which is a range of hills of considerable elevation, of a semicircular shape, so that the city appears as if in a bason. Rice is cultivated in the marshy ground. On the left, before entering the city by the Delhi gate, there is a considerable tank, overgrown with rank aquatic plants. From this body of water there arises a very unpleasant exhalation. The central parts of the city are in very low ground, and almost on a level with the

marshy ground. Every house has its tank of water and fountain, and in no city in the world is this invaluable element more abundant and pure, its base being literally a mass of aqueducts. Like all cities going to decay, these productions of a more propitious period are very much neglected : most of them are obstructed, and none cleaned out. Since the appropriation of the fine ruins of the palace to purposes of building, it is impossible to form any adequate idea of the former grandeur of this city, when it was the seat of royalty. A chaste and beautiful structure, after the model of the Taj at Agra, attests the taste, magnificence, and piety of its founder, though on it the ruthless hand of time is already exerting its dilapidating influence. The approach to Aurungabad from the east indicates the proximity of a great city ; but nothing can exceed the *coup d'œil*, when the realization presents itself. The city is beautifully situated in the bosom of an amphitheatre of hills, and to a stranger has an appearance of solemn grandeur, which, from being heightened by the numerous mosques and ruins with which the whole view is studded, cannot be adequately described. It has all the magnificence of exterior which the mind might attach to a city of the east, and a due proportion of the filth and dilapidation which a closer inspection but too generally realizes.

The soil is alluvial, and of considerable depth in many parts ; but the high grounds are rocky, and

unfit for cultivation. Fruits of every description are produced in great abundance, the oranges and grapes being little inferior to the best produced in the most genial climates of Europe.

The military cantonment is situated on a rocky plain, about a mile to the S. W. of the city. There is a well-built hospital, sufficient for the accommodation of 200 sick, in an airy situation; and attached to it a small, but suitable building, as a lock hospital for native women. There are lines for two battalions and 250 native artillery. The situation must be very healthy, as the average number of sick in each corps of nearly 1,000 men, has not for some years been above 30. This, when contrasted with the state of disease in the city, is most striking, and points out the vital importance which ought to be attached to the selection of proper locations for cities, as well as military cantonments.

For two thirds of the year, we have the wind from the W. S. W. Easterly winds only prevail during the months of November, December, and January. The range of the thermometer during these months may be stated at from 50 to 86 during the 24 hours, the alternations of heat and cold being as great as they are sudden. During the hot months, the range of the mercury is from 78 to 100, seldom in the shade being higher than the latter extreme. The average sup-

ply of rain may be taken at 36 inches: but for the last three monsoons, we have not had even 21.

Intermittent fevers are very prevalent in this city at all seasons. During the months of May and June, there is probably less disease than at any other period, the hot winds which prevail at that season dispelling the noxious exhalations; but this temporary immunity is fearfully compensated by the ravages of the small-pox, (and cholera, to a limited extent,) which regularly make their appearance with the hot winds. A good deal has been done in disseminating the Jennerian antidote amongst the inhabitants of the surrounding villages; but the exertions of one or two individuals, however zealous, are not likely to be very effectual, when opposed to the horror at innovation inseparable from the Hindoo character, and other equally insurmountable obstacles.

Two villages, however, exhibit triumphant proofs of what *might* be done by an individual, unaided by power or the influence of authority. Having been personally acquainted with the Pateils of the villages alluded to, I intreated them to allow their own children and those of their whole society to be vaccinated, to which they reluctantly consented. This occurred in January 1820. The hot season of that year brought with it the usual scourge, and it was most gratifying to my feelings to observe, that these two villages were entirely

secured ; for not one of the children were attacked, though in the neighbouring villages the small-pox was very fatal, and of the most malignant description. I lament to add, that the exemption was never appreciated or understood, and that I have invariably experienced opposition in my endeavours to extend the practice of vaccination.

Two cases of modified small-pox have lately presented themselves here. One in a young officer (Lieut. Johnstone,) who had been inoculated with variolous virus at Hyderabad in 1807, and who took the disease, of which there were unequivocal marks on his body. The pustules were numerous, and on the face confluent. The primary fever was very severe, but there were no secondary pyrexial symptoms. The pustules on the face went through the regular stages, but those on the extremities fell off before entire maturation. The second case was a little girl of nine years old, who had been vaccinated at Poona four years ago. The pustules matured on the sixth day, and the case was exceedingly mild, though distinctly of a variolous nature. But to return from this digression. The intermittents met with in the city are of all types ; the tertian being the most general, and the mildest ; the double tertian and quartan the most violent and obstinate. Quotidians generally become tertians. Nothing can exceed the obstinacy of the quartan, recurring after an absence of several months, on

the very day on which it would have attacked the patient, had the paroxysms been uninterrupted. Its obstinacy can only be equalled by its tenacity: and a voyage to sea, in the case of Europeans, and a return to the provinces in Hindostan, in the cases of the Rajpoot sepoy in this service, can alone break the spell. In the milder types, I have found bark to possess almost specific properties, unless where organic disease and considerable functionary derangement existed, which required more decisive practice. (I beg to be understood as speaking of the diseases of Natives, unless stated to the contrary.) In cases of fever, combined with enlargement of the spleen, the Natives are in the habit of applying the actual cautery. I have repeatedly witnessed its application, and can speak decidedly as to its very great efficacy. It is a practice long since banished from surgery, and one of those good things that, with proper modifications, ought to be revived.

After the first fall of rain, fevers make their appearance. During the monsoon, quotidians and tertians are very general; but towards the end of October, the bilious remittent shews itself, and about the middle of December, is met with in its most malignant and concentrated state. I have seen cases so similar to the descriptions given by our Trans-atlantic brethren of the yellow fever, as to have no doubt of their identity. But from the common bilious attack with fever, which is not un-

frequently stopped in limine by an emetic, to the regular jungle or puckah fever, there are many gradations, which depend on local peculiarities, constitutional idiosyncracies, and the state of the atmosphere; and as the remittent fevers of this place possess no local peculiarity, and are pretty similar to such cases in other parts of India, it would be supererogatory in me to enter into a minute description of them.

The great desiderata in the cases of Europeans are, to remove congestion by bleeding and blisters, and to establish the mercurial action as soon as possible. To effect the latter indication, I have found the scruple doses of calomel to answer better than small doses frequently given, which increased the irritability of the stomach, without exciting ptyalism sooner than by Dr. Johnstone's plan of large doses, which always stopped the vomiting. I have seen an emetic do much good at the onset; but at an advanced stage of the disorder, I should consider such as inadmissible, if not dangerous. The fatal cases (Europeans) exhibited, in my practice, the liver gorged with blood,—biliary calculi in the gall-bladder, and invariably water in the ventricles of the brain. In two of these cases, there were the remains of abscesses which had burst spontaneously, and thickening of the duodenum, where it receives the ductus communis choledochus. I have had only two opportunities of post-mortem examina-

tions in cases of natives who died of remittent fever. In one case the spleen was very much enlarged, and in the other, it appeared like a bladder filled with grumous blood; the conjunctiva was very yellow, and the whole of the omentum of the same color.

In the bad cases, I could observe no symptoms of amendment, until salivation was induced (particularly in Europeans;) and this effect was certainly accelerated by venesection, which I practised in almost every case submitted to my care. A blister to the Scrobiculis Cordis was found highly serviceable in stopping the vomiting, relieving hepatic congestion, and the anxiety at the præcordia, so distressing in these cases. The natives, in cases of remittents, generally apply the actual cautery round the umbilicus. They take camphor internally, and acid drinks; but I am not aware of their using any preparation of mercury, except in syphilis and rheumatism. The root of the Dood Kulmi (*Convolvulus turpethum*) is with them a favorite purge; but in general the lower classes trust to nature and accident, which perform so many cures.

Though in general intermittents very readily yield to bark, when unconnected with visceral disease, and to purgatives and mercury when such combination exists, I am forced to confess, that I have met with cases which set all medical treat-

ment at defiance. In these cases a radical change of climate was necessary.

But of all other diseases to be met with at this station, there is none so calamitous in its consequences as rheumatism ; and though volumes have been written on this subject, the disease appears still to be but imperfectly understood. This is the greatest affliction with which a poor native can be assailed. For independent of his being thereby incapable of exertion, his corporeal sufferings are often beyond what human nature can support. It has been my lot to witness sufferings which I failed in mitigating, and a sum of human misery scarcely to be reckoned by those, who have never contemplated the awful pitch which pain may attain without actually destroying life. If you meet a very bad case of chronic rheumatism, you will generally find that the patient has repeatedly been salivated for some venereal disorder, and that during the hot months he is free from complaint. During the monsoon and cold seasons, rheumatic cases are very numerous, and mercurial fumigations with setons applied near the joints, constitute the most approved and successful practice : but so much depends on the nature of the clothing and on keeping the patient warm, that it is no wonder so little is done in the way of relieving natives suffering from rheumatism. I have not been able to get the grass oil recom-

mended by my friend Dr. Maxwell, but I have made two trials of the *Rossah-Ka Tel*, which the natives extract from the long aromatic grass of the jungles, and make use of as a stimulant and rubefacient in cases of rheumatism; and I think it is worthy of further trials, though the expense must always preclude its general application to any extent. In four very obstinate cases of chronic rheumatism, with swelled knees, elbows, and wrists, I am happy to say, that I have found setons most efficacious. The stiffness of the joints first gave way, and the other symptoms yielded to nitric acid and bark. I can therefore confidently recommend an extension of this mode of treating rheumatism, at the same time that I hope the matter will be taken up in detail by a member of the Society more competent, from experience, to investigate so very intricate and important a subject. I had a very inveterate case of rheumatism (a Soubadar,) which was cured by a mild course of mercurial fumigations.

Of cutaneous diseases we have every variety, from simple cases of psora to the most disgusting extreme of leprosy. In two cases of the latter, I gave the Mudar (*Asclepias gigantea*) a fair trial, without having witnessed that success which the result of the experience of others led me to anticipate: but with the 1st vol. of the Society's Transactions before me, I trust I may by further perseverance be enabled at a future period to speak

more favorably of this remedy, of which we have abundance in the Deccan. Amongst the sepoy recruits from Hindostan, I have met with the most disgusting description of psora, particularly affecting the loins under the *Kummerbund*. I have seen a scab extending entirely round the body, which had a very frightful appearance. I have invariably in such cases ordered a large poultice smeared with basilicon to be applied. This removed the crust, and brought the ulcerated surface into view; after which, the ointment of sulphur and pitch completed the cure most effectually in ten or fifteen days.

In all other cutaneous affections, when external applications have failed, I have found the nitric acid and bark to do good; and I may here observe, that in the treatment of many diseases of the skin, the curative process is carried on principally by the powers of the constitution. Hence an alterative treatment will be generally found to increase the effect of external applications. Impetigo, or ringworm, is often to be met with here, of a very inveterate description. In consequence of the well known effect of the application of ink to these eruptions, I made up an ointment composed of gall-nuts dr. i. sulphate of copper scr. i. and cerat. simp. oz. i. by which I have removed ringworms of long standing. In eruptions of a critical nature suddenly making their appearance, the Na-

tives are in the habit of taking blood from the arm, and I have repeatedly been asked to perform venesection in these cases. The effect was speedily manifested by the disappearance of the eruption. The modus operandi is too obvious to require illustration, but the fact is important. A native gentleman of rank insisted on my bleeding him, in consequence of an exuberant crop of boils with which he was annoyed. I took 20 ounces, and the whole terminated by a slight desquamation of the cuticle over the furunculi. This complaint often occasions such distress, that the alternative here adopted might be far preferable to the long and painful process of suppuration, by which the strength and patience are so often worn out; and certainly the practice is almost suggested by the nature of the disorder. In cases of acute ophthalmia, which are very common here, I found full vomiting from the Antimon. Tartar. stop the disease in limine; but I would not recommend this plan in cases of Europeans of a full habit. I have tried it in a great many natives with decided advantage. After the emetics had been continued for two days, for two hours each day, Collyria of Sulph. Zinci and laudanum completed the cure. I was attacked with the prevalent ophthalmia, and found the steam from boiling water arrest the disorder, and moderate all the distressing symptoms. On the same principle, poultices were very beneficial. As an auxiliary, I found setons to the nape of the

neck highly serviceable. On this subject I can offer nothing new, or out of the usual line of practice. Amongst rare diseases, I may mention a case of Beri Beri, in a nurse belonging to an European family at this station. She was attacked with œdema of the lower extremities, and died in four days afterwards. On dissection, eight pints of water were found in the cavity of the abdomen. Its parietes were loaded with flabby fat of a deep yellow color, as if suddenly formed. The ovaria were distended with serum, and numerous hydatids adhered to the fundus uteri. On opening the chest, the right side was nearly filled with water. In the left there was not much fluid, but the pericardium contained eight ounces. The patient was a young stout woman, and I cannot but consider the sudden change from very low to high diet as the cause of the obesity, and eventually of the dropsical symptoms. In this view of the case, it may be suggested, that as little change as possible ought to be made in the food of native nurses, when taken from their own humble fare, and fed under our inspection. The woman had some compound powder of jalap to open her bowels; she was then going about the house apparently well. I was not again called in until she was dying, four days afterwards; nor was I aware of its being a case of Beri Beri until I observed the appearances on dissection. Venesection I conceive would have pro-

bably saved her, had I been sent for again in time, and been aware of the real nature of the disorder.

In the 1st volume of the Society's Transactions, there are three papers on *Dracunculus*; and I may perhaps be permitted to state here, though the case and preparation were sent to the sister Institution at Madras, that on the 23d of June last, I extracted a guinea-worm $13\frac{1}{2}$ inches long, from the thigh of a native. The animal writhed much, and after being put into water, swam about with a serpentine motion for fifteen minutes very briskly. The extractive process was simple. A blob was opened with a lancet, the worm laid hold of, and slowly extracted, whilst an assistant rubbed the surrounding parts. The entire extraction was completed in 20 minutes. Dr. Jameson of the Madras establishment, doing duty here, recently extracted an entire *dracunculus* 18 inches long, which lived for some time. After such decisive proofs of the vitality of guinea-worm, it is not probable that we shall hear any more of the "Lymphatitis." I have met with four cases of fungus *hæmatodes* here. I extirpated the diseased mass in one case in July last, and the patient has had no symptoms yet of a return of the disease, which occupied nearly the whole of the left side of his face. The wound healed by the first intention. The particulars of this case, and the formidable operation in

its relief, with the diseased parts, were forwarded to Madras.

In concluding this very desultory account of the medical topography of Aurungabad, I may not be considered as digressing materially from my subject, in adding, that at the distance of 15 miles from this city, there is a most salubrious spot, to which invalids resort for change of air at all seasons of the year.

The village of Rosah, celebrated as the burying place of Aurungzebe, is distant 15 miles from Aurungabad. From the famous fortress of Dowlutabad, the ascent to the high table land is about 450 feet. The air on the heights is very pure, and has a most prophylactic effect on convalescents, who have been known to travel from Bombay to enjoy its influence. There is little or no difference between the temperature of the air at Rosah and Aurungabad. The thermometer certainly indicates very little; but there is a freshness in the constant breeze, which with the associations inseparable from beautiful scenery, the sacredness of the spot, and proximity to those mighty efforts of ingenuity and labour, the caves of Ellorah, banish all recollections of the past, and give a new impulse to those energies which disease had enervated. It is to such stimuli as these, and to the operation of external objects on the mind, that we

must refer many of the almost magical effects produced on convalescents by change of air and scene.

In the hope that the Society will overlook the many errors to be met with in this imperfect sketch, I beg to subscribe myself.



ON
THE NATIVE MODE OF COUCHING.

BY P. BRETON, Esq.

Presented Jan. 7, 1826.

IN describing the native mode of operating in cases of cataract, it is not my intention to dwell on the nature and causes of the malady, since an accurate account of them is to be found in the admirable works of Saunders, Cooper, and Sir William Adams; but confine myself to a narration of facts, in regard to the ideas of the native medical practitioners of cataract, their method of treating it, the operation which both Mahomedan and Hindoo oculists are in the habit of performing to restore sight, and the sequelæ of that operation.

In the course of my communications with the Hukeems and Byds of Calcutta, who are by the natives considered eminent professional men, I regret to say it has not been my good fortune to meet with one at all acquainted with the nature of cataract. Descriptions of the malady are given in Asiatic works, such as the Qanoon Boaleei Ibni Sena; Shureh ool Asbab o Alamut; Sudeedee; Nufesees; Soosrut, and Nidaun, &c.; and it is named in the Arabic language Nozool ool Ma, (deposition of water;) in Persian Ab i Murwareed, (pearl drop;) in Hindee Moteeabind, and in San-

scrit Maktikbindoo, both meaning pearl drop; but it does not appear in any one of these works that an accurate account of it is contained; and as the native practitioners (both Mahomedans and Hindoos) are extremely deficient in knowledge of anatomy, it is not surprising that they should be so little acquainted with the nature and seat of diseases generally.

The oculists who are in the habit of operating on this organ have no knowledge of the structure of the eye, and therefore it cannot be supposed that they can have an idea of the nature and seat of cataract. Few native medical men, I imagine, have had the curiosity to dissect and examine the eye of an animal to learn its component parts; for on my occasionally dissecting an eye of a goat or a sheep before them, they expressed surprise at its contents, and their admiration of the wonderful powers of the Creator in the fabrication of the eyes of animals.

The Hindoo and Mahomedan oculists, who in the Arabic language are called Kuhhaul, and in Hindee Sutheea, conceive that from the combined influence of phlegm and bile, a drop of bad water issues from the brain into the eye; that in the course of time, the period being unlimited, this water becomes turbid, constituting the disease called Moteeabind, or pearl drop, from its supposed resemblance to a pearl in the eye; that so

long as mere turbidness remains in the water, and the patient is capable of discerning objects, the disease is pronounced to be Kucha, or unripe, and unfit for an operation; and that when the turbidness and coagulation of this water are so great as to exclude the rays of light, the malady is then said to be Pukka, or ripe, and in a fit state for couching.

They are aware of the existence of the different colored cataracts, but of their nature they are wholly ignorant. The white cataract, (by which is meant the lenticular cataract,) they assert to be the most favorable for an operation; and as the color declines gradually from white to black, the malady is considered less and less favorable for couching. Of the divisions of cataracts, into lenticular, capsular, milky, and caseous, they have not the remotest idea, every case being considered by them as consisting of good or bad water.

In dark colored cataracts, whether the patient be capable of perceiving light from darkness or not, they decline operating, from a persuasion that the quality of the extravasated water in the eye is so vitiated as to render an operation hopeless. The dark colored cataract they invariably confound with that peculiar dark appearance of the pupil, which distinguishes Gutta Serena and Amaurosis. Of this latter disease they are sensible of the existence, that is, they are aware that there is a certain condition of the eye which causes

privation of sight, and is irremediable; but of its nature, from their total ignorance of the structure of the eye, they have not the slightest knowledge. They have, however, for this disease, in ancient Sanscrit and medical works, three names, Teemir, Kujjul-bind, and Kaunch. The first, I believe, means total blindness from affection of the optic nerve; the second a drop of bad water, or water black as soot; and the third implies merely Gutta Serena. In the Arabic language, Amaurosis is denominated *Bootlaun ool Busr*, and in Persian *Buftun i Beenee*, both meaning blindness.

In the Arabic works adverted to, and in particular that of Avicenna, cataract, termed *Nazool ool Ma* (deposition of water,) is stated to be a peculiar kind of humor, which gradually thickens and coagulates in the aqueous humor of the eye; and although the component parts of the eye are described by Avicenna with tolerable accuracy, yet the nature and seat of cataract seem to have been unknown when his work was written. And the subsequent Asiatic publications in regard to this disease, appear to be little more than compilations from the former works.

For the information of the faculty in India who may be unacquainted with the Arabic language, it may be well to mention in this place the names of the different parts of the eye, by Avicenna, in an Arabic work, entitled *Qanoon Boalee Ibni Sena*.

