A memoir on amputation of the thigh at the hip-joint (with a successful case) / [William Sands Cox].

Contributors

Cox, William Sands, 1802-1875.

Publication/Creation

London : Reeve & J. Churchill, 1845.

Persistent URL

https://wellcomecollection.org/works/g4ps85fu

License and attribution

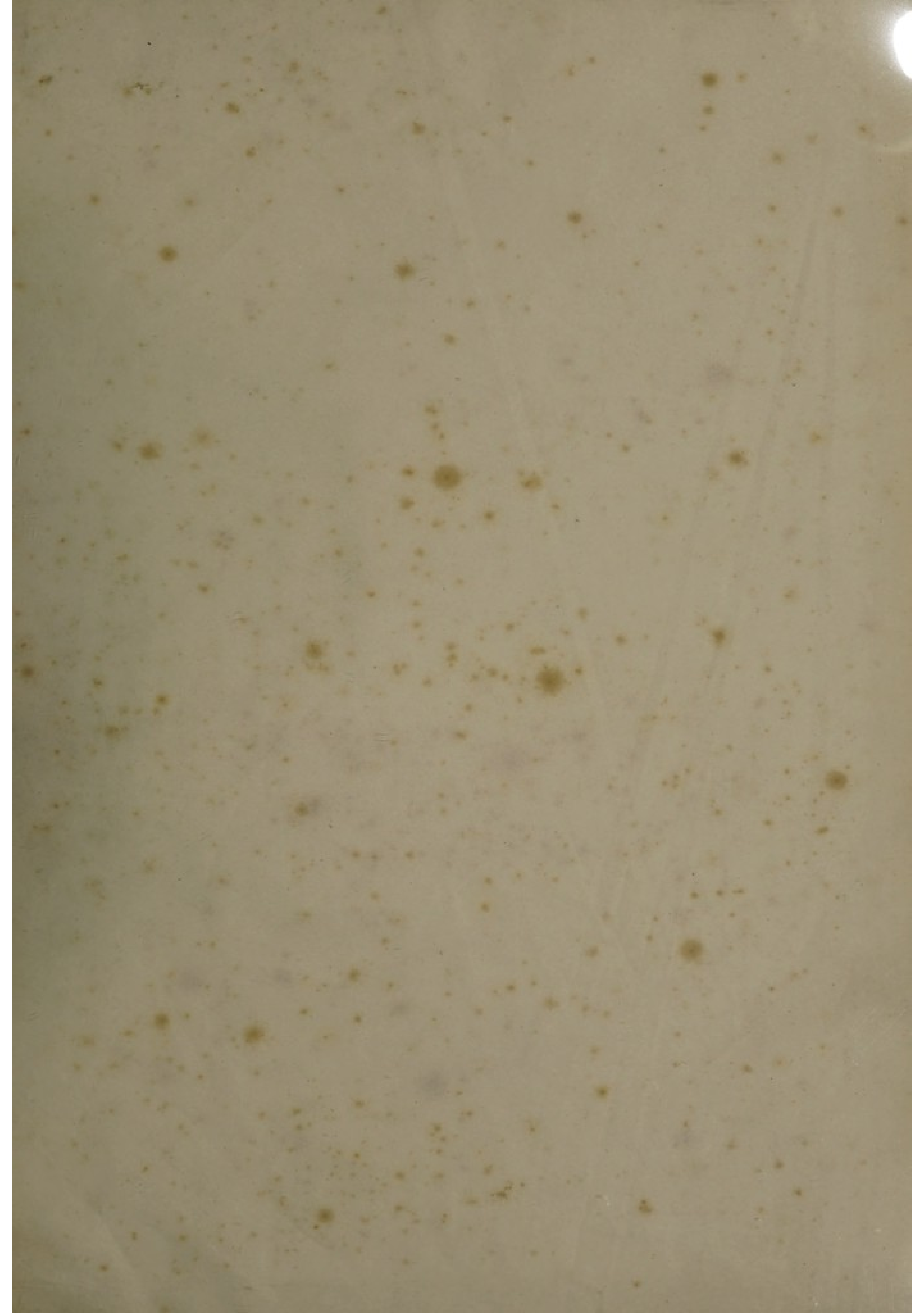
This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