The coats of the eye are called Tubukaut (layers,) the humors Rutoobaut (secretions,) the optic nerve Asub Suleebee (decussating nerve,) and the muscles of the eye Azilaut. The portion of the sclerotic coat which is invisible in the socket is called Tubqu Sulubee (dense layer,) and the part which is apparent is named Multihima (fleshy.) The cornea is called Quruneea (horn-like;) the choroid coat Mushimeeyuh (chorion-like.) The iris, Unubeea (grape-like;) the pupil Insan ool Aeen (mortal part of the eye;) and the retina Shubukee,yuh (net-like.) The aqueous humor is named Rutoobuti Byzee, (a secretion like the white of an egg;) the crystalline lens Rutoobut Juleedeeyuh (humor of the appearance of ice;) and the vitreous humor Rutoobut Zujajee,yuh (glass-like humor.) No mention is made of the cavities constituting the anterior and posterior chamber, nor of the ciliary ligament and processes, from which it may be inferred that they were unknown in the time of Avicenna. With this knowledge of the structure of the eye, it is surprising that the nature and seat of cataract should not have been ascertained by this distinguished author. According to Guthrie, it was not till the year 1651 that the crystalline humor was demonstrated to be the seat of cataract.

Remedies in the incipient state of cataract are specified in the work of Avicenna, as well as in other Asiatic publications; but they are vague, as the ideas of the authors are inaccurate as to the

nature of cataract. The remedies in the incipient state of cataract consist principally of emollients besmeared over the exterior parts of the eye; purgatives composed chiefly of aloes; mild sternutatories; aromatics; and cephalics and corroborants to purify the humors of the brain, and to strengthen the system, with a view to obviate further deposits of bad water from the brain, and thus arrest the progress of the malady. But after it has completely formed, the only remedy enjoined is couching, called in Arabic Kuduh, which means to displace. This operation, and it is the only one performed by native oculists for every kind of cataract, is in Hindostanee denominated Ankh bunana, (repairing the eye.) The couching needle, according to the Arabian authors, is named Mihut, and it appears to have been somewhat similar to that which is described by Celsus and Pliny, who flourished in the first century of the Christian era, as the eye was perforated and couched with one and the same instrument. The native mode of couching could not therefore have been derived from either the Greek or Arabian physicians, since it differs in one material point, the use of two instruments instead of one. The probability therefore is, that the native operation was in practice before the time of Celsus; but its antiquity has not been, as far as I can learn, ascertained.

Having heard much of the native mode of couching in all cases of cataract, and conceiving it to be

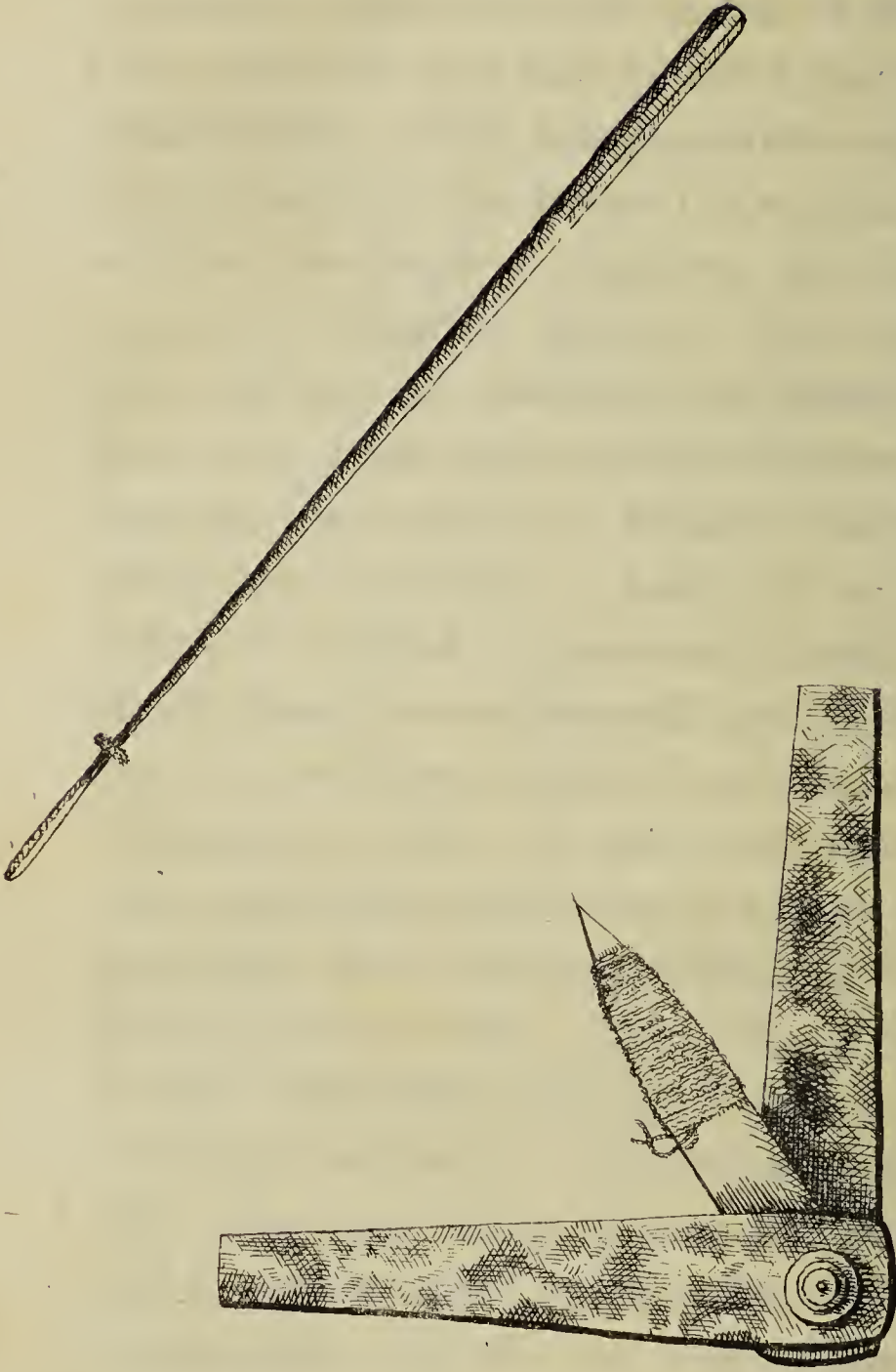
impossible for any one to operate on the eye without a perfect knowledge of its structure, my curiosity to see the operation performed was greatly excited ; but it was not till lately that an opportunity was afforded me of what could be done by the hands of a native oculist.

In 1824, having been informed that Mr. John Birch, Magistrate of Calcutta, had been restored to sight by an operation from the hands of a Mussulman, who resided in Calcutta, I lost no time in enquiring after him, and in prevailing on him to convince me of his ability by operating on the eyes of cataract patients who might be brought before him. On the first of July of the same year, this Mussulman, whose name is Sautcouree, couched the eyes of four blind people in the presence of Dr. Adam at the General Hospital ; and on the 3d of the month, I had for the first time the gratification to see a native, totally unacquainted with the anatomy of the eye, perform on three cataract patients, mechanically as it were, yet with gentleness and dexterity, a highly interesting operation.

Sautcouree, who is about 40 years of age, told me that he had resided, and practised as an oculist in Calcutta upwards of 25 years ; that he had in that course of time operated on several hundred cataract patients ; that his late father, who lived at Nuddea, and his late grandfather, whose residence

was at Burdwan, had practised couching for half a century; that from his father at Nuddea he had learnt the art, and that he used the same kind of instruments which his ancestors employed, with this exception, that instead of a piece of steel formed into the shape of a lancet, he invariably made use of an English lancet. The instruments he uses are two in number, the lancet to perforate the coats of the eye, and the Sulae, or needle, to depress the cataract. Round the upper part of the lancet, at about a tenth of an inch from the point, is wound a piece of thread, to prevent it penetrating the eye beyond that extent. The Sulae, or couching needle, is made of copper, of a cylindrical form, of the thickness of a crow's quill, and about five inches in length, tapering very gradually from the base upwards to within half an inch of the apex. The form of this half inch of the instrument (which I may call the Indian couching needle,) is that of a pyramid of three sides, the apex being blunt; and below the pyramid is a short neck, which is the smallest part of the instrument. About an inch from the apex a thread is wound round, that it might not penetrate the eye farther than this part. With these two instruments thus prepared, it will be obvious that any person, (without knowing the structure of the organ,) who has seen a few times the native mode of operating for cataract, might, without much risk of injuring the eye, from the circumstance of the Indian couching needle being blunt,

Pl. 2.



Indian Lancet and Couching Needle.

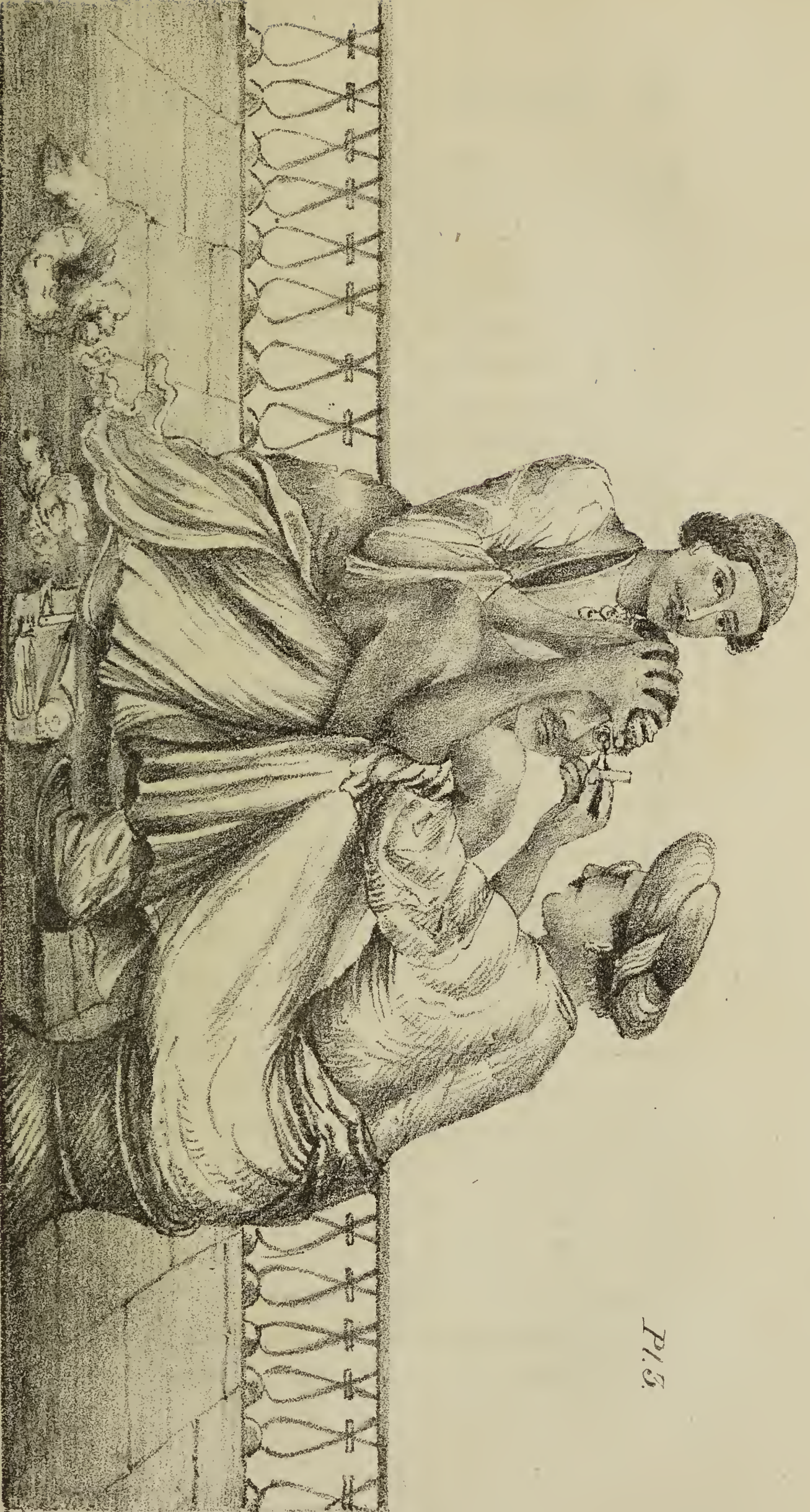
and without cutting edges, perform the operation. Vide Plate II.

Prior to the operation, it does not appear, as far as I can learn, that the native oculists use any drug, as the Belladonna, Stramonium, &c. to dilate the pupil, from being unacquainted with any medicine capable of producing such an effect. The Mahomedan and Hindoo oculists, who saw the effect of the Belladonna and Stramonium applied by myself, expressed the greatest astonishment, and told me they had never heard of their application, and could not have credited their influence on the pupil if they had not themselves witnessed the fact. Indeed it is only within a few years that the practice of dilating the pupil has been revived by the modern oculists of Europe, although it is adverted to by Pliny, who, in speaking of the herb Pimpernell or Anagallis, says: “Pupilas dilatat, et ideo hoc inunguntur ante quibus paracentesis sit.” Vide C. Plinii Nat. Histor. lib. xxv. cap. 13. Of this passage the following translation is given by Holland, the translator of Pliny. “The same medicine Pimpernell likewise is good for to dilate the funicles that make the ball or apple of the eye, and therefore it is an ordinarie course that their eyes be anointed therewith before hand who are to be pricked with a needle for couching of a cataract.” Of the practice, therefore, in former times of dilating the pupil previous-

ly to couching, the passage quoted affords indisputable proof; but I cannot discover any mention made of it in Asiatic medical works.

The instrument being prepared, the Mahomedan oculist Sautcouree, who operated on the 3d of July 1824, in the presence of W. Twining, Esq. Surgeon to his Excellency the Commander in Chief, the native medical students, and myself, placed his patient in a sitting posture on the ground, having previously bound over the sound eye a bandage to preclude objects from being seen, and thus preventing as much as possible motion of both eyes. Behind the patient was placed an assistant to allow the head to rest on his thighs, and to support it firmly with both his hands to prevent motion. The oculist then seated himself on a Morha, or stool, about a foot in height, immediately before the patient, and placing on his waistband the hands of the patient, he made three salutations invoking the Almighty to grant him success, and then commenced the operation on the left eye.

Raising with the left thumb the upper lid (a speculum being never used,) he fixed on the crown of the head of the patient the fingers of that hand, and directing him to look toward his nose, he in an instant with the right hand perforated the eye with a lancet. The perforation was made in the sclerotic coat, about a tenth of an inch from the

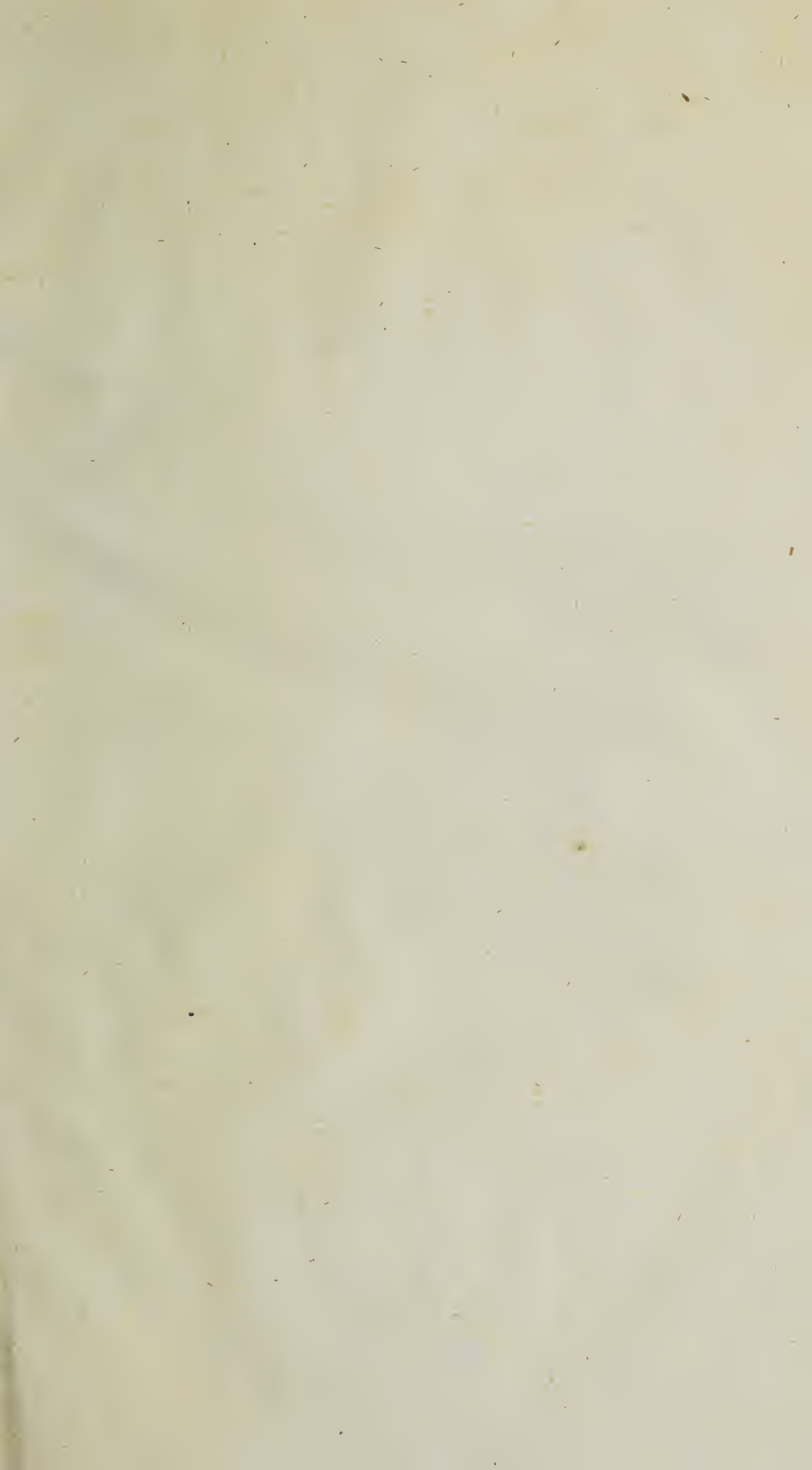


Perfuming the Air with a Jewel in the Right Hand.

Asiatic Lithog. Press.

margin of the cornea, and a little below the axis of the pupil ; and the lancet was allowed to penetrate to where the thread was wound, and was then withdrawn. The perforation thus made was sufficiently large to admit the introduction of the Indian couching needle (called by Sautcouree, Sulae, which in Hindee means a coarse needle,) and through the perforation the needle was gently introduced as far as its neck, into the vitreous humor, and afterwards allowed to remain pendulous from the eye for about half a minute, the needle being supported on a dossil of lint or cotton placed on the cheek to prevent it moving about, the collapse of the sclerotic coat on the neck of the needle preventing it from falling out of the eye ; and so long as the instrument was kept free from motion, no irritation was excited. At this stage of the operation, the eyelids were allowed to close, and the patient kept still as possible. After the lapse of half a minute, the eyelids were reopened with the fingers of the left hand, and the point of the needle was directed to the upper and outer part of the crystalline lens, the instrument being held nearly parallel with the axis of the pupil, and the lens and its capsule were together gently pressed downwards into the vitreous humor, and retained there a few seconds. The apex of the needle was then gently raised from the lens, and on the latter rising with the instrument, it was again and again depressed till it entirely disappeared. After this the eyelids were

again closed, the needle let go, and allowed to hang as before for a few seconds from the tunics of the eye, supported on a bit of cotton placed on the cheek, and the patient kept quite still. During this interval an ignited gool (ball made of charcoal and clay,) previously prepared, was placed in a shallow earthen cup, and held near the eye to foment it, with a view to relieve spasmodic affection of the eye that might be present. The eyelids were afterwards again opened, and the patient was directed to draw in his breath several times forcibly through his nose, and at the same time Sautcouree with his clasped hand gave him two or three gentle pats on the head, with the view, I was told, to cause the lens to be forced downwards, and drawn into the interior part of the eye out of the sphere of vision; and if no opacity were perceptible behind the pupil, the patient was asked if he could discover objects, if he could tell how many fingers were held before him, and if he could see a thread drawn out before his eye. On the patient answering in the affirmative, the operation was pronounced to be finished, the needle was withdrawn, a piece of combed cotton placed on the eyelids, and bound down with a bandage, and the patient was in an hour or two afterwards allowed to return to his home, and enjoined to remain in-doors for a few days without moving the bandage from his eye. In this way the other patients were operated on, and I am happy to say all were, to my knowledge, restored to sight,



Introducing in the perforation the Shuttle or Couching. Needle with the

Asiatick Libby & Press



PL. 1.

as I saw them several times after they had undergone the operation. These and subsequent operations by Sautcouree, convinced me of the native mode of couching, being not only simple but very effectual, and that this oculist had only one mode of performing the operation. No description can convey an accurate idea of the native mode of couching; it must be seen, if a distinct notion of it be wished for, and then its simplicity may be clearly ascertained.

Observing the gentleness and dexterity of this native oculist in depressing the crystalline lens, I was fully impressed with the belief that he possessed some knowledge of the structure of the eye, and nature and seat of cataract; but on enquiry, I was astonished to find him wholly ignorant of both. He candidly told me he knew nothing of what the eye was composed, as he had never seen one dissected; and all that he knew of cataract was, that it was a drop of water which oozed from the brain, and which in the course of time became white in the eye and prevented sight, without, however, occasioning any pain whatever; and that the object of his operation was to remove this white substance, (whatever it was) from the pupil, for on doing this he always found his patient could see things presented to him; but what this white substance was, where it went after being displaced, and what became of it afterwards, was known only to the Almighty.

In the course of my inquiry, I learnt that this operator, by the habit of examining the eyes of cataract patients, could judge when an operation was likely to succeed ; but he knew nothing of the different kinds of cataract, excepting that they were of different colors, for which he had no name, and the only distinction he made was cataracts of good and bad water. He was averse to operating, so long as the patient had tolerably useful sight, for then he considered the malady to be Kucha, or unripe ; and in green and dark colored cataracts, and in cases which were attended with pains in the head, and incapability of the patient to distinguish light from darkness, he declined operating. When favorable cases of cataract in both eyes were met with, he sometimes operated the same day on both eyes ; but to ensure success, he preferred couching first one eye, and afterwards the other, on the first getting well.

The proportion of failures he estimated at about 10 per cent., but of this he was not certain, as he had never kept a memorandum ; and for the same reason, he had no recollection of the number of secondary cataracts which succeeded his operations.

The greatest number of times he had operated with success on the same eye, he assured me, was seven ; but he said that an eye once couched by him seldom required more than a second or third operation ; and that, when necessary, he repeated



Asiatic Lib. Press

Perforating the Eye with a Lancet in the Left Hand.

the operation, when the patient was entirely free from pain, and willing to submit to it.

Of cases of amaurosis, he judged by the dull black appearance of the pupil, and loss of sight, which he represented as the eye having lost its life, without the remotest notion of the nature of the disease. He never operated on any one younger than 12 years of age, and seldom on people older than between 60 and 70.

On being asked how he could judge, without knowing the structure of the eye, of the extent to which the Sulae, or Indian couching needle may be introduced, he replied: "I had one precise extent prescribed to me, and from this I do not deviate, whether the eye be large or small; and finding when I had attained manhood, that the distance between the marks of the joints of my little finger was the extent to which the instrument might be inserted into the eye, I invariably measure with my little finger, and apply the thread round the needle at this distance from the point."

The cause of cataract he ascribed to the combined influence of bile and phlegm; but what that influence on the brain was, he had not the remotest conception. He was aware that children were sometimes born with it; that it occurred without any apparent cause at any age, but much more frequently in old age; and that the period of

its formation was unlimited. Men and women he conceived were equally susceptible of the disease, and he declared that he was not conscious of one sect or class of people, from the occupation they followed, being more liable than another to the malady; that in general children were little subject to it, and that on them he had seldom occasion to operate. He declared he knew no medicine that would arrest the progress of the disease after it had began to form, and that when formed, there was no remedy but an operation. The after treatment, if inflammation ensued, was to apply on the temple and forehead cataplasms, composed principally of turmeric and the leaves of some narcotic herbs, and sometimes opium, ground together with a little water; and if the inflammation were considerable, he opened the large vein in the forehead, and took from it three to four ounces of blood. The juice of the leaves and fruits of a variety of plants, (the narration of which would fill a volume,) he mixed with water, and employed as a collyrium; and he enjoined abstinence, and confinement in a darkened room. This I believe to be the whole which relates to Sautcouree's knowledge of the malady, his mode of couching, and method of conducting the after treatment.

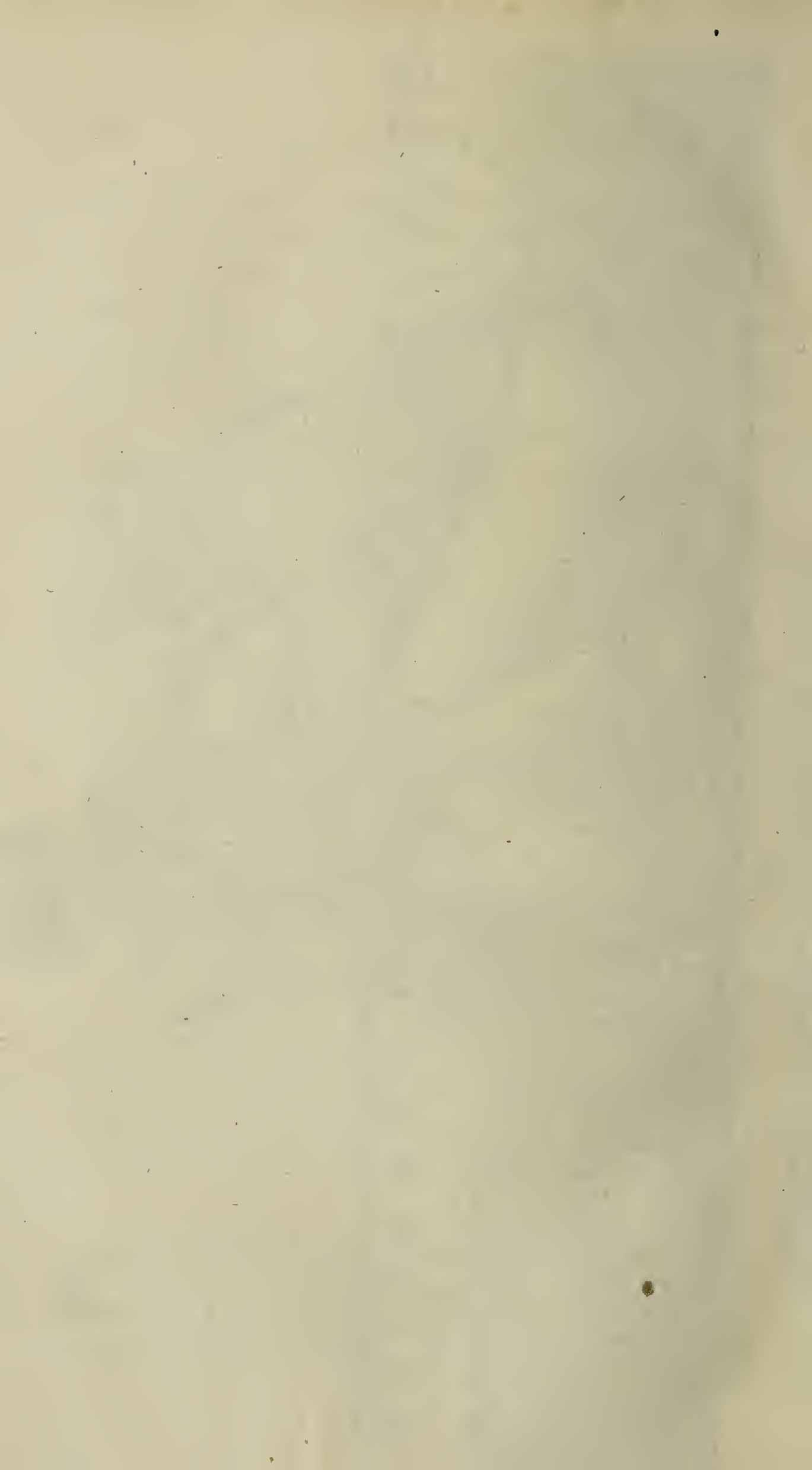
On asking him how it happened that European professional gentlemen knew so little of his mode of couching, although he had practised as an oculist in Calcutta 25 years, he told me he was afraid



As used in the Press

Introducing in the perforation the Sulzer or Conching Needle with the

Left Hand.



of teaching European gentlemen his art, lest he might himself be deprived of his bread. In justice to Sautcouree, I am bound to say, that, so long as I held communication with him, he acted with candour and openness which did him great credit, and I believe him to be a good and successful operator in a great number of cases; and of his gentleness in couching the eye, he is in possession of a certificate from Mr. Birch, who was restored to sight by his hand.

On the 19th of November 1824, I had the good fortune to meet with another native oculist, a Hindoo, named Jhao Loll, of about 25 years of age, who had arrived in Calcutta from Benares; and on that day saw him in my own house, in the presence of the students of the Native Medical Institution, couch successfully the right eyes of two old women, each between 50 and 60 years of age. His mode of operating corresponds very nearly with that of the Mahomedan oculist. But Jhao Loll makes the perforation with an European lancet in the sclerotic and other coats about $\frac{1}{10}$ th of an inch below the axis of the pupil, and he is a little quicker than his competitor in performing the operation. After withdrawing the needle (which is similar to that used by Sautcouree,) he applies on the eyelids a bit of folded rag moistened with cold water, allowing it to remain on about five minutes. This rag is then removed, and another piece of rag spread thick with a composition of turmeric,

flour, and a little opium, of the consistence of paste, is put in its place, and at the same time this substance, called Oobtun, (collyrium,) is smeared all round the orbit. A small bandage is then bound over the eye, and the application allowed to remain two days. It is then removed, and a fresh supply applied in a similar manner. After this nothing further is done. Two patients who had undergone the operation in both eyes by Jhao Loll, were brought to me as a proof of his success. One of the patients had been couched 10 days, the other 20 days, and they both appeared to me to have recovered their sight, with scarcely a mark of the perforation remaining.

The operation of these two oculists, who were unknown to each other, being similar, and corresponding with that which is practised, as stated by Dr. Scott, by the native oculists of Bombay, although there is a little difference in the composition of the needle, some being made of brass, others of copper, &c. the identity of the operation in Hindostan is satisfactorily proved.

Dr. H. Scott, in his remarks on the Arts of India, inserted in the third number of the Journal of Science and the Arts, states: "I have fixed (for my subject) the most important operation for the cure of blindness that has yet been practised in any country, the removal of the crystalline lens when it becomes opaque. At what period this discovery

was made in India will, I fear, never be known. It is probably very ancient ; for ages have, I think, passed away since much addition has been made to knowledge in India. But whatever may be the origin or antiquity of the operation of India for cataract, I know that it is occasionally very effectual.

“ I cannot venture to say that the Indian operation for the cataract is worthy of our imitation ; this must be decided by those better qualified to judge than I can pretend to be. I shall confine myself to a plain narration of what I have actually seen, with such observations on it as have arisen in my mind. I think I have been a witness of this operation four times, and performed by two different operators. These people occasionally travel to a distance to practise their art ; but I believe they never leave their homes, unless on being called to some certain employment. All those that I saw in Bombay, were Moormen, and their general residence was in Guzerat. One of those practitioners was a young man, the other aged ; they came at different times, and were unconnected with each other. The young man had, I think, the most skilful hand of any person that I ever met with. He seemed to feel every thing that he touched with as much delicacy as a spider, and the operations which I saw him perform were executed with surprising skill. Celsus observes, that a surgeon ought to be a young man, or of an age approaching

to youth. The feeling, the elasticity, the pliability of youth, with its perfection of sight, are never more necessary than in the operation for the cataract.

“ I have unfortunately not brought to Europe the Indian instrument for couching, but I have had a set made here by an ingenious workman, from my recollection of them. They cannot be far from affording a true representation. The first instrument, A, (plate II.) is for perforating the coats of the eye. It is sharp-pointed, but soon becomes thicker than a common lancet. This seems to be necessary, for two reasons: 1st, to avoid the risk of its breaking, from the thickness and density of the sclerotic coat; and 2dly, to make an opening of sufficient size to pass the instrument for depressing the lens. The instrument A, is made of steel, but B, I have always seen made of brass. About the 4th or 5th of an inch above the point of the instrument A, they wind a thread, for preventing its passing farther into the eye than is intended. It is a curious circumstance, the opening made through the sclerotic coat is at the very point where it is now made in Europe; that is, behind the edge of the cornea, and about, or a little below, the axis of the eye. My skilful operator desired the patient to look at a particular object, and in a moment he pierced the eye at the very point which he ought to have done, and without using a speculum to fix it.

“When an opening is thus made through the sclerotic coat, the instrument A is withdrawn, and that marked B introduced. This instrument may be described as a cylinder, terminating at one end in a pyramid of three sides, with a blunt apex. Between the cylinder and pyramid, at their junction, is a neck, or part somewhat smaller than the rest, as marked at C. On being inserted, it is so managed as to push down the lens below the pupil. This is done slowly, but effectually, twice or thrice, the operator looking attentively for a little time afterwards at the eye, to be convinced that he has quite removed the lens, and placed it below the transparent cornea. He then slowly draws back the instrument, till he finds that it hangs from the narrow portion of the shoulder at C. In this position it produces no kind of irritation, while the strength of the sclerotic coat keeps it from falling out entirely. Both eyes are then covered carefully with several round cushions of cotton, wetted with water, so that the patient is in perfect darkness. With the eyes so covered, and with the instrument still in the perforation, the head of the patient is allowed to rest on a pillow for 15 minutes, or even half an hour, till the spasms that may have been excited in the eye have entirely ceased. They are then uncovered, and carefully examined. If the lens, or any part of it, has risen, it is again depressed by the instrument B. They are a second time bound up as before, for a like period of time, and then re-examined, to ascertain

if any farther depression is necessary. This process is even gone through a third time, so that their operation is tedious ; it requires a long time, but it seems not to give any material degree of pain or uneasiness. When in this way they are quite satisfied that the lens is sufficiently removed, they tie the wet cotton cushions over both eyes, and put the patient to bed. He is kept there in darkness and repose for about a week, living on little else than boiled rice. When I first saw the Indian instruments for couching, I looked on them with contempt ; I thought the instrument B. in particular, clumsy and ill fitted for its office. But experience has altered my opinion : its size is perhaps of advantage, for by means of it the lens is readily removed, while its coat is completely torn and detached. There is thus less risk of the lens returning to its former position, while its absorption is promoted and insured.

“ If any person will consult Celsus, he will find that his operation for the cataract does not differ from the present practice of Europe, and no doubt gave rise to it.

“ I asked my Indian operator, by what means he had acquired his knowledge of this operation. He replied, from his father. They practised it from father to son. He had never seen the dissection of the eye of any animal, nor does he believe that any of his family had. In spite of all this, it is

impossible not to think, that the knowledge of this very delicate operation must have been derived from actual dissection ; for an error even of a small space, would inevitably lead to a destruction of vision for ever.

“ I was so struck with the skill of this man, that I was very anxious to ascertain from him the general result of his practice, the proportion of his successful and unsuccessful operations. He acknowledged at once that he kept no register nor account of them ; but on my pressing him much to make some conjecture of the number in one hundred who were improved by the operation, and of the number who received no benefit from it, he said, after a good deal of hesitation, that he did not think above five in one hundred remained without benefit. I had no means of ascertaining the real state of the question with more certainty ; the man was a stranger, and soon returned to his country, and I never saw him again. I leave it to the reader to form his own conclusions on this subject. He could have but little interest in deceiving me ; but, as is too frequently the case, he might wish to give himself consequence by magnifying his success ; he might have forgotten many of his failures ; and without supposing that he meant to mislead me (which I should reluctantly do,) we ought probably to make a large deduction from the favorable side of the account.”

The native instruments will doubtless appear to European oculists rude, and ill calculated to effect the object intended, and the operation will seem awkward and tedious ; but in the hands of young practitioners, unaccustomed to couching, the native instruments will, in the generality of cases of cataract, I am of opinion, be found to be more safe and manageable than the English couching needle.

To the natives who wish to practise as oculists, the Hindostanee mode of operating appears preferable to the English mode of couching, from the facility with which they can attain the art, even without knowledge of the structure of the eye, and nature and seat of cataract ; from its being by its simplicity better adapted to the habits of the natives generally, who, in all their arts, adopt the most simple method ; from the facility with which the native couching instruments can at all times be procured at a trifling expense in every part of Hindostan ; and above all, from the little liability (if the operator be a little expert) to injury of the eye in the act of operating, from the needle being blunt, and without cutting edges. In this opinion I am supported by Dr. J. Adam, Secretary to the Medical Board, who has several times seen the native operation performed, and William Twining, Esq. Surgeon to his Excellency the Commander in Chief, who has himself several times in my pre-

sence, and once in the presence of Dr. Abel, Surgeon to the Governor General of India, performed successfully the native operation of couching. Mr. Twining's opinion, founded on actual experience, is, I fancy, favorable to the native practice; and he joins me in thinking it worthy of imitation, even by European professional men, who have not been in the habit of operating on the eye, and who have not naturally a steady hand; and from a conviction of its simplicity and efficiency, he adopts it occasionally in his practice.

Several other medical gentlemen who have witnessed the native mode of couching, are, I believe, convinced of its being effectual; and I now hope that, from a state of obscurity, this highly useful operation to restore sight to the blind will ere long be generally known, and much more extensively practised by the natives themselves in every part of Hindostan than it has hitherto been.

Convinced of the native mode of couching being safe and effectual, and within the compass of even inexperienced practitioners, I resolved on teaching this art (stript of its superfluity,) practically to the native students of the medical institution under my charge; and accordingly I commenced giving them demonstrations of the structure of the eye, and explanations of the nature and seat of cataract, making them daily practise with both hands on the eyes of goats and sheep, until they

had acquired facility and dexterity in performing the operation. At the same time I entertained on a monthly salary Sautcouree, to search for and bring cataract patients, for the purpose of operating on them in the presence of the students, to inspire confidence in their minds of the feasibility of the operation with their own hands.

As cases of cataract were successively brought me, the capable students were allowed to practise in my presence; and the result warrants a continuance of the practice, which bids fair, when more widely extended than it at present is, to be highly beneficial to the unfortunate natives blind with cataract, who have scarcely a hope of restoration of sight, from the great want of oculists in every part of Hindostan.

If ocular demonstration of the safety and simplicity of the native mode of couching had not been afforded me, I should never have ventured to allow the students of the Native Medical Institution to practise on the living eye; for the operation with an English couching needle requires on the part of the operator more than ordinary skill, and a thorough knowledge of the structure of the eye, and perfect steadiness of hand, to prevent the iris and ciliary processes from being entangled and lacerated. Nothing therefore but a conviction of the native mode of operating for cataract being unattended with much risk to the eyes,

and an ardent wish to render the students useful as possible in India, induced me to take upon myself great responsibility and anxiety, in admitting of actual operations on the living eye by the inexperienced pupils.

Credence will hardly be given to the difficulty I have met with, even in this populous town of Calcutta, in procuring cataract patients for operation, from the remarkable apathy which pervades the native character, and from their extreme repugnance to remaining from their homes a single day to undergo a cure. It was only by employing Hurkarus (messengers) to seek for them, and by holding out to the patients the hope of a present on submitting to the operation, and a repetition of the present on allowing me to see the eye a few days after the operation, that I have been enabled to obtain the number of subjects enumerated in the list, and to ascertain, in the majority of cases, the result of the operations performed.

Notwithstanding the great disadvantage of novices performing the operation for cataract, and of the patients not being under control to undergo the after treatment, if inflammation ensued, from the impossibility to prevail on them to remain in any other place than their own houses, the number of failures which have followed does not appear to exceed that which usually occurs in Europe, when the operation and after treatment are per-

formed and conducted by skilful and experienced oculists. Sir William Adams, in his publication of 1817, states, from the respectable authority of "De Tartra, Lacournere, and Roux, that in France the operation is considered successful when two patients out of five, or when one half the number of patients operated on are restored to sight." But in England, the number of failures in a given number of cases in the several infirmaries, and of secondary cataracts, are not precisely stated. Possibly the aggregate number of failures may be about $\frac{1}{4}$ of the whole. Admitting this proportion of failures from the native mode of couching, (and I am by no means disposed to believe it to be so great,) the benefit of the operation will still be apparent, since 75 of a 100 blind of cataract, who have no chance of relief but by an operation, may probably be restored to sight in India by native oculists. A benefit immense, when the vast population of India, and the frequency of this malady amongst them, combined with the great disproportion of operators to the number of inhabitants of Hindostan, are considered.