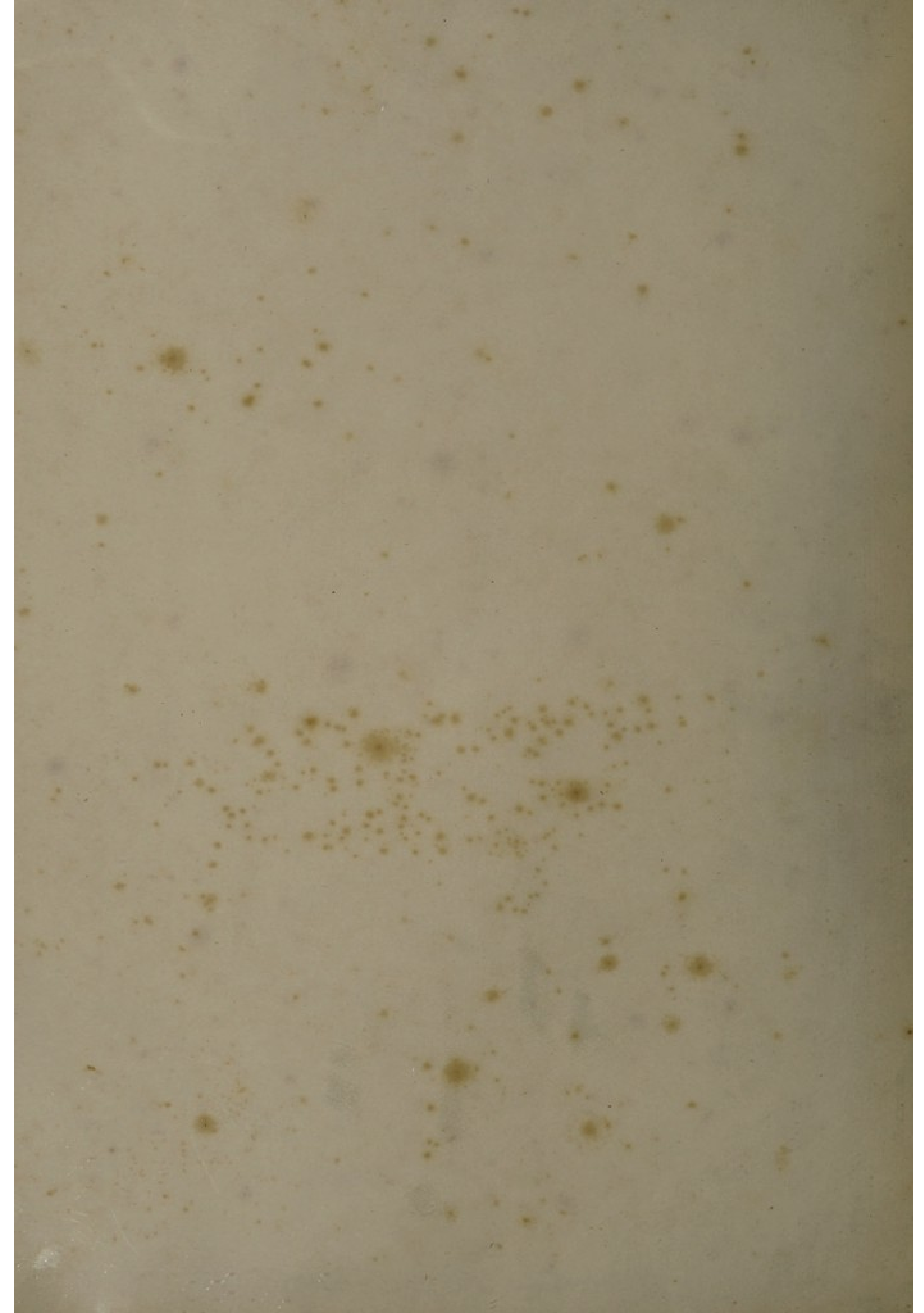
You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