The great advantage of this simple art is, that it can descend from father to son, as is verified by the instances recited, without professional knowledge being materially required. But if the anatomy of the eye, and nature and seat of the disease incident to it, be taught on European principles to the natives, the art will assuredly become more

perfect than it at present is. Possessing thorough knowledge of the structure of the eye, and of cataract in its various forms and stages, they will be able to impart very easily to their progeny at an early age the information they have themselves acquired, and thus in the course of time a number of young natives will probably be found competent to practise as efficient oculists in various parts of Hindostan : and should they restrict themselves to this branch of the profession, they may be expected to acquire skill in operating superior to that of their progenitors who are employed in the other branches of surgery ; for it has been well observed by Sir William Adams, “ That the man who would devote the whole of the skill and attention to one particular branch of study, would be more likely to acquire dexterity in that single branch, than he who would divide his talents amongst all its multifarious branches equally. And the conclusion we should thus be led to, by a speculative contemplation of the subject, is confirmed by the concurrent practice of mankind in every line of occupation, and every part of the world in which perfect excellence has been made an object of pursuit. We see it in the most abstruse sciences, and in the lowest handicraft trades, among the mechanics at Birmingham and Sheffield, and the prize students at Oxford and Cambridge. And it forms in effect not only the foundation for that division into distinct branches, by which the healing art is characterized in our own day, but al-

so the certainty of its continuance. The advantage of a division of labour is here as conspicuous as every-where else; and the claims of superior dexterity and delicacy of hand must remain with the man who confines himself to ophthalmic surgery.

“ Indeed it was lately admitted by one of the most eminent surgeons in this or any other metropolis, that the requisite endowments of hand, which are force and boldness in general surgery, and those of lightness and delicacy which are necessary for the finer operations upon the eye, are so incompatible, that the practice of both by the same individual tends to spoil the perfection of either; diminishing equally the masterly freedom requisite in the first, and the precision of touch as necessary in the second.”

While engaged in my enquiry into the native mode of couching, I held with C. Egerton, Esq. Oculist in India, in the service of the Honorable East India Company, of whose professional knowledge, skill as an operator, and liberality of sentiment I have the highest respect, a free communication on subjects relative to cataract and the operation for its removal; and as one or two of his notes to my address, in regard to the fittest state of cataract for removal, and at what period of time after couching, the operation may be considered as having been successfully performed, and also whe-

ther he considered the cases of restoration of sight after an operation sent for his inspection fully proved or not, are worthy of promulgation, copies of them are inserted in the Appendix.

Having described the native ideas of cataract and mode of couching, I now proceed to give a brief account of the sequelæ of the operation.

If no accident occurred in the course of the operation from the unsteadiness of the patient, little or no inflammation in the majority of cases ensued, and no after treatment was required, the patient appearing as if nothing had happened to him. But in a few cases considerable degree of inflammation arose, which required active after treatment to subdue; and in three instances the inflammation ran so high as to occasion complete disorganization of the eye. From the facts established, it may be inferred, that cases of violent inflammation are few, in comparison with those unattended with any subsequent affection. Indeed it is well known that considerable inflammation often succeeds depression according to the European mode; and among the native cataract patients in the Eye Infirmary at Bhowaneepoor, inflammation so often followed an operation, that Mr. Egerton even remarked it by saying: "I was given to understand, shortly after my arrival in India, that the natives were little liable to inflammation after operations in general; but I find, after couching their eyes, that they

are as susceptible as Europeans are of that affection."

When inflammation followed the native operation, I deemed it proper to conduct the after treatment invariably on European principles, being not sufficiently acquainted with the efficiency of the native plan, and with the properties of the medicines they employ, to warrant my following the Indian system, which does not appear to me to be so good as that of Europe.

With regard to the number of secondary cataracts following the native operation, I confess my inability to draw any comparison with that which arises from couching in England, from having no register of the cases in the latter country. The number which has fallen under my observation since July 1824 to the present date, is stated in the register in the Appendix. A few of these which I thought would require a second couching, and which would in England probably have undergone a second operation, from the anxiety of both the operator and patient for restoration of sight, have in time spontaneously disappeared, leaving the patient in the enjoyment of sight.

Among the number was a singular case of a Kuar (Bearer) named Kunneeah, who on the 27th of March last was couched in the presence of Mr. Newmarch and Captain Armstrong, by Pursun

Singh, native student. The cataract proved to be a milky one, with solid nucleus; and in consequence of the turbidness of the aqueous humor occasioned by it, and the extreme unsteadiness of the patient under the operation, these gentlemen had not so distinct an idea of the native mode of couching as I could have wished. No inflammation however ensued. When the aqueous humor became transparent, the opaque crystalline lens was observed to have risen in the sphere of vision, and the man became as blind as he was before the operation. A few days after, I perceived in the upper part of the pupil a black segment of a circle, and the man told me he could see light a little better than before, but he could not discern objects. Conceiving that the process of absorption of the crystalline lens had commenced, I resolved to watch the result of this case for some time before I subjected the man to a second operation. In a short time the crystalline lens began to move about behind the pupil on every motion of the eye, and its attachment became gradually less and less firm, till at length, on the 4th of June following, the lens, by I fancy a spasmodic motion of the eye, was forced into the anterior chamber. On the 6th of the month, Kunneeah came to me, and shewed me what had happened to him; and on that day I had a favorable opportunity of pointing out to the native students of the Medical Institution a diseased lens constituting cataract, and the process of nature in its solution, when removed a situ. A very small portion of the

lens seemed to have been absorbed behind the iris, but in the anterior chamber the circumference of the lens was speedily removed. A small part of the nucleus however still remains, but there is every prospect of its gradually disappearing. No inflammation nor pain occurred in the course of this period; and Mr. Newmarch and Captain Armstrong, who have recently seen the man at my request, can bear testimony to his being perfectly restored to sight. I mention this case to shew that a patient should not be too speedily subjected to a second operation, when there is a prospect of absorption of the displaced lens.

In some cases of secondary cataract, where bits of the ruptured capsule remained adherent to the iris, the Hindostanee needle, from being blunt, I have found of no use, it being impossible with a blunt instrument to embrace them, and to pick and bring them away from the sphere of vision. In such cases an English couching needle will, I conceive, be necessary. But in these instances, it is to be recollected, perfect skill and steadiness of hand are required, or the iris will be infallibly lacerated. Such cases, however, are not frequent, and are comparatively of minor importance in estimating the utility of the native needle.

In the course of my probation of the native mode of couching, I have several times met with that peculiar kind of cataract, assuming the appearance

of Amaurosis, which Sir William Adams particularly adverts to in his admirable work on cataract; and as this species does not appear, from Sir W. Adams' account, to be generally understood, I cannot do better than quote his description of it, being satisfied that what I allude to corresponds with that which he has so perspicuously related, and which has been successfully operated on in Calcutta in my presence. Speaking of capsular cataract, Sir William Adams states: "When the opacity is in the anterior part of the membrane, it is easily discernible; but if the posterior part alone of the capsule is the seat of the disease, it is with more difficulty ascertained, and it will often require a strong light to fall on the eye, after the pupil has been previously dilated by the Belladonna, before its exact situation and extent can be seen. I am induced to point out the latter species of the disease, because, as far as I am able to learn, it has not been specifically noticed by any writer on the subject of cataract; and I have recently seen several instances where it had been pronounced Amaurosis by many of the most experienced oculists.

"While in Bath, upwards of six years since, I was consulted by Mr. W***, a gentleman engaged in an extensive brewery there, who had been blind for nearly twenty years, from cataract, which so nearly resembled the natural color of the pupil, that his case had been considered and pronounced to be Gutta Serena. He had three times during this

period gone to London, to obtain the best advice. The opinions uniformly expressed of his case, to the time of my seeing him, having been similarly unfavorable, he altogether concealed them from me, under the impression, that my knowledge of them would prevent me from operating, in opposition to the opinions of so many eminent practitioners; and I neither was aware of them, nor the length of time he had been blind, until the operation for cataract had actually been performed by me upon one of his eyes. The result of this operation was in the highest degree successful; for, after the retina recovered from the torpor which its quiescence for so many years had occasioned, his vision was perfectly restored; and with the assistance of cataract spectacles, he sees to read and write, nearly as well as he ever did. I have also happened, since my residence in London, to see three cases of dark-colored cataracts within a fortnight, which were pronounced to be *Gutta Serena* by a late celebrated oculist. Upon two of these I afterwards successfully operated; and the third, which was in its incipient stage, has not yet become fully formed."

In submitting to the Society my observations and remarks on couching by the natives, which is liable to the same objections as may be urged against depression generally in Europe, I wish it to be distinctly understood, that I disclaim drawing any comparison between it and the English mode

of couching by skilful operators. All I am anxious to impress is, that the native operation, which is not attended with more than ordinary pain, has proved sufficiently successful to entitle it to further trials; that the Indian needle, in the hands of inexperienced practitioners, is more manageable, and less liable to accidents in the course of the operation, than the English couching needle; that many who have not sufficiently steady hands to use an English needle without endangering the eye, may with an Indian needle operate with safety; that the sequelæ of the operation are by no means more unfavorable than those which usually attend depression in Europe; and that the native mode of couching, on account of its simplicity, of its practicability, even by men unacquainted with medical science, and of the impossibility of procuring in many parts of Hindostan instruments like those of Europe, is likely, when learnt on professional principles, and more widely extended than at present, to be very beneficial to the natives generally of India.



*Extracts of Notes from C. Egerton, Esq. Oculist,
to Mr. Breton.*

1.—I believe the most favorable state for any operation on the eye, or indeed elsewhere, is while the parts remain sound and healthy, and that therefore, as far as the operation itself goes, the less the cataract is formed the better. The only question ever I believe entertained is,—that, as in incipient

cataract a patient sees pretty well, and as no operator can in operating assure himself of success, so it is better for the patient not to run a risk while useful vision remains. Waiting for total blindness must be wrong, because a retina that was healthy may cease to be so, when its accustomed stimulus is for any length of time removed.

2.—I am myself clearly of opinion, that if inflammation does not supervene upon an operation on the eye within a fortnight, any subsequent inflammation cannot justly be imputed to the operation: although at the same time it may be a result of neglect in the after treatment.

3.—The case is a very successful one, and forms one, I have no doubt, of a very numerous class. And I can only add, that such stubborn facts cannot be too often repeated.

Copy of a Certificate given by Mr. Birch to Sautcouree.

This is to certify, that the bearer Sautcouree performed the operation of couching in my left eye with great skill and ability, and that I have obtained very good sight from the operation in that eye. It is my intention to entrust the right eye to him in the cold weather for a similar one to be performed, having the fullest confidence in him.

(Signed) J. B. BIRCH.

Belvidere,
24th July, 1824. }

Register of Cases of Cataract operated on by Natives, according to the Indian Mode, from the 1st of July 1824, to Dec. 20th 1825.

From the 1st of July 1824, to October 15th 1824, 34 eyes were couched by Sautcouree, Mahomedan oculist. Of this number two eyes were, by subsequent inflammation, disorganized. In two, Secondary Cataracts were formed: and the result of one case was not ascertained, from the patient having left Calcutta a day or two after the operation.

By Jhao Singh, Hindoo oculist, six eyes were couched, and all successfully.

BY PURSUN SINGH, NATIVE STUDENT.

NAMES.	Sex.	Caste.	Age.	Period of Blindness.	Number of eyes operated on.	Date of the operation.	Successful or Unsuccessful.	Secondary Cataract.	REMARKS.
An old man, name not registered,	..	Hin.	45	1 year	1	1824. 11 Aug	Succ.		
Roshun Alee,	.. Male	Mus.	55	1½ do.	1	21 do.	..	..	Sight imperfect.
Shaik Mudhoo,	.. do.	do.	40	do.	1	do.	Succ.		
A young man, name not registered,	..	do.	28	1 do.	1	8 Sept.	do.		
Shaik Khan Mohumud,	do.	do.	45	do.	1	4 Oct.	do.		
Jogee, nau,	.. Fem.	Hin.	38	do.	1	24 do.	do.		
Moradaun,	.. do.	Mus.	44	2 do.	2	26 do.	Unsucc.	..	From subsequent violent inflammation.
Nunhee,	.. do.	do.	55	1 do.	Right eye.	7 Nov.	Succ.		
Janee Ayau.	.. do.	do.	40	do.	1	15 do.	Unsucc.	..	This case was combined with Amaurosis.
Fyjur Ulee,	.. Male	do.	45	1½ do.	1	16 do.	Succ.		
Kaleepershad Mookerjee,	.. do.	Hin.	40	do.	1	6 Dec.	do.		
Nedhee Ram,	.. do.	do.	36	2 do.	1	21 do.	Unsucc.	..	Combined with Amaurosis.
Baboo Ram,	.. do.	do.	45	do.	1	14 Jan.	Succ.		
Puraun Mullah,	.. do.	do.	40	do.	1	6 Feb.	do.		
Jumanee,	.. Fem.	Mus.	35	1½ do.	1	13 do.	do.		
Shaik Kureem Bukhsh,	Male	do.	45	2½ do.	1	19 do.	do.		
Hingun,	.. do.	do.	40	1½ do.	1	22 do.	do.		

NAMES.	Sex.	Caste.	Age.	Period of Blindness.	Number of eyes operated on.	Date of the operation.	Successful or Unsuccessful.	Secondary Cataract.	REMARKS.
Joo,a,naw,	.. Fem.	Por.	35	2½ yrs.	1	1825. 24 Fe.	Succ.		
Suroop,	.. Male	Mus.	35	2 do.	1	26 do.	do.		
Ram,jae,	.. do.	Hin.	43	1¼ do.	1	14 Mr	do.		
Kunneeah,	.. do.	do.	38	2¼ do.	1	17 do.	do.		
Rumzaun,	.. do.	Mus.	46	3¼ do.	1	30 do.	do.		
Kurum Khan,	.. do.	do.	50	2 do.	1	5 Ap.	..	S. C.	Operated on a second time with success.
Shaikh Munnoo,	.. do.	do.	40	4 mon.	1	15 do.	Succ.		
Duwul Mullah,	.. do.	Hin.	50	2 years	1	27 do.	do.		
Alleur Khan,	.. do.	Mus.	50	ditto.	1	do.	..	do.	Result not ascertained.
Rampearee,	.. Fem.	Hin.	60	1½ do.	1	6 Jun.	Succ.		
Dalmee,	.. do.	do.	60	1 do.	Right eye.	8 do.	do.		
Soobhdrau,	.. do.	do.	70	5 do.	1	30 do.	do.		
Rasoo,	.. do.	do.	40	1 do.	1	14 Jly	do.		
Horeepree,ah,	.. do.	do.	45	ditto.	1	6 Aug	do.		
Doodee,	.. Male	Mus.	60	1½ do.	1	24 do.	do.		
Gunga,	.. Fem.	Hin.	65	2 do.	1	16 Sp.	do.		
Subulram Doss,	.. Male	do.	65	ditto.	1	1 Oc.	do.		
Shaik Shumsooddeen,	do.	Mus.	10	unkn.	1	4 do.	..	S. C.	
Munnoo,	.. Fem.	do.	40	3 do.	1	7 do.	..	do.	Went away. Result not ascertained.
Shaikh Rumzaun,	.. Male	do.	60	2½ do.	1	do.	Succ.		
Dya Ram,	.. do.	Hin.	50	11 do.	Left eye.	25 do.	do.		
Kishoree,	.. Fem.	do.	40	2 do.	do.	28Oc.	do.		
Beebun,	.. do.	Mus.	45	ditto.	1	31 do.	do.		
Kishoree,	.. do.	Hin.	40	ditto.	Right eye.	7 Nov	do.		
Nagoreea,	.. Male	do.	35	3 do.	1	do.	..	do.	Went away. Result not ascertained.
Dya Ram,	.. do.	do.	50	ditto.	Right eye.	do.	..	do.	Couched a second time with success on the 12th Dec. 1825.
Kumul,	.. Fem.	do.	35	1 do.	1	17 do.	..	do.	Not sufficiently recovered from the effects of inflammation to undergo a second operation.
Gour,	.. Male	do.	30	1½ do.	1	22 do.	Succ.		
Paurbutty,	.. Fem.	do.	60	2 do.	1	24 do.	..	do.	Couched a 2d time on the 12th Dec. 1825, with success.
Jooree,	.. Male	do.	22	6 do.	1	1 Dec		do.	

BY BENEET SING, NATIVE STUDENT.

NAMES.	Sex.	Caste.	Age.	Period of Blindness.	Number of eyes operated on.	Date of the operation.	Successful or unsuccessful.	Secondary Cataract.	REMARKS.
Autlaus,	.. Fem.	Mus.	50	10 mo.	1	1824 11 Oc.	Succ.	S. C.	A small bit of the capsule remains adherent to the iris.
Nunhee,	.. do.	do.	55	1 year	Left eye.	18 do.	..		
Rajoo,	.. do.	do.	60	10 mo.	1	2 Nv.	Succ.	do.	
Boolun,	.. do.	do.	57	4 years	1	do.	do.		
Runzaun,	.. Male	do.	40	1 do.	1	10 do. 1825.	do.		
Puneeah,	.. Fem.	do.	40	3 do.	1	10 Feb	do.	do.	Went away. Result not ascertained.
Sulkhee,	.. do.	Hin.	45	2 do.	1	do.	do.		
Rohunee,	.. do.	do.	40	2½ do.	1	24 Ma	do.		
Kureemun,	.. do.	Mus.	45	1½ do.	1	28 do.	do.		
Soneeah,	.. do.	Hin.	50	1 do.	1	do.	do.		
Roopau,	.. do.	do.	44	1¼ do.	1	6 Ap.	..		
Dalmees,	.. do.	do.	60	1½ do.	Left eye.	do.	do.		
Deen Mohummud,	.. Male	Mus.	47	2 do.	1	14 My	do.		
Bhowun,	.. do.	Hin.	45	3 do.	1	17 do.	do.		

BY ROGOONATH DOOBEE, NATIVE STUDENT.

Beebee Rohomanee,	.. Fem.	Mus.	50	2 years	1	1824. 3 Dc.	Succ.	S. C.	Went away. Result not ascertained.
Ruhum Ulee Durvesh,	.. Male	do.	54	3 do.	1	do.	..		
Shaikh Janoo,	.. do.	do.	42	1½ do.	1	1825. 2 Ap.	Succ.	do.	Is unwilling to undergo the operation a second time.
Beebee Dhan,	.. Fem.	do.	42	2 do.	1	7 Jul.	..		
Monshaw Singh,	.. Male	Hin.	56	4 do.	1	25 do.	Succ.		

BY SHAIK WARIS ULEE, NATIVE STUDENT.

Meer Muneer Oodeen,	.. Male	Mus.	32	2 years	1	1825 5 May	..	S. C.	Went away. Result not ascertained.
Imaum Bukhsh,	.. do.	do.	27	1 do.	1	27 do.	Succ.		
Lotun,	.. do.	Hin.	25	do.	1	do.	..	..
Ramchunder,	.. do.	do.	45	3 do.	1	8 Jul.	Succ.		

The final result of the operations, in regard to the degree and durability of sight, it is scarcely possible to ascertain, from the patients, on recovering from the effects of couching, returning to their homes, and afterwards furnishing no account of themselves. Opportunities, however, in almost every case were afforded me of seeing the patients several times after the operation, and the eyes of many of them were shown to me at a lapse of several months; and as the majority of the patients appeared to have recovered that degree of vision which usually follows depression, I have ventured to pronounce successful, in respect to the operation, every case in which proofs of the contrary were not established. Mr. J. Birch, Magistrate of Calcutta, and Hukeem Zoolfkar Allee who has been seen at my request by several medical gentlemen, are living instances of really useful sight after a lapse of three and four years from the period of being couched for cataract, and I have no doubt many similar instances are to be met with in the Presidency of Bengal.

CASE OF HYDROPHOBIA,

AS COMMUNICATED IN A LETTER TO J. A. MAXWELL, M. D.
SUPERINTENDING SURGEON, BOMBAY.

BY R. H. KENNEDY, M. D.

Presented June 3, 1826.

MR. M. Assistant Surgeon, was bitten by one of his own dogs on the 21st March, and the animal being then tied up, made its escape the following day, and was never seen afterwards,—most probably was destroyed in the bazar, and the fact concealed by those who did it. Lieut. S. says, he warned poor M. of the state the creature was in several days before the lamentable accident, during which interval the brute bit every thing it saw, even the goats. M. however, most unaccountably neglected these warnings, and attached no importance to the appearance of madness which the animal evinced.

Until Tuesday the 2d, no disagreeable symptoms shewed themselves. The wound had healed at once, being very slight; but having occurred on the bare skin, on the hand, the inoculation of the poison should have been looked for in its fullest malignity; but unhappily no precaution, beyond washing, seems to have been thought necessary. On Tuesday morning, when feeding some tame deer he kept, one of them bounded at him,

and with its horn struck him on the fore-arm, midway betwixt the wrist and elbow ; the blow was so severe, that his first feeling impressed him with the idea that the bones were fractured. The severity of the contusion brought on immediately great pain and swelling of the limb ; and it being the same on which he had been bitten, the acute pain seemed to concentrate about the faint scar of the old wound. On Wednesday afternoon the 3d, I wrote to invite him to dine with me on Saturday the 6th, to which he replied, accepting my invitation ; but added, that he had a pain in his arm, which he hoped might prove nothing worse than rheumatism. Feeling himself worse in the evening, he sent for his neighbour Mr. McMorris, to whom he detailed his symptoms.

About 11 that night, I received a note from Mr. McM. stating what he had seen and heard from M. and distinctly expressing his uneasiness for the result ; and after mentioning that he had given 10 grains of calomel and 15 of ext. of colocynth, asking what opinion I felt disposed to form, or what treatment I would join him in adopting. I suggested bleeding and opium ; but reverting to the late melancholy case of hydrophobia at Dapoly, the hearing of which I knew had greatly distressed Mr. M. I hoped that the local pain on the site of the bite, as greater there than in any other part of the swollen limb, might be fancy and nervousness, arising from the awful consequences

apprehended, and the dreadful agitation likely to follow so appalling an apprehension. I visited the poor fellow at day-light, and found him in better spirits than I had expected. His arm was swollen to the shoulder; the scar from the bite was scarcely to be recognized, though it indicated the seat of a pain resembling a thorn being buried in the flesh; but the blow from the deer was evident by a blue and yellow bruise. As this had therefore certainly been very severe, I hoped it might account for the inflammation of the arm and hand, and the pain now rising past the axilla to the chest. He had wrapt the arm in cloths moistened with Goulard's Lotion, which he was applying himself, daubing the liquid unconcernedly over the bandage. As the nervous agitation was, however, very great, the pulse full, and the constitution plethoric, I recommended bleeding as a general treatment, and camphorated anodyne spirituous fomentations locally. The purge having no effect, McM. repeated the dose in the forenoon, and took away oz. xxiv. of blood. I saw him the second time in the evening, when he was sitting at his door. He was dejected and weak, but thought his arm relieved. Nothing hydrophobic appeared to attract attention. The pulse indicated no disorder beyond the reduced strength and frequency to be expected after phlebotomy. The two purges not having operated, McM. administered the same dose, being the third, in the evening. I saw him again the next morning, Friday the 5th, about sunrise. The purgatives had

acted most powerfully. He had spent a miserable night, and seemed much disordered at stomach, with constant nausea, and vomiting whatever he swallowed. The inflammation of the limb below the bruise inflicted by the deer seemed abated, and he could extend or close the fingers; but the pain in the axilla and about the thorax continued spreading and acute. He had now a distinct and distressing feeling of the nature of his disease, and mentioned to me his intentions respecting his worldly affairs; and when I endeavoured to comfort him, he interrupted me by saying, with tears, that a peculiar difficulty of swallowing now began to force itself on his attention. I immediately examined his throat, and seeing a bright florid redness and puffiness about the fauces, and a slight enlargement of the tonsils, and a ruddy swollen rounded edgelike appearance of the gums round the bases of the teeth, I hoped the 30 grains of calomel might explain this inconvenience, the mention of which relieved him for a short time of much mental agony; but I could not help feeling pained to observe a singular fact, that his breath was unaffected by the mercury, and perfectly pure; whereas in health, ever since I have known him, it had always been most offensively fœtid. The symptoms continued rapidly progressive through the day, during which McM. was constantly with him. He wrote me about noon, that debility with cold sweats was too marked a feature of the case to admit of further bleeding. I visited him again early in the evening, when I found the hydro-

phobic convulsion the prominent character of this disease, accompanied with unremitting vomiting. I then suggested to McM. that the singular and complicated manner in which the attack had commenced still left a hope, or rather the shadow of a hope, that this nervous agitation might be alarm carried to mania, when operating on the brain and constitution, in conjunction with disorder of stomach, deranged to the utmost by three such powerful mercurial drastic purges, and a throat apparently swollen by them; and I mentioned two cases I had seen in London, where the hydrophobic horror was more conspicuous than in the case before us, and eventually proved hypochondriacal agitation, following wounds from dogs not mad, and in which cases the patients recovered: I therefore begged him to try opium, in such doses as the excessive agitation would alone justify. Accordingly drs. ii. of Tinct. Opii were immediately given, and at once vomited up: the same, repeated in an hour, was again rejected: a pill of opium grs. iii. was swallowed and retained. We were with him at 10 P. M. and introduced an enema of drs. iv. of Tinct. Opii, which McM. repeated in the night; and a large blister was applied to the scrobiculus cordis, to relieve if possible the exhausting sickness. McM. staid the night with him, a duty in which I could not assist him, being myself summoned to another patient, a lady, on whom I was in attendance, the greater part of the night. This circumstance, and urgent duty in the morning, pre-

vented my paying my usual early visit ; but I was gratified to receive a note from McM. saying he at last indulged hopes that poor M. was certainly better, and had been able to swallow without convulsions during the early morning hours. I saw the poor fellow before noon, and remained upwards of an hour with them. The slight appearance of amendment had soon ceased to deceive, and the hydrophobic horror was now fully and incontestibly developed, and the patient was rapidly sinking under the violence of the spasms, which appeared to threaten momentary suffocation. His skin was deathly cold and clammy, his face gaunt and pale: but his lips and tongue were of a carmine red hue; his eyes wild and prominent, but not at all bloodshot; and all his appearance marked his case hopeless. He further complained of a tingling sensation in the glans penis, and involuntary micturition; and when we begged him not to attempt every moment to swallow, thereby bringing on the convulsions, he said, that if he allowed his tongue to be dry, it felt as if it rolled itself up, and rushed backward with a sense of suffocation,—a most extraordinary symptom, indicative of the dreadfully convulsed and agitated state of the muscles of deglutition.

As medical assistance now ceased to be of avail, I left him to beg the Rev. Mr. J., who had already been with him, to administer religious comfort, to visit him again, and to get his signature to a will :

for as he had told both McM. and myself his testamentary intentions, we preferred having this upon paper, to its being a nuncupative arrangement. Previously, however, to my departure, he insisted on giving me a proof of his resoluteness in conquering the mania, and calling for a glass of thin arrow-root, he forced down, with the most distressing struggle, about four ounces—an effort immediately followed by the most convulsive retching. I never saw a sight more afflicting.

When Mr. J. offered to make a will for him, he was pleased with the proposal, attended to the reading of the paper, and directed an alteration as to the mode of remitting the proceeds of his property from that which had been first written. He ordered a donation of a month's pay to each of his servants; mentioned some arrears of pay due to himself; and noticed, that a certain horse in his stable was not his own property, but left in his charge for sale. In signing the will, being in the interval betwixt convulsions, he stood up to a writing table, and wrote his name at full length, subscribing his army rank, and the number of his Regiment, as to an official paper, and actually jested at his occasional control over the mania, and his strength and self-possession. He had not, however, a long repose: the disease was making horrible progress. He began about four to foam at the mouth, the liquid rushing forth with his convulsive respiration, gurgling in frothy masses, or running in a continu-

ed stream to the ground. During this period I was not with him; but McM. says, he kept his sense of passing occurrences, and recollection of individuals to the last, and finally expired quietly and without convulsion at five. He scarcely expired ere the florid red hue of his lips changed to blackness, and his countenance altered considerably, appearing swollen and bruised.

The curious features of this case appear to me, the complicated and perplexing manner of its accession from the bruise in the forearm, awakening the dormant hydrophobic venom lodged in the hand. Are we to suppose that excision up to that moment would have removed the poison, so as to have saved the patient? Or might we argue on a possibility, that, but for some such excitement, it may remain an indefinite period, until gradually exhausted, and discharged by sensible or insensible perspiration?

The next is the perfect self-possession he enjoyed to the last moment, and which he evinced in perpetual efforts to resist the convulsive shocks experienced in his attempts to swallow. He seemed unceasingly desirous of trying it as an experiment whether he were better or worse. On the night before his death, he would say, "I can wash my hands, but not my face:" and then calling for water, would dip his hands in it, and make painful, but unavailing endeavours to raise a moistened towel to his

forehead. His description of the spasm was in these words: "You know the feeling of losing one's breath, on plunging suddenly into a cold bath? My sensation is exactly the very excess of that kind of shock, coming on with an indescribable chilly thrill through me, and acting with such violence, as if the power of respiration were lost altogether." Three hours before death, he observed, that all his evils but the suffocation had left him. His hand and arm were quite free of pain, and he moved the fingers nimbly. He added, that he "could drink in the dark:" in fact he never yielded to the disease; his spirit remained unshaken, until nature sank exhausted.

His manner and temper, on the approach of death, were what both had been through life, mild and kind: no frowardness, no harshness of repining, no unmanly lamentation or complaint. He caressed each friendly hand that was extended to him, and simply stated that his sufferings were extreme. To us he declared himself patient to endure whatever we wished, and even suggested tracheotomy, an operation which I never saw performed, and which we declined, as well from a consciousness of its utter inutility in his state, as from a conviction, that the exuding of a single drop of blood inwards, would suffocate him at once. In a case like this, the medical man's sufferings are tenfold more miserably acute than another's would be; his professional knowledge of every symptom

as it appears, fixes his attention inwardly, and the dread of their approach too often accelerates their progress ; and the familiarity with their character and tendency, at least must add virulence to their malignity.

I know nothing farther that could have been done. He could not have been bled more ; he would have fainted and died. The incessant vomiting rendered the exhibition of medicine horribly painful : to be swallowed merely, to be immediately rejected. The enema was used to the utmost extent it could be. A larger blister could scarcely have been attempted ; and opiate embrocations were kept by flannel bands permanently applied to his throat. Nor ought I to omit mentioning, in the terms it deserves, the unwearied humanity, anxious thought, and constant presence of mind shewn by Mr. McM. who left him as little as his other duties would allow, and has raised himself in the respect and esteem of all here by such exemplary kindness.

REPORT ON THE EFFICACY

OF

SULPHATE OF QUININE IN INTERMITTENT FEVER.

BY D. S. YOUNG, Esq.

Presented March 6, 1826.

I HAVE great satisfaction in submitting the accompanying table to the Society. It exhibits a series of cases of fever of the intermitting kind, and the effects of the Sulphate of Quina, or Quinine, in removing them. The success which has attended the administration of this new remedy in the cases referred to, will, I trust, induce others to make more extensive trials of its efficacy. The following extracts from my report to the Superintending Surgeon H. H. the Nizam's army, will I hope convey some idea of my estimation of the powers and utility of this valuable substitute for bark. The case of Lieut. Johnstone, referred to in these extracts, could not be included in the table, as it involved details which were incompatible with the form to which I felt obliged to confine myself. — “ The Sulphate of Quina appears to me infinitely superior to bark, in cases where irritability of the stomach and personal aversion to the bark may exist. The virtues of an ounce of bark are contained in eight grains of Quina; and in the cases submitted, with reference to my experience of the powers of Peruvian bark, the effects appear to me to be in a similar ratio. Chronic and obstinate quartans of long standing

appeared to yield to the Quina as readily as recent quotidians and tertians ; with this exception, that the former required more than the latter for their subversion. In one case, Emrau Khan, 66 grains were given. In most of the cases a brisk purge was premised.

“ The period since I commenced the use of the Quinine is too short to enable me to judge of its prophylactick powers : I therefore am not by any means prepared to say, that it will prevent the return of fever at the lunar periods ; but feel assured, that to persons habitually subject to fever it will prove most invaluable, as it will speedily stop the fever, if it should fail to destroy the febrile diathesis in the system. To persons much debilitated from any cause but diseased viscera, convalescents from fever with weak stomachs and impaired digestion, this remedy, from the smallness of the dose, the facility of its exhibition, and the convenience of its form, seems to promise an agent possessing all the virtues, and few or none of the inconveniences of the Peruvian bark ; and as such, an invaluable addition to our curative means, in many of the diseases of tropical climates and their sequelæ. In cases of topical congestion with fever, I should not feel inclined to use the Quina until the equilibrium of the circulation had been restored, and the attending fever had remitted. In Lieut. Johnstone’s case, the remedy was administered (2 grs. four times a day) with the view of stop-

ping a tertian which had reduced him to the lowest state of debility and extreme of emaciation ; to such an ebb, indeed, that very few paroxysms would have carried him off. He had no return of fever after taking the Quinine, and rapidly recovered his strength under its continued exhibition, though a protracted convalescence was looked for even under the most favorable aspect of the case. The dose of the Sulphate of Quina must be regulated by the nature of the fever, the age, and temperament of the patient, and a variety of contingencies which the eye of the practitioner will readily discover. In a mild tertian or quotidian, attended with little derangement of the bowels or functions, 2 grs. three or four times a day would be sufficient to prevent the return of paroxysms in adults, if given just at the conclusion of a fit, and continued at regular intervals. If a paroxysm did supervene, it would in all probability be much modified ; but rarely will a second come on. I would advise that the remedy be continued until two fever days have passed away innocuously. I have had no experience whatever of its effects on children, but should suppose that half the above quantity would in them produce similar results. In the event of suitable opportunities presenting themselves, I shall have no hesitation in giving much larger doses than are indicated by the table ; and I cannot but entertain sanguine hopes, that in the sequelæ of fever and other acute disorders, we shall find the Quinine a most powerful auxiliary and tonic."

Table exhibiting the Efficacy of the Sulphate of Quinine, as de

NAMES.	When admitted.	Form of Disease.	Rank and Corps.	Remedies formerly used.
Soopull,	.. 21st Feb.	Tertian,	Sepoy 1st Rgt.	Cinchona,
Jawaie,	.. 31st Jan.	Quotidian,	Do. do.	Cinchona et Liq. Ars.
Sahib Deen,	.. 15th Feb.	Tertian,	Do. do.	Cinchona et Vinum.
Lall Sing,	.. 2d March,	Quotidian,	Do. do.	Calomel et Antimon.
Motty Sing,	.. 3d do.	Tertian,	Naick do.	Cinchona et Liq. Ars.
Jungoor,	.. 8th do.	Quotidian,	Sepoy do.	Pulv. Jalap. c. dr. ss. et Calomel, grs. v.
Sheik Mudar,	.. 9th do.	Do.	Do. do.	Do. do. do.
Doorgah,	.. 10th do.	Do.	Do. do.	Do. do. do.
Baloo,	.. 10th do.	Do.	Do. do.	Do. do. do.
Soo Pursaud,	.. 10th do.	Do.	Naick do.	Pulv. Ipecac. scr. i. Calomel grs. x.
Incharam,	.. 10th do.	Tertian,	Sepoy do.	Pulv. Jalap. c. dr. ss. et Calomel, grs. v.
Dein Mahomed,	.. 14th do.	Quartan,	Invalid,	Do. do. do.
Pheer Khan,	.. 14th do.	Do.	Do.	Do. do. do.
Lewis,	.. 14th do.	Tertian,	Do.	Do. do. do.
Hybutty Row, (boy,)	.. 14th do.	Quotidian,	.. .. .	Pulv. Rhœi. grs. xii.
Cundoo,	.. 14th do.	Tertian,	Horse-keeper,	Pulv. Jalap. c. dr. ss. et Calomel, grs. x.
Meerwan,	.. 14th do.	Quartan,	Beestee,	Do. do. do.
Caujah Muneeb,	.. 15th do.	Tertian,	Invalid,	Do. do. do.
Gooloo,	.. 20th do.	Quartan,	Tailor,	Do. do. do.
Saiboo,	.. 15th do.	Quotidian,	Sepoy, 1st.	Pulv. Ipecac. et Calomel, grs. x.
Sew Chunun,	.. 4th do.	Do.	Sepoy, 2nd.	Emetic, purgative, and bleeding, oz. 20.
Mata Deen,	.. 18th do.	Do.	Do. do.	Emetic and purgative,
Bohunny,	.. 26th do.	Do.	Do. do.	Do. do.
Peasun Sing,	.. 27th do.	Do.	Do. do.	Do. do.
Heerah Sing,	.. 12th do.	Do.	Do. do.	Do. do.
Kistnah,	.. 27th do.	Do.	Do. do.	Do. do.
Emram Khan,	.. 15th do.	Quartan,	Cavalry,	Cinchona.

Six other cases of Quotidian, in which from 6 to 20 grs. were given with the usual effect.

determined by its Powers of preventing the Recurrence of Intermittent Fever.

Date of commencing the Quinine.	Quantity taken.	Date of dismissal.	Effects of the Remedy.
5th March,	56 grs.	12th March,	Fever ceased on the third day after commencing the Quinine.
7th do.	36 do.	14th do.	Fever for the three first days after using the Quinine.
6th do.	60 do.	24th do.	Do. do. do. do. do.
6th do.	40 do.	11th do.	Fever for the two first days after using the Quinine.
5th do.	48 do.	11th do.	Paroxysms ceased on the day succeeding the use of the Quinine.
9th do.	18 do.	12th do.	No return of fever after taking the Quinine.
10th do.	18 do.	13th do.	Had but one paroxysm after commencing the Quinine.
11th do.	18 do.	13th do.	Had no return of fever after commencing the Quinine.
11th do.	18 do.	13th do.	Do. do. do. do.
11th do.	18 do.	14th do.	Paroxysms ceased the day after commencing the Quinine.
11th do.	24 do.	15th do.	Fever ceased after taking the Quinine one day.
15th do.	38 do.	19th do.	Had been ill for three months, but recovered after taking the Quinine four days.
15th do.	32 do.	19th do.	Had no return after commencing the Quinine.
15th do.	26 do.	19th do.	Do. do. do. do.
15th do.	16 do.	19th do.	Had one attack only after taking the Quinine.
15th do.	32 do.	19th do.	Had no return of fever after taking the Quinine.
15th do.	46 do.	21st do.	Had only one attack after commencing the Quinine.
16th do.	26 do.	19th do.	Had been ill for two months, but had no return after the Quinine.
21st do.	38 do.	27th do.	Had been ill for some months, but the Quinine stopped the fever.
16th do.	18 do.	19th do.	Fever for the two first days after taking the Quinine.
5th do.	15 do.	12th do.	Had no return of fever whatever.
18th do.	28 do.	24th do.	Do. do. do.
26th do.	22 do.	30th do.	Do. do. do.
27th do.	22 do.	1st April,	Do. do. do.
12th do.	18 do.	16th March,	Do. do. do.
27th do.	16 do.	30th do.	Do. do. do.
16th do.	66 do.	27th do.	The first attack after taking the Quinine was much modified, and the second hardly perceptible. The patient has quite recovered, after having had the Quartan ague for eight months.



Cyperus Rotundus; or Mootha Ghos.

Utiatichth Press.

A P P E N D I X.

No. 1.

Letter addressed to the Society by Major General Hardwick, on the Cyperus Rotundus, as a Remedy for Cholera: with a Drawing of the Plant.

MAJOR GENERAL HARDWICK claims the indulgence of the President and Members of the Medical and Physical Society, for intruding on their notice the accompanying drawing of a grass, the roots of which are in much repute, among the Natives of Calcutta, as a powerful tonic medicine, and are used also in disorders of the stomach, and irritable state of the bowels. Two instances of its efficacy fell under the Major General's observation; and the short notes he made on these occasions, are all he can offer to the Society: it must rest with them to determine, by further trial, whether this simple nostrum merits to be better known, and brought into use.

NOTES—*On the Use of the Roots of the Grass "Cyperus Rotundus," taken as a Remedy, in Cases of supposed Cholera.*

CASE.—*July 28th, 1823.* A native man servant, about 30 years of age, of healthy constitution, was seized with violent vomiting and agitation of the intestines, and it was considered by those about him, that he was attacked with cholera: the symptoms, however, were unattended by the usual spasmodic diagnostics common to this complaint. Six or seven of the fresh tubers of the above grass were immediately bruised down with as many corns of black pepper, and these immersed in a wine-glass of plain water were given the patient to drink. In six or seven minutes, the stomach became quiet, and the irritable state of the bowels ceased.

Great thirst is generally occasioned by this medicine; and by the advice of an older and experienced servant present, a drink was prepared, by infusing two or three cloves and as many cardamums in a pint of boiling water, and of which, when cool enough, the patient was allow-

ed to take a mouthful or two at intervals of 10 or 15 minutes. The next day the man was quite well, and at his work.

In less than a month after, another servant, (a palkee bearer,) was attacked in a similar way. The same treatment as above recited was resorted to,—and, to Major General Hardwick's observation, with equal success.

It is not necessary to give here a detailed botanical description of this plant, as it is ably described in Dr. Carey's edition of Roxburgh's 'Flora Indica,' vol. v. page 201.

It may not be unimportant to add here, that the next species of Cyperus, viz. "E. pertennis," produces another aromatic root, and which, when dried and pulverized, the Indian ladies use for scouring and perfuming their hair.

The local names of these grasses are,

The first. Motha-ghas.

The second. Nagur-motha.

They are both abundantly spread in all parts of Hindustan, and mostly in marshy wet lands.

No. 2.

Case of Paralysis of the lower Extremities, communicated by A. Gibson, M. D. Bombay Establishment.

Panchnac Pilnac, Invalid, was brought from his station to my regimental hospital on the 1st of June. *Symptoms*:—Loss of all sensation and power of voluntary motion in the lower extremities. Complaint came on gradually without any other indisposition, and for several weeks he had been in a perfectly helpless state. *Treatment*:—A blister was applied to the loins with the view of being kept open, and occasional friction to the limbs was ordered. The former having been allowed to heal, and no benefit being obtained, about a week after admission, the limbs were exposed to a stimulating fumigation. On the morning visit, after the third repetition of this process, he complained of an uneasiness in his foot; and, on examination, a considerable eschar was found to be separating from the internal side of the heel of the left foot, exposing a raw surface, which, from the state of ulceration, had probably been caused by the fire used in the first day of fumigation, though only now

felt and complained of. The whole left extremity was in a partial degree become sensible to pinching, but the right was still as insensible as ever. Fumigation being discontinued, a blister of nitric acid was successively applied to the inner heel of the latter, and tartar emetic frictions to the leg, which produced an abundant crop of pustular eruptions, with the happy effect of restoring sensibility, and, in a short time, to such use of both limbs as enabled the patient to move about the hospital with the assistance of crutches.

The left limb, which was subjected to the immediate contact of fire, has been throughout the strongest; but with the crutches he can already make shift to walk from the hospital to my Bungalow, a considerable distance.

REMARKS.

These few particulars I have only thought necessary, that I may bring to the notice of the Society a practical fact that may be of future utility. Owing to the remissness of hospital servants, an accident was suffered to take place, which led, fortunately, to the knowledge of the benefits to be derived from the application of stimuli to the extreme ramifications of nerves, in particular instances, rather than near their origin; and, as in the present case, one which, from the age of the patient, afforded but small hope of any success on admission. A greater interest is given to the case, in a brief notice of the Hospital Reports from La Charitè, under Professor Laennec, in the latest No. yet received of the Medico-Chirurgical Review, wherein several cases of Sciatica are alluded to that were cured by a similar plan of treatment, which "for twenty years past, M. Laennec has never known to fail."



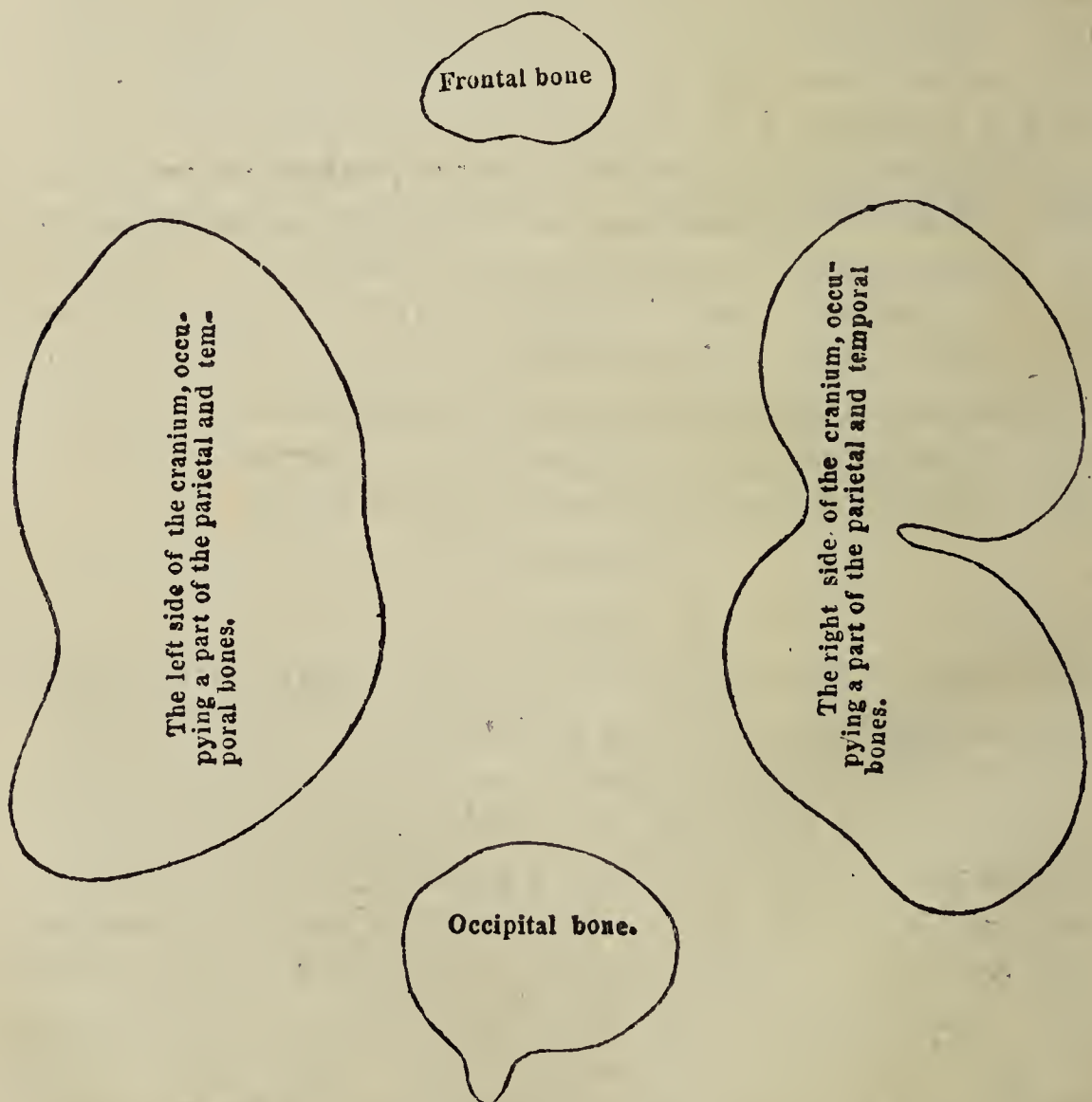
No. 3.

Extract of a Letter from Mr. T. G. Baker, on Hydrophobia, and a singular Absorption of the Bones of the Cranium.

I observe by the newspapers that a case of hydrophobia was read at the last meeting of the Society. By a letter lately received from Buxar, I am informed five persons had just died from that horrid complaint: eleven were bit, and the fate of the remaining six uncertain when the letter came away. I have tried, and am still trying the effects of the knife, caustic, (Potassa fusa,) and mercury. My plan is to commence the course of mercury as soon as they are bitten, and to continue it for one month. I have not yet seen sufficiently decided cases to be able to give any opinion on the result of this treatment.

I was going to send a fair copy of the inclosed ; but as the disease might not be as new to others as it was to me, and could not be of any use, I did not think it worth the trouble. The subject is a healthy looking young man. A small superficial ulcer always preceded the absorption of the bone : it never gave any pain, and no exfoliation ever took place. You saw the pulsation very plain, and if you pressed hard on the parts, he complained of feeling pain in the eyes. These are the outlines of the case : a more minute detail would not, I believe, be either interesting or useful.

Bheenick, a Nooneeah (or Earth-digger) by caste, about 18 years of age, an inhabitant of a village two coss from hence, named Dhowl Saugor, states, that it is now four years since he first felt the bones of the cranium absorbing. The quantity of bone absorbed is marked by the pen ; the spaces here delineated being half the size of the disease.



No. 4.

Letter from Mr. Olsen, of Cusah Factory, Juanpore, describing the Virtues of a Plant in the Bite of Snakes, communicated by the Medical Board.

I have lately found a plant, whose leaves are a certain antidote against the bite of any snake, however so venomous. I communicated this fortunate discovery to the editor of the India Gazette, who published my letter on the subject a short time ago.

I now beg leave to request the favour of your acquainting the Medical Board with the following description of this most valuable plant. It grows almost every-where, but most abundantly in a sandy soil. The young plant springs up about the commencement of the rains, and continues to grow until the month of January, when it runs into seed. However, as its medicinal powers are extracted from the *fresh* leaves, it would be advisable to adopt a plan, so as to have them the whole year round, which in the dry seasons might easily be done, by sowing and watering a crop in succession.

When any one is bit by a snake, pluck off a handful of the *fresh* leaves, and press out the juice between the palms of your hands, causing the patient to snuff up the same, and the cure is almost immediately effected.

I have known a number of people cured by this remedy, and never knew it to fail: I shall therefore feel infinitely gratified, if through you this discovery is made public, and become beneficial to the community at large.

Accompanying I have the pleasure to forward a dried specimen of this plant, and some seed, trusting that this will be sufficient to enable the Board to investigate a matter so highly deserving their attention.

 No. 5.

Letter from Dr. Butter of Goruckpore, relative to the foregoing.

The accompanying dried plant was some months ago sent to me by Mr. O. an indigo planter near this station, as a specimen of a remedy which he had found infallible in the cure of persons bitten by veno-

mous snakes, with a request that I would transmit some account of it to the Medical Society. This, for various reasons, I at the time declined to do : but as I observe, by a recent number of the Calcutta Literary Gazette, that a note from the gentlemen above referred to, addressed to the editor of the India Gazette, has elicited from the latter some remarks on the unreasonableness of expecting the Medical Board to act upon an anonymous notice in a newspaper, I am anxious to clear Mr. O. from an imputation which I was partly the means of bringing upon him ; and this I hope will be satisfactorily accomplished by my stating, that Mr. O. is a foreigner, and as such it is to be presumed quite excusable in having confounded the Medical Board with the Medical Society, and in having mistaken the proper mode of communicating his discovery.

Mr. O.'s knowledge of this plant was acquired from a low caste native in his service, who was well known to the neighbourhood by his possession of this secret, and the number of persons whom he had cured by its means. His account of the manner in which he had discovered the virtues of the plant was, that he had frequently followed the *Mongos* when it retreated after it was bitten in encountering a snake, and that he always found that it had recourse to this plant to prevent the fatal effects of the poison. Be this as it may, there can be little doubt of the powers of the medicine, Mr. O. having assured me that he had seen 20 or 30 persons recovered by it from the effects of poison by a snake. The native's invariable mode of exhibiting it was to bruise in his hand several leaves of the plant (the name and appearance of which, from motives either avaricious or superstitious, he concealed from all but his master,) till they yielded about a teaspoonful of juice, and to make the patient draw this up into his nose. From its effects on that organ, it would appear to possess a considerable degree of pungency, which the leaves lose by drying, and to which, independently of any occult specific power, its good effects are perhaps to be ascribed.

The plant not being a native of this spot, I regret that I cannot send you a sufficiently minute account of it to enable you to identify it with any described species, but hope that the habit of the plant will be easily recognized in the dried specimen by at least one of your resident members : should a quantity of the seeds of the plant be required, I shall be happy to supply them. Its only habitat of which I am aware, is the high sandy places near the confluence of the Raptee and Gogra, where it is very abundant.

On the virtues of this plant, I may remark, that, although from the account of its discoverer, it would appear that it had not been used in bad cases, that is, only in cases where the patient retained his senses and the power of inhaling through the nose; it is as yet uncertain whether, thrown into the nose by a syringe, or the patient being compelled to swallow it, (should experiments warrant the safety of its internal use,) it may not eventually be found equally efficacious with the powerfully stimulating treatment which I have endeavoured to recommend. Still, the same objections will apply to it and to ammonia: neither is always at hand; and even should the virtues of the juice be found to remain in the dried and powdered leaves, it is probable that both will be found equally perishable.



No. 6.

Communication from Dr. Wallich, describing the botanical Characters of the above Plant.

I beg leave to acknowledge the receipt of your letter of the 24th ultimo, with its enclosures of an original letter to your address from Mr. L. F. Olsen, dated the 10th ultimo, and dried specimen and parcel of seeds accompanying the same.

2d. The plant to which the specimen belongs, is Roxburgh's *Phlomis esculenta* (Hort. Bengalensis, p. 44,) a species which comes very near to Linnæus's *Phlomis* (now *Leucas*) *Indica*, and Desfontaine's *Leucas capitata*. It is a common, annual weed, growing on cultivated fields in Bengal and in some parts of Hindostan, in vigour during the rainy and cold seasons. Its Hindostanee and Bengalee name is *Holkoosa*, or *Chota Holkoosa*, in contradistinction to *Burra Holkoosa*, which belongs to the above mentioned plant of Linnæus, or to one which is exceedingly like it, namely *Phlomis cephalotes*: Koenig.

3d. The natives of Bengal use the tops and other tender parts as a pot-herb, and the fresh juice as an external remedy against headache from cold. The whole plant possesses a very slight aromatic scent, and scarcely any taste, except that which may be called, in the language of Rumphius, *sapor sylvaticus*, or *herbaceus*. I cannot therefore withhold the expression of my strong doubts, as to the alexipharmic virtues ascribed to the plant in question in Mr. Olsen's letter, which I herewith take the liberty of returning.

No. 7.

Extract of a Letter from G. G. Spilsbury, Esq. of Jubbulpore, describing an unusual Contraction of the Eyelids.

The other day I met with the following new and singular appearance in a woman, her son and daughter. The mother appeared of the age of 30, son 12, girl 6. The singularity consisted in the eyelids of all three being extremely diminutive, and the spaces from the external to the inner angle as follows:—

Of the mother,.....	6½	tenths of an inch.
„ Boy,	5¼	do. do.
„ Girl,	5	barely.

The ball of the eye little prominent, and I thought smaller than usual; the eyelids could only be raised about three-tenths of an inch, so that sight is defective, except when directed to the ground, or the head thrown up and back to the proper angle. The husband is dead, and I learnt had not this conformation; but I could learn nothing of her family, or if she had any living. These are all her children. The sight of the boy had been destroyed by disease about six years ago. It is strange this peculiarity should have descended to her children.



No. 8.

On the Substances noticed by Mr. Grierson, (vide Page 278,) by Mr. Wilson, the Vice President.

1. The *Sém* leaves are those of the *Sím*, or *Simbi*, a term applicable to any leguminous plant, but usually designating a sort of bean, (*Phaseolus trilobus*.) The leaves are said to be cooling, sedative, antibilious, and tonic, and useful as an application to weak eyes.

2. The *Bat'hua*, or *Bat'hie*, is the *Bástuha*, or *Vástuka*, a pot-herb, (*Chenopodium album*.) It is said to possess similar properties as the preceding, with the addition of its being a diuretic, and of its being beneficial in hæmorrhoids.

3. The *BhátKateia* is also *Rengani*. These are its Hindi names. Its Sanscrit appellation is *Kantakári*, which is also its usual designation in Bengali. It is the prickly nightshade, (*Solanum Jacquini*), and is de-

scribed in the 2nd vol. of the Flora Indica. That work takes no notice of its medical virtues. It is said by original authorities to possess some virtue as an emollient, tonic, and stomachic. The stem, flowers, and fruit are used, and are slightly bitter and carminative.

4. The substance termed Akarakura is familiarly known to the natives, and appears to be the stem of a shrub. It is slightly pungent and astringent. Its classical and botanical designations have not been ascertained.

Drugs from Nepal.

In forwarding these specimens, Mr. Hodgson, from whom they have been received, has omitted, with one exception, to transmit their native names. The one named is the *Bikhma*, or Bishma, not unfrequently confounded with the *Bikh*, the poisonous aconite which was brought to the notice of the Society on a former occasion. It is, however, of a very different character. Buchanan observes of it, that it is a strong bitter, and very powerful in the cure of fevers. It seems to differ little in botanical characters from the *Caltha* of Europe. If it really be "very powerful in the cure of fevers," it is needless to observe, that it merits the attention of the Society.

The other specimens must be left for the determination of our worthy associate, in whose forthcoming Flora Nepalensis they will probably find a place. Two of them have been professedly recognised by the natives to whom they have been shewn, who call one the root of the Mu-thá (Cyperus,) and the other the *Chhlerila* or *Chhebila*. It is called a fragrant moss by Hunter; and it is probably of the cryptogamous order, the original authorities giving to it synonyma signifying its being the flower of stones and rocks. It is described as cooling and emollient, and useful in acidity, feverish heat, cutaneous eruptions, thickness of urine, and gravel, and catarrh.

No. 9.

Extract of a Letter from Mr. Playfair, detailing a Case of Lumbricus cured by the Mudar.

A case having just come under my observation, which I consider a singular one, I cannot help giving you some account of it, although, from the great number of sick I had at the time, in different hospitals, and its anomalous nature at the commencement, I cannot give you

a detail of every day's symptoms, as they varied in the course of treatment : the general history however is correct.

On the 19th April, a recruit of Major Wilson's Levy, (a Brahmin,) was admitted into hospital, laboring under the common symptoms of remittent fever. He was of a slender form and delicate appearance; his bowels regular. Appetite had failed for some weeks previous to admission, and he complained of almost constant nausea, without vomiting. He was treated in the usual manner with natives, viz. calomel, purgatives, and diaphoretics. On the 21st, the symptoms remained the same. Nothing particular had been observed in the evacuations : his tongue remained foul, pulse small and frequent, skin hot, an uneasy sensation in the stomach and bowels, not amounting to pain, considerable thirst. He was indulged with tamarind sherbet, and had several small doses of calomel and the Kusung pill at short intervals. On the evening of this day (21st,) felt more nausea than usual, and vomited a small quantity of mucus, with a worm (*Lumbricus*,) about 6 inches long, alive. I immediately commenced giving him the Mudar, in doses of two grains every two hours. On the 22d, he vomited six worms of the same kind, and continued to vomit them once or twice daily till the 26th, when I increased the dose of the Mudar to five grains, and repeated it every three hours. The worms continued to be vomited until the 28th, when no more appearing, and the last having been rejected dead, with much mucus, I prescribed a moderately strong purgative, which brought away by stool three worms, partly decomposed, with a quantity of white mucus. For the last five days he has been gradually recovering ; all feverish symptoms have disappeared, and nausea is no longer experienced.

He voided in all 69 worms, varying from 5 inches to 9 inches in length, and of the thickness and appearance of the common earth-worm. None were voided by stool till the 28th.

Quere ? In this case, might not emetics have been better practice, i. e. more speedily efficient?

I fancy I erred in not exhibiting emetics at intervals ; yet as they appeared to come away freely, and not being aware of the number that existed, I procrastinated each time, conceiving that I had got rid of the enemy. The case, however, may be of use to others, and you have it as it really existed.

No. 10.

*Account of the use of Akund, or Mudar, in the Leprosy, by
Dr. J. R. Vos.*

[Transferred from the Records of the Asiatic Society.]

The Vincetoxicum, or Asclepias, has been of old recommended as a cure for sores and wounds. Having understood that the common *Akund* with the red flower, has been lately used with good success for the cure of the Leprosy, I determined on giving it a trial, and engaged five natives afflicted with that complaint: none of them had lost any of the parts, except one, who had lost a finger.

On the 15th November, 1815, they began to take twice a day from three to five grains, beginning with three of the very fine powder of *Akund*. After using it for five or six days, they complained of a severe itching all over the body; their appetites greatly increased; all natural evacuations more natural. The swelling of their ears, nose, face, hands, and feet, began to decrease daily, and in the course of a month it was almost gone, and their skin became smooth and of a natural colour. The pains, which they said they had very bad before taking this medicine, left them gradually; and I was happy to see, that two of them, after having used the *Akund* for two months, were completely cured, and are now gone into the country on their former occupations.

The three others are still under the use of the *Akund*, as their disorder has been much worse than the two first. The present state of the three still under cure are as follows. The first, a Portuguese man, is perfectly cured of his complaint. He begged me to let him continue the use of the powder some time longer, to be certain of getting no relapse, as he dreads the complaint greatly. The second, a Bengalee man, who was in a shocking state, is now free of his disorder. He has still a slight swelling of the toes; the other symptoms have disappeared. The third is an Ooreah woman. She is also well, and might leave off the medicine; but she continues on with it, at her own request. I am happy to find they are so desirous to continue the medicine, a plain proof that they must feel great benefit from its use.

The account here given is only from a motive to induce more experienced men to try this valuable remedy (*Akund*), by which a most

distressing disorder may be cured, or at least our fellow men relieved, who are suffering under the most afflicting symptoms of a dreadful complaint.

—◆—

No. 11.

An Account of the Meet'ha Zuhur, by the late Dr. W. Hunter.

[Transferred from the Records of the Asiatic Society.]

The substance of which I have the honor to lay a specimen before the Committee, is one of the most active vegetable poisons. Its taste is sweetish, whence it has obtained the name of *Meet'ha Zuhur*, *Meet'ha Bik'h*, or simply *Meet'ha*. On chewing a very small paring of it, I perceived only a slightly sweetish taste, without any sense of acrimony on the tongue. Yet although I carefully spit out the saliva, it was soon followed by a roughness or feeling of corrugation in the palate and fauces, which lasted upwards of an hour. I even thought I perceived a slight fulness of the head and giddiness; but perhaps that might have been the effect of imagination. Nine grains of it, cut in small pieces, were given by Dr. Tytler to a young cat. In a few minutes a most profuse salivation was excited, and the animal died in four hours, violently convulsed. The stomach was found emptied of every thing except the poison, somewhat inflated, but without any appearance of inflammation. Of the poison six grains were recovered from the stomach, so that only three had been wasted.

It appears to be the root of a plant, and is supposed to come from Nepal; but on this head my information is rather uncertain.

Its name in Sanskrit is वत्सनामः *Vutsnab'hu*. According to the *Bhavu Prukash*, "Its leaves are like those of the *Sindhoovára*, (*Vitex trifolia*.) The stem is knotty, each knot resembling the navel of a calf." The *Sook'h-Bod'h* says, "The root is like a cow's nipple, not longer than five fingers' breadth, and not thicker than the nipple of a cow. It is of two kinds, white and black."

Raj-Kosh. "It is very sweet; it seizes the throat; it removes (*Sunipát*) diseases proceeding from corruption of the four humours; it increases the bile." *Sook'h-Bod'h*. "Its effect is quick, and quickly

PL.VII.

aph Page 111.



*Mr. Bells case of a malignant disease of the hand and forearm
in a native of Rohilcund*

ceases," (i. e. in the language of *Dr. Brown*, it is one of the most diffusible stimuli.) "It is thus prepared. Boil it for three hours (*a puhur*) in cow's urine; then cut it into pieces of the size of one grain of *Chenna* (*Cicer Arietinum*.) These are to be put into cow's urine, dried daily, and put into fresh urine for three days. By these means its poisonous quality is corrected. One of these pieces is a dose."

So far the Sunskrit authorities. Their descriptions are very vague, and their mode of preparation certainly inelegant. But there is no doubt that the article in question is possessed of very active powers, probably as a narcotic, which it is well worth our while to investigate, both for the purpose of guarding against its deleterious effects, and if, as stated by the Hindoo physicians, it be useful in the cure of diseases, to avail ourselves of its efficacy, and ascertain the cases wherein it is applicable, and the most advantageous mode of employing it. With respect to the first of these objects, it is stated that vinegar is the best antidote against its poisonous operation; which, if true, establishes one point of analogy with opium.

No. 12.

Extract of a Letter from Mr. Bell of Moradabad, detailing a Case of Amputation for a severe malignant Disease of the Hand and Forearm: with a Drawing.

Khooshhalee, a shepherd, inhabitant of Khubreea, about 10 koss from Moradabad, applied to me for the removal of his left arm, in consequence of a malignant disease, affecting the same hand and forearm, as far as the elbow: a rough sketch of which I have the pleasure of sending.

He says, "it first commenced 10 years ago, merely from a common pimple, attended with great pain and inflammation as high up as the shoulder. Native remedies were used, and followed by great swelling and suppuration. After some period the sore healed, but the wrist became immediately affected; and then the fingers, which became enormously large and thick, exhibited a dropsical appearance."

In this state it remained for many years, until lately the ulcerative process took place on the back of the hand, extending upwards, produc-

ing severe pain over the whole member. The carpal bones had suffered partial separation, not merely from partaking of the disease, but from the immense weight it had to support ; and the pain seemed to be insufferable, when the sound hand was withdrawn from supporting it. The patient was 30 years of age. I minutely examined the axillary glands, and found no enlargement or disease of any kind, and in other respects his health was excellent ; therefore I could offer not the smallest objection, but complied with his earnest request, and removed the limb, the following day of his admission, near the middle of the humerus. Very little blood was lost. I had three arteries to secure, the ligatures of which came away on the 11th and 13th day ; and the patient is now quite well, and appears grateful for the aid that has been afforded him.

On examining the amputated limb, I was much disappointed in finding hardly any matter or fluid, particularly in the enlarged fingers. On laying them open, it cut as firm as if I was cutting through that part of beef most commonly known by the name of udder, and not unlike it in appearance, the parts being of a firm, and dirty white appearance. The bones were quite altered from their natural structure, and were becoming soft and pulpy, yielding readily to the knife.



No. 13.

Notice on a new Species of Daphne, by Dr. Wallich.

I request you will do me the honor of presenting the accompanying specimen of a new sort of Daphne to the meeting of the Medical Society, this evening.

The shrub was introduced from China, in the year 1821, and has now become very plentiful, being easily propagated from seeds, which it ripens in abundance, and multiplied by layers and cuttings.

The bark appears to possess a considerable degree of pungency ; but whether it may become a fit substitute for our European Mezereon remains to be ascertained. In order to enable the Society to institute a series of trials, I take the liberty of sending you herewith a quantity of the bark of the root and branches ; and I shall be happy to supply much more, if required.

In the event of the shrub proving useful or interesting in a medicinal point of view, I propose in due time submitting a detailed description of it to the Society.



No. 14.

Extract of a Note from C. R. Barwell, Esq. Chief Magistrate of Calcutta, forwarding a Communication on the Employment of the Papeeta, or Faba Indica, in Cholera.

Will you do me the favor to state your opinion respecting the Columbo Papeeta, or Paveeta, of which the enclosed is a specimen, as a remedy in cases of Cholera? I saw the individual alluded to in the letter yesterday morning, apparently at the last extremity:—a spasmodic case, with the cold clammy perspiration over the whole of the upper part of the frame. This morning he has survived the attack, and is convalescent. The writer of the enclosed was passing at the time, and seeing the desperate nature of the case, and that the native doctors were at fault, in consequence of the failure of their usual remedies, recommended the Papeeta, and described the mode of administering it, and the experiment proved successful.

“It affords me the greatest pleasure to inform you, that this morning, in my usual drive up the Strand, to the spot where you met me yesterday morning, I found that the poor native who was attacked with the Cholera Morbus, and brought there as his last stage, given up by his medical attendants as a desperate case, had also recovered by the simple remedy I prescribed in your presence; and was told by those present, that he had returned to his house perfectly recovered.

“Humanity prompts me to make this humble suggestion, that if this remedy was more generally known, particularly among the native community of this populous city, where I understand the Cholera rages still, and many of whom come to a premature end, by the want of proper treatment of this dangerous disorder. The high situation you are placed under Government here, would, I presume, be the best means of bringing it to more general use, by having the Thannas furnished with this simple antidote against the prevalence of the ravage: add to which, the philanthropic disposition with which you are favored by the Most High, to see the comfort of the subjects, and the welfare of the country and state.

“Perhaps you would wish to have the *Paveeta* examined by the Medical Board, and have medical opinion on it passed, ere my suggestion is attended to. I would be very glad of this; and for this very purpose, permit me to send one of the seeds. I am sorry to say, that it does not lay in my power to give an account of this valuable medicine, or its denomination in *Materia Medica*; but will simply state what I know of it, and how the dose is prepared, which has effected many cures; and if it pleases you, this letter may be submitted with it for mature examination.

“*Paveeta* is generally known amongst the natives by the vulgate appellation of *Colombo Papita*: it is brought from Manilla also. The dose is prepared by one wineglass full of cold water, with which the *Paveeta* is grinded on a slab, and administered in liquid. The quantity grinded from the *Pavita* seed is according to the severity of the attack, (without altering the quantity of water.) For instance, in a slight case, an eighth of this seed (herewith sent) is an ample dose; and if the case is a very severe one, one half of it: thus have I found it an infallible cure in many cases, and have saved many lives. I must remark here, that the use of this medicine with hot water would be fatal, and a rank poison: consequently it should never be used with hot water, which I am always particular in mentioning, that there may be no mistake.

“Persons attacked with Cholera, and resorting to this remedy, should abstain from taking any nourishment whatever, but a dose taken every hour, until the symptoms disappear entirely. To alleviate thirst, cold water may be drank.

“Should you have an examination made of this, or its effects tried, which I doubt not will prove successful, permit me to ask the favor of your kindly intimating the same to me*.”

* *Note of the Secretary.*—Since the above notice was presented to the Society, it may be proper to remark, that the *Papeeta* has been tried in one or two cases by individual members, without success. Its real or reputed virtues must be determined, however, by a more enlarged experience in this disorder.

No. 15.

Extract of a Letter from Dr. Burt of Moorshedabad, detailing a Case of Hydrophobia in the Dog.

I have been induced to send the following case to the Society, as it may tend a little to elucidate this curious disease in the canine species ; for it very seldom happens that we have the opportunity, which occurred in this instance, to trace the disease so distinctly from the time of the inoculation to its fatal termination. But the most peculiar circumstance in this case is, that the complete excision of the wounded part, which all writers on the subject have considered to be the surest preventive, was performed so immediately after the infliction of the wound, but failed.

On the 6th December 1823, when walking in my compound, a strange pariah dog passed me, and seized hold by the ear of a young spaniel which was following me. He did not attack the spaniel in the usual way that one dog attacks another, by first snarling ; but suddenly and without the least provocation snapt at him, and held him for a short space, as if he had lost the power of opening his jaws. On quitting his hold, the spaniel ran home, howling all the way. It struck me immediately that the dog was mad, and my servants made the same observation. I therefore watched him narrowly. He appeared weak, and considerably emaciated ; his eyes dull and heavy ; his pace was a kind of trot, with a paralytic motion of the hind legs, resembling weakness of the loins in horses. His attention was not directed to any particular object, but he seemed to be wandering about ; nor was he at all ferocious. Sometimes he continued a straight course for 10 or 12 yards, and then suddenly diverged from it at right angles. While I was watching him, another pariah dog happened to cross his path : he suddenly made a snap at him in the same manner, and the dog ran off howling. He then went off a few hundred yards to a village, and lay down, when I shot him. I immediately went home, examined the spaniel, and found that the teeth had completely perforated the ear about its middle. The ear was placed on a board, and with a scalpel I cut out a circular piece about half an inch all round the wound, and then washed it well with warm water. This was done in less than a quarter of an hour after the bite was received. The wound soon healed, and the dog was allowed to run about as usual until the 11th January, when I first observed some alteration in his habits and appearance. Before this, he

was very lively and playful ; but he now became dull, irritable in his temper, and did not eat with his usual appetite. He several times snapt at a young dog which used to play with him, and when I attempted to chastise him for this, he, for the first time, seemed inclined to fly at me : I therefore ordered him to be tied up. In the morning of the 13th he broke loose, and followed me out on horseback, and bit a dog belonging to a gentleman whom I met. I cautioned the gentleman to watch his dog carefully, as I suspected that my dog was becoming mad, having been bit by a suspicious dog some time before. On my return home he was chained up, and that evening showed evident signs of madness, biting at every thing within his reach, and struggling to get loose. His thirst seemed great, and he lapped water frequently, but appeared unable to swallow it ; and after each attempt, a copious discharge of clear viscid saliva took place from the mouth. He howled much all night. Next morning, when I went to see him, he wagged his tail, and seemed to know me distinctly. His tongue was swelled, and hanging out of his mouth, covered with a black crust, a small quantity of frothy saliva at each side of his mouth ; his breathing rather quick, eyes dull and heavy, and he made several attempts to lap water as before. He frequently scratched up the earth, and lay down on his belly, and the cold seemed to afford him some slight relief. He continued to howl hideously all day. At last the sound became weaker from exhaustion, and he died during the night. This howl or bark is so peculiar, that having once heard it, we cannot soon forget it. It appeared to me to be an *unfinished loud bark*, produced by the animal being unable to shut his mouth.

Next morning, 15th January, I dissected the body. The tongue was much swelled, and covered with a thick black crust, which adhered firmly to its surface. The submaxillary and parotid glands were enlarged. The fauces were slightly inflamed. The lungs were sound and healthy. The stomach appeared very small, and firmly embraced a round hard ball, about the size of a billiard ball. This was composed of hair, mud, and small straws firmly adhering together. The inner coat of the stomach was very vascular, and towards the pylorus a few small dark gangrenous looking spots were observed. The surface of the liver seemed somewhat inflamed ; but on cutting into its substance, it appeared sound enough. The gall-bladder was very much distended with bile. The intestines were not inflamed. The brain was not examined. The dog which was bit by him on the 13th January, was taken ill about six weeks after, and died in four days illness. I had not an opportunity of

seeing this case ; but I am convinced, from the description given, that it also died mad.

Some authors have asserted, that no mad dog really capable of producing hydrophobia will live above four or five days ; and have very properly recommended, that when a dog suspected of being mad bites any one, it should not be killed, but tied up for that period. The above cases go to strengthen the opinion. At what stage of the disease is a mad dog capable of propagating it? In the above case the disease seems to have been produced by a bite 48 hours before death ; but the young dog which was bitten on the morning of the 11th June, five days before death, escaped, although symptoms of the disease had evidently begun. Six or eight hours before death, the tongue was so much swollen that he appeared unable to shut his mouth, and consequently incapable of propagating the disease then.

No. 16.

Extract of a Letter on the District of the Mussoorea Tebba, and its Eligibility for an experimental Medicinal Garden, addressed to Dr. Wallich. By Mr. Royle, Superintendent of the Saharunpore Garden.—Communicated by the Medical Board.

It is situated under a peak called the *Mussoorea Tebba*, on the top of the second range of hills, and lays in a direction N. and E. from Deyrah, in about Lat. $30\frac{1}{2}$. Long. $18\frac{1}{2}$. and attains an elevation of about 6600 feet above the level of the sea ; and as Decandolle states that 600 feet of elevation are deemed equal to one degree of latitude, it will be necessary to add 11 degrees to the latitude of the place, and we have $41\frac{1}{2}$ as the latitude to the climate of which that of this place should correspond. The hot weather of last year was spent there by some invalids, and the climate was found throughout delightful, and refreshed by frequent showers of rain. The soil is in some parts remarkably good, and in the rest susceptible of great improvement, from the vicinity of immense quantities of leaf mould. A part of it has been for some years employed as a potatoe garden by Captain Young ; having the advantage of several springs in its vicinity.

The vegetable productions are such as to warrant the cultivation of European plants with every prospect of success. Rhododendrons and

oaks covered with ivy, are the most common trees; white roses and brambles, barberries and raspberries the most frequent shrubs; while violets and wild strawberries form the sward. From the refuse of the Rev. Mr. Corrie's kitchen, fine turnips were produced, and seen by gentlemen who visited the place some months afterwards.

It may therefore be safely inferred from the above facts, that the climate is analogous to that of the temperate parts of Europe; and that many of the vegetable productions which flourish there, would succeed here. The cultivation, therefore, of the following medicinal plants might be undertaken with every prospect of success, such as monks-hood, belladonna, hemlock, mezereon, foxglove, flowering ash, gentian, hellebore, hop, henbane, savine, juniper, liquorice, lavender, horehound, peppermint, the olive, oak, rhododendron, rosemary dyes, madder, elder, valerian, and white hellebore.

The probability of success in cultivating the above plants with a view of retaining their medicinal properties may be calculated on, not only because species belonging to several of the same genera are indigenous in the hills, but also from the fact that several European medicinal plants, which require a similar climate, are extremely common in the hills: of these may be instanced:—

Agrimonia Eupatorium, Geum Urbanum, Aretium Lappa, Alisma Plantago, Leontodon Taraxacum, which have been introduced from the hills, and frequently flowered in the botanic garden. The species are so similar to the officinal ones, that they are scarcely if at all to be distinguished from European specimens.

Judging in like manner from the plants which are common in this district and garden, such as *Acorus Calamus, Hyosciamus Niger*, and *Cichorum Intybus*, as well as from the success which has attended the cultivation of European culinary vegetables, I am induced to think that many of the medicinal plants, of which the products are obtained from the south of Europe and the shores of the Mediterranean, might be successfully cultivated in the Botanic Garden of Saharunpore.

In conclusion, I beg leave to inform you, that considering the site and other circumstances favorable for the subject of a small experiment, I ordered a gardener and assistant from this establishment to prepare a small piece of ground on the Mussoorea Tebba, for the purpose of

sowing the seeds of the various culinary herbs and medicinal plants, as well as of the Nepal rhubarb, which you had the goodness to send here.

To this place I have likewise sent up living plants of a rhubarb which grows in rank luxuriance on the Choor mountain, and which was brought down here about two months ago. Of this I have the honor of enclosing a small portion of the powdered root. I shall have the pleasure of transmitting more in its entire state by the first opportunity. The man who was employed in bringing it down, instead of obeying my orders respecting its immediate drying, watered it the whole way from the Choor mountain to this. The color may therefore have become deepened. I am also sanguine in my expectations, that by means of the northern merchants, on their return from the Hurdwar fair, I shall be able to obtain roots and shoots of the saffron, which, I had the pleasure of informing you, had some years since been introduced from Cashmere into Inki near Soobathoo, and from thence into Deyrah in the Doon.



No. 17.

*Notice on the Employment of Oil of Croton by the Hindoos :
communicated by W. C. Blaquiere, Esq.*

I have met with a passage in the Rășă Retnăcără, which shews that the use of Croton oil has been long known to the Hindoos, as a purgative, which may not have attracted your notice, viz.

जैपालबीज तैलेन बिन्दुमात्रं प्रकल्पयेत्
क्रमुकान्तर्गतं देयं राज्ञां सुख विरेचनं ।

“ Let him administer, as a ready purgative for princes, one drop of the oil of the Jayapal seed in betel nut.”

The dose and its enclosure in the Crămuca, to prevent its acrimonious effects on the fauces, are curious facts.

*Meteorological and Thermometrical Register, kept at Keitah, during the Month of January, 1825.
by C. Mackinnon, Esq. jun.*

Date	Height of the Thermometer.			Prevailing Winds.	REMARKS.
	Sunrise.	Noon.	Sunset.		
7	63	69	68	E. Variable in evening.	Numerous thick clouds, dull unpleasant day.
8	63	68½	68½	E. S. E.	Cloudy, mild dull day.
9	64½	68½	70½	Ditto, Changeable.	Do. " do.
10	65½	67½	65	E. N. E. Ch.	Cloudy, dull day.
11	63	66½	64	Ditto, ditto.	{ Cloudy, but cool. Lightning at 8 P. M. to Southward and Eastward, with dark thick clouds. Mild, cool, cloudy.
12	63	67	66	E. Ch.	Clouds. Cumulostratus, morning. Slight fall of rain during the night.
13	64½	67	62½	9 P. M.—E. N. E.	Clouds. Strata, morning. Noon clear and cool.
14	63½	66	70½	W. N. W.	Do. Corrus, morning. Clear day.
15	61	64½	69	Ditto.	Do. do. Fine clear day.
16	62	68	71	West.	Do. Cumulostratus. Mane. Nimbus. Merid. Thunder and lightning; slight rain, 4 P. M. thunder, like rain. Rainbow to N. Rain.
17	63	66½	67	E. S. E.	Heavy rain last night, with lightning and thunder. Frequent showers during the day. Evening cloudy.
18	64	67	67½	E. N. E. Ch.	Morning foggy; damp. Rain at 9 A. M. 2 P. M. cloudy to W. like rain.
19	64	66	67	East, Ch.	Foggy, damp morning. 2 P. M. slight fall of rain. Evening clear.
20	68	69	70	East, Ch.	Morning cloudy to W. and N. Noon stormy. Evening overcast.
21	66	69½	71	W. S. W.	Wind blowing strong all the day from W.
22	58½	63	66	West.	Morning cloudy. Cumulostratus. Noon clear.
23	58½	61½	63	West, Ch.	Lightning and thunder considerable last night, with accumulated dark clouds to S. and E.; appearance of heavy rain in direction of the adjacent moun- tains. Slight showers during the day. Morning, Cumulostratus. 12 Nimbus.
24	59	61½	59	West, Ch.	Cold and damp.
25	55	61	63½	W. N. W.	Morning thick clouds to S. and W. Electric phenomena during the night, in direction of the hills to S. Noon clear, cool, and pleasant.
26	57	61½	64½	West.	Morning clear. Evening thin clouds. Cirrus.
27	59	63	64	W. N. W. Ch.	Meridian few clouds to S. and W. Cirrus.
28	61	62½	65	East, Ch.	Morning dense clouds to S. and W. with lightning and thunder. 10 A. M. rain, Cumulus. Nimbus. Noon, stormy. 4 P. M. rain to N. with rainbow. Ev. clear.
29	62½	65	68	East, Ch.	Morning cloudy, dull like rain. Slight falls at intervals during the day. Morn- ing Cumulus. Evening stormy, with accumulated clouds.
30	64½	67	65	East, Ch.	4 A. M. heavy rain, preceded by electric corruscations. Cumulostratus. Slight showers continued till mid-day. Afternoon overcast.

My absence on duty from the station prevented the due notation of remarks, &c. until the 7th.

The maximum of temperature at noon of thermometer No. 1. was $69\frac{1}{2}^{\circ}$, and its minimum $61\frac{1}{2}^{\circ}$, the highest point of ditto being 71° , which occurred on two different nights.

Thermometer No. 2. ranged from 58° to 66° at noon.

Atmospheric and meteoric phenomena that have come within observation this month are :—Three rainbows, lightning and thunder on five different nights. Lightning on two different nights, observed at a considerable distance over the neighbouring mountains, which environ the cantonments, forming a chain of boundary from N. and E. extending to the W. and N. which may probably account for the frequency of atmospheric changes and electrical appearances.

Scale of the Prevailing Winds.

E. 7,	E. S. E. 3,	E. N. E. 4,	= 25 days.
W. 5,	E. S. W. 2,	W. N. W. 4,	

Summary of Weather.

Fine, with various modifications of clouds. 11 days an overcast sky, without rain. Rain more or less on 9 separate days : total 25 days. On the morning of the 18th, a heavy fall of rain. On the morning of the 30th, continuing heavy for three hours, preceded by a gale the night previous.

It was remarked, that during this month the weather had been subject to more frequent and unusual variations than had commonly existed at the same season ; and I was induced to regard them as unseasonable, from the particular obstinacy and severity manifested as to the treatment and consequences of certain diseases. There was rain more or less on nine different days, without one clear day, up to the 31st. The prevalence of easterly winds, with slight variations, was also remarkable.

The numbers of sick admitted during this month, in the hospitals of the 6th Light Cavalry and 38th Regiment Infantry, including Syces and Grasscutters, amount to 76 ; and the total number in hospital being 126, out of which, nearly 70 were classed as cases of acute disease.

The prevailing diseases in December and January, *Febres Intermittentes, Tertianæ, et Continuæ*, the consequence of the other type, particularly marked among the Grasscutters of the 6th Light Cavalry, who had suffered exposure, by their occupation, to miasmatic influence, with symptoms of unusual severity: no remission or imperfect. Sensorium invariably affected; depending, in degree, on the violence of the attack. Coma prevalent, with anxious, wild, and shrunk countenance; tongue foul, and loaded with a soft brown-colored mucus. General surface dry and shrunk. Nervous exhaustion, and generally quick, sharp, and irregular pulse. Secretions deranged, or altogether wanting: thirst excessive; bowels for the most part discharging a thin, greenish, and dark-colored fœces, possessing disagreeable fetor.

In the treatment of this peculiar disease, purgatives were chiefly indicated. Castor oil or senna infusion was generally given; and repeated as often as the strength of the patient, or the discharge from the bowels seemed to indicate; and on the operation of which was supposed to depend the chief means of cure. The repeated action of purgatives, by unloading the intestinal accumulations, seemed to produce a nearer approach towards recovery. I frequently witnessed it with surprise, even where the pulse would dissuade, and appearance of the patient seem to threaten danger. Blisters to the *nuchæ colli* and *epigastrium* always effected a change for the better. Diffusible stimuli exhibited at frequent intervals, in warm congee, of the utmost advantage; and during the remission from purging, calomel in small doses, combined with antimony and opium, seemed to have the salutary influence of dissolving inflammatory diatheses, succeeded by tonics of *Cinchona*, diffusible stimuli, and the acids, &c. On the whole, where symptoms gave way to the practice adopted, the patients had generally prolonged recovery. In some, relapses occurred, owing chiefly to the inattention of this class of people to diet, and their ignorance and disregard of external causes; and partly to the violence done to the vital organs in the first stage. In a few, chronic affections of the liver, and *Icterus*, were the consequences.

It was observed, that the violence of the disease appeared to be of little consequence, when the subjects were young, (commonly the case;) and, in the like proportion, dangerous and fatal, where age predominated.

The fevers of the Sepoys in both regiments generally presented a tertian type, with commonly that disorder of the sensorium, characterized in the former class; and the loaded tongue. Some cases yielding to remedies with difficulty, which effect seemed chiefly attributable to the climate. In some, who had severe attacks, a train of dyspeptic symptoms and debility were the consequence; and in a few more delicate subjects, determination to the bronchiæ and lungs, accompanied with severe cough, and considerable expectoration; quickened pulse and general irritation; and in one case, where evidently much tendency to congestion existed, symptoms of colonitis quickly supervened, making a well defined example of that disease in a dangerous form.

Meteorological and Thermometrical Register, kept at Keitah, during the Month of February, 1825.

Date.	Height of Thermometer.			Prevailing Winds.	REMARKS.
	Sun rise.	Noon.	Sunset.		
1	60½	61	67½	W. Mg. N. W. Noon.	Morning clear. Evening cloudy, (cirrocumulus.)
2	61	64½	71	N. W. Changeable.	Morning cloudy, (cirrocumulus.) Noon clear.
3	59	67	72	West.	Do. do. Strong wind all day. Evening cloudy, (cirrus.)
4	59½	67	69	West.	Morning clear. Noon dull, cloudy. 3 P. M. overcast, (cirrocumulus.)
5	63	71½	71½	West, variable.	8 A. M. overcast. Noon clouds. (Cumulostratus.) Evening mild, sultry.
6	66	71	70	N. W. Ventus.	Morning clouds (cumulus.) 3 P. M. overclouded. Evening dull and cloudy.
7	64	69½	71½	Morning, W. Ch.	Overclouded at intervals during the day. Evening dark clouds to S. and W.
8	66½	67	67	N. E. Morn. Noon E.	Morning dense clouds to N. and E. stormy. Thunder 8 A. M. Noon, continues. 1 P. M. thunder, rain. Evening stormy, rain at intervals.
9	68	67	Nt.	Changeable.	Rain early in morning. 8 A. M. continues. Noon dull, overclouded, (nimbus.)
10	66½	67	68	E. Ch. blowing a gale all day.	Lightning observed in the evening to S. and E. A fall of hail last night. Heavy rain this morning, accompanied by thunder and lightning, vivid. Noon electric phenomena, and constant heavy rain. Evening stormy, with much lightning to S. and E.
11	68	69	69½	E. to N. W. Ch.	Rain nearly all night, 8 A. M. continues. Noon dull, heavy; slight fall of rain. 4 P. M. rain, thunder and lightning. Evening fair.
12	63	78½	67	W. Ch. Eveng.	Morning cool, flaky clouds, (cirrustratus.) Noon, frequently overclouded.
13	64	60	67½	9 P. M. N. W.	Flaky thin clouds during the day. Evening accumulated.
14	62	67	69½	W. N. W.	Day commonly clear. Evening dull and cloudy.
15	64	68½	69½	S. E. to E.	Morning dull, (cirrustratus.) Noon overclouded, like rain. Evening do.
16	65	71	72	East.	Dull cloudy mild day. Evening sultry, lightning to E. at night.
17	66½	70½	68	W. to S. W.	Morning clear. Noon dull, cloudy. Evening fine and clear.
18	65½	71	69	9 P. M. W.	Day clear and pleasant. Evening cloudy, dull, (cirrocumulus.)
19	70	71½	72	10 P. M. W. Ch.	Morning clear. Light airs during the day. Evening cloudy, dull.
20	71	74½	72½	10 P. M. N. E. Ch.	Frequently overclouded in the day. Evening nimbus to N.; squally.
21	71½	77½	80½	W. to N. W. Ch.	Morning fine clear. 3 P. M. overcast, (cumulostratus.)
22	68	74½	72½	W. to S. W.	Do. do. Ventus. 4 P. M. overcast to S. and N. 5 P. M. rain to N. and W. Slight fall of rain in the evening.
23	69	73½	75½	W. to N. W.	Morning fair, blowing strong from N. W. at noon. Evening overclouded to W.
24	71	75½	..	W. to S. W.	Mild dull day, frequently overcast. Evening accumulated clouds to S. and W.
25	70	67½	..	..	Blowing strong from S. and W. all day. Numerous flaky clouds.
26	67½	73½	75½	N. W. to W. Eveng.	Morning fine, cool, blowing strong from N. W. Evening, cirrustratus, nimbus, Slight rain, lightning observed in various directions.
27	70½	73	74½	W. to E. light airs.	Morning dull and mild. Noon overclouded. Evening nimbus to W. and S.
28	71½	74½	Nt.	E. veering to W. S. W.	Cloudy to S. slight rain, 8 A. M. Evening cloudy and cool.

The maximum of temperature, during the month, at noon was $78\frac{1}{2}^{\circ}$ of No. 1. thermometer, its minimum 64° : the highest point of temperature occurred on the evening of the 21st, being $80\frac{1}{2}^{\circ}$ succeeding to squally unsettled weather.

No. 2. ranged from $61\frac{1}{2}^{\circ}$ to $76\frac{1}{2}^{\circ}$ at noon, making a variation of range, in both thermometers, from 64° to $78\frac{1}{2}^{\circ}$ in the former, and from $61\frac{1}{2}$ to $76\frac{1}{2}$ in the latter.

This month has been generally mild for the season.

Strong gales blew on three different days, viz. 9th, 10th, and 11th.

Rain more or less on seven different days, viz. on the 8th, 9th, 10th, 11th, 22d, 26th, and 28th instant

A fall of hail on the morning of the 10th instant, followed by continued stormy weather for two days.

The atmospheric and meteoric phenomena that have come within observation, are:—Lightning and thunder on three different days, viz. on the 8th, 10th, and 11th. Lightning on three different nights, viz. 9th, 16th, and 26th, over the mountains situated in a S. E. direction from the cantonments; and three gales of wind, or days on which they have prevailed, viz. two from E. and one from N. W.

Summary of the Weather.

Rain more or less on seven different days out of 28. Six days of overcast sky without rain; and the remaining 15 days fine, with various modifications of clouds.

Scale of the Prevailing Winds.

W.	9	E.	7	S. E.	1	} Total 28 days.
N. W.	6	N. E.	1	S. W.	4	

The variations of temperature were less remarkable in this month. Westerly winds, with slight variations, chiefly prevailed.

The state of the hospitals, during this month, was more favourable. Diseases dependent on locality and the season, were less frequent and aggravated, in their symptoms and effects, than in the previous month, and the number of admissions proportionately on the decrease.

But few cases of fever presented among the sepoys; though the grasscutters continued liable to the effects of atmospherical influence: the diseases among them were generally violent; but there was less tendency to visceral congestion or relapse.

Rheumatism in the chronic form prevailed; frequently occurring in persons who had either suffered long ill health, or coming on insidiously after a severe attack of fever; and particularly remarked in those cases where local determinations had prevailed, and in such aggravated in its course by obstinate dyspeptic symptoms, general muscular debility, and marasmus.

The remedies usually applicable in rheumatic cases, were found uniformly injurious in these. Treatment for the establishment of the general health was indicated, and commonly successful.

Date	Height of Thermometer.			Sun set.	Prevailing Wind.	REMARKS.
	Sunrise.	Noon.	Sun set.			
1	66½	68½	67	69	Morning N. W. to W. in evening.	Morning clear, cold. Noon do. cold wind blowing from N. W. betokening rain to have fallen near. Temperature fallen 5½ degrees since yesterday.
2	61½	66	65	67½	7 P. M.	Morning S. W. veering to N. W. Noon clear, ventus. Evening fair, cirrus.
3	62	67½	66	70	Ditto, ditto.	Morning wind again from N. W. cold. Evening cirrocumulus. to N.
4	63	70	69	72½	W. to S. W.	Morning (cirrus.) Noon do. Evening cumulus. to W.
5	64½	71	69½	71½	West.	Morning foggy, fair alternately. Noon overcast. Evening mild, cirrocumulus.
6	68	75½	74½	77	S. E. to E. noon.	Dull day, frequently overclouded, clouds to N. and W. (cirrus. cumulus.)
7	70	77	76	78½	East, Ch.	Overclouded and fair alternately. Slight showers at 5 P. M. also to N. and W.
8	68½	76½	75	78½	S. W. to W. noon.	Morning clear. Noon blowing fresh from W. (cirrus.) 4 P. M. overclouded.
9	68	77	75½	75½	N. W.	Morning cool and pleasant. Evening thin flaky clouds.
10	67½	76	76	76	West, Variable	Morning clear pleasant day. Evening slight clouds, (cirrus.)
11	69	73½	71	72½	West.	Ditto ditto ditto.
12	66	72½	72	72	West.	Ditto ditto ditto.
13	67½	77	76	75	S. W. Variabl.	Morning mild; pleasant day.
14	67	72½	71½	73½	E. to N. E. noon.	Morning cumulostratus to N. and E. Do. noon and evening.
15	70½	75½	74	71	N. E.	Morning cumulus. nimbus. Overclouded, 2 P. M. like rain. Lightning to N. and E. in evening, squally wind from N. E.
16	69	72	71	69½	N. W.	Morning heavy dew fallen. Noon alternately fair and cloudy. Evening cloudy.
17	68	71½	70½	72½	S. W. to N. E.	Ditto ditto. Sky frequently overclouded. Slight fall of rain in evening.
18	71½	75½	74½	76	N. E. mornng. to E.	Cumulostratus to S. and W. morning. Dull cloudy day. Evening sultry.
19	71	74	73	75	E. to N. E.	Morning generally overcast and sultry, and frequent spitting of rains.
20	72½	76	75	73	N. E. Variable	Morning dull. Sultry, overcast day. Evening clear to W.
21	71	76	75½	77½	East, Ch.	Morning dull, cloudy. Noon overcast, (cumulus.) Evening mild.
22	70	78	77	77	S. E. Ch.	Ditto ditto ditto.
23	72½	79	77½	78	10 P. M. do.	Morning cirrustratus. Winds appeared to have set in from W. S. W.
24	73½	84	83	80	9 P. M. S. W.	Less cloudy, and attended by proportionate changes in the occurrence of rheumatism, &c.
25	73	81	80½	83	Ditto.	Morning, (cirrus.) do.
26	72½	84	83	88	West.	(Ventus,) dew generally plentiful.
27	77½	86½	85½	89	Ditto.	

1. The maximum of temperature during this month at noon, was $86\frac{1}{2}^{\circ}$ of No. 1. thermometer ; and its minimum 66° . The highest point of temperature occurred in the evening of the 27th, being 89° .

2. No. 2. ranged from 65° to $85\frac{1}{2}^{\circ}$ at noon : making a variation of range in both thermometers, from 66° to $86\frac{1}{2}^{\circ}$ in the former, and from 65° to $85\frac{1}{2}^{\circ}$ in the latter.

3. Weather generally varying during the month, with frequent overcast days, until the latter part. The wind becoming arising from W. S. W.

4. But little rain has fallen this month : dew, however commonly plentiful.

5. Lightning on the evening of the 15th, observed to N. and E.

Summary of the Weather.

Rain more or less on three different days, viz. on the 7th, 17th, and 19th ; eight days of overcast sky, without rain ; and the remaining 16 days fine, with various modifications of clouds.

Scale of the Prevailing Winds.

West.	8	East.	4	} Total 27 days.
N. W.	4	N. E.	5	
S. W.	4	S. E.	2	

Rheumatic metastasis prevailed to an unusual degree, in the past month. The winds chiefly prevailed from the W. but, in varying, generally from the N. E. direction, by which the sufferings of persons liable to affections of this nature became increased to a remarkable degree.

The disease generally existed in the membranous investments of the joints ; varying in the course of the large muscles and tendons of the extremities ; commonly attacking those persons reduced by previous long illness, or before subject to the variations of the climate : and several cases presented in the hospital of the 6th Cavalry, of the sub-acute form, with fever, in persons who had suffered recent attacks of dysentery or diarrhœa.

The digestive functions partaking of the excitement, and rendered active or passive according to the degrees of suffering.

Donations for the Library.

<i>Donors.</i>	<i>Donations.</i>
W. BELL, ESQ. . .	{ A Drawing of a singular <i>Lusus Naturæ</i> in the dog.
ASIATIC SOCIETY. . .	{ Eight volumes of the Asiatic Researches.
DR. J. SWINEY. . .	{ Pliny's <i>Historia Naturalis</i> , 1 vol. folio.
J. F. HODGSON, ESQ. . .	{ A copy of his work on the Art of preserving and defending the Foot of the Horse, together with a cast of the hoof, and model of the shoe recommended by him.
DR. HARLAN. . .	{ A copy of Harlan's <i>Fauna Americana</i> .
DR. VOSS. . .	{ A Translation into Dutch of Fleming's Catalogue of Indian Medicinal Plants, with their names in the Malay language.
DR. WALLICH. . .	{ Two Numbers of his <i>Flora Napalensis</i> .
MESSRS. UNDERWOOD & Co. LONDON. . .	{ Two Numbers of the London Medical Repository.
W. BELL, ESQ. . .	{ Two Drawings, one of a diseased Hand and Forearm, and the other of a Tumor on the Face of a Native.
DR. A. DUNCAN, jun. EDINBURGH. . .	{ A complete set of the Edinburgh Medical and Surgical Journal, from its commencement.
H. CLARK, ESQ. . . .	{ A Drawing of a Tumor on the Eye of a Native child.
J. GRANT, ESQ. . . .	{ De Legarde on Cataract. Johnson's Treatise on the Liver, &c. Do. on Gout. Dr. Cooke on Palsy. Charles Bell's Dissertations on Gunshot Wounds. Dr. Duncan on Consumption.

For the Museum.

<i>Donors.</i>	<i>Donations.</i>
DR. J. ADAM. . .	{ A Calculus, extracted by the lateral operation from a Native boy 4½ years old.
DR. J. ADAM. . .	{ Two Skulls of Natives, the one remarkable for the extreme development of the organ of Caution, and the other being wholly devoid of it.
W. THOMAS, Esq. . .	{ A preparation of a Tumor in the Liver.
G. ANGUS, Esq. . .	{ A singular corneous-like Tumor, extirpated from the Arm of a Native.
J. HUTCHESON, Esq. . .	{ A preparation of a Tumor, extirpated from the Face of a Native.
J. PIDDINGTON, Esq. . .	{ Specimens of a preparation from the Neem Tree, termed Sulphate of Azedirine.
G. MCPHERSON, Esq. . .	{ A preparation of a fungous Tumor, extirpated from a Native.
W. MONTGOMERY, Esq. . .	Two specimens of Sea Sponge.