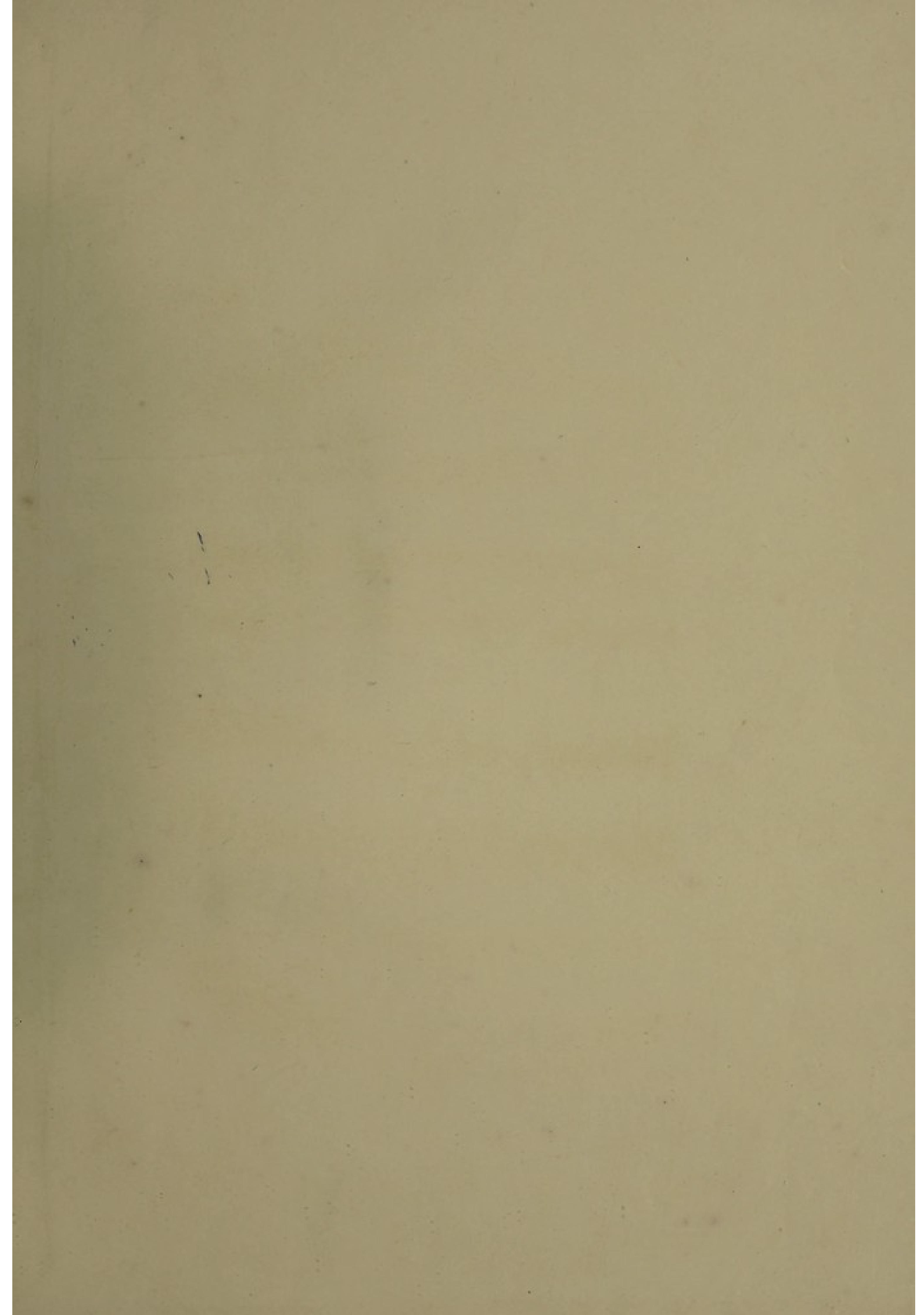
Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

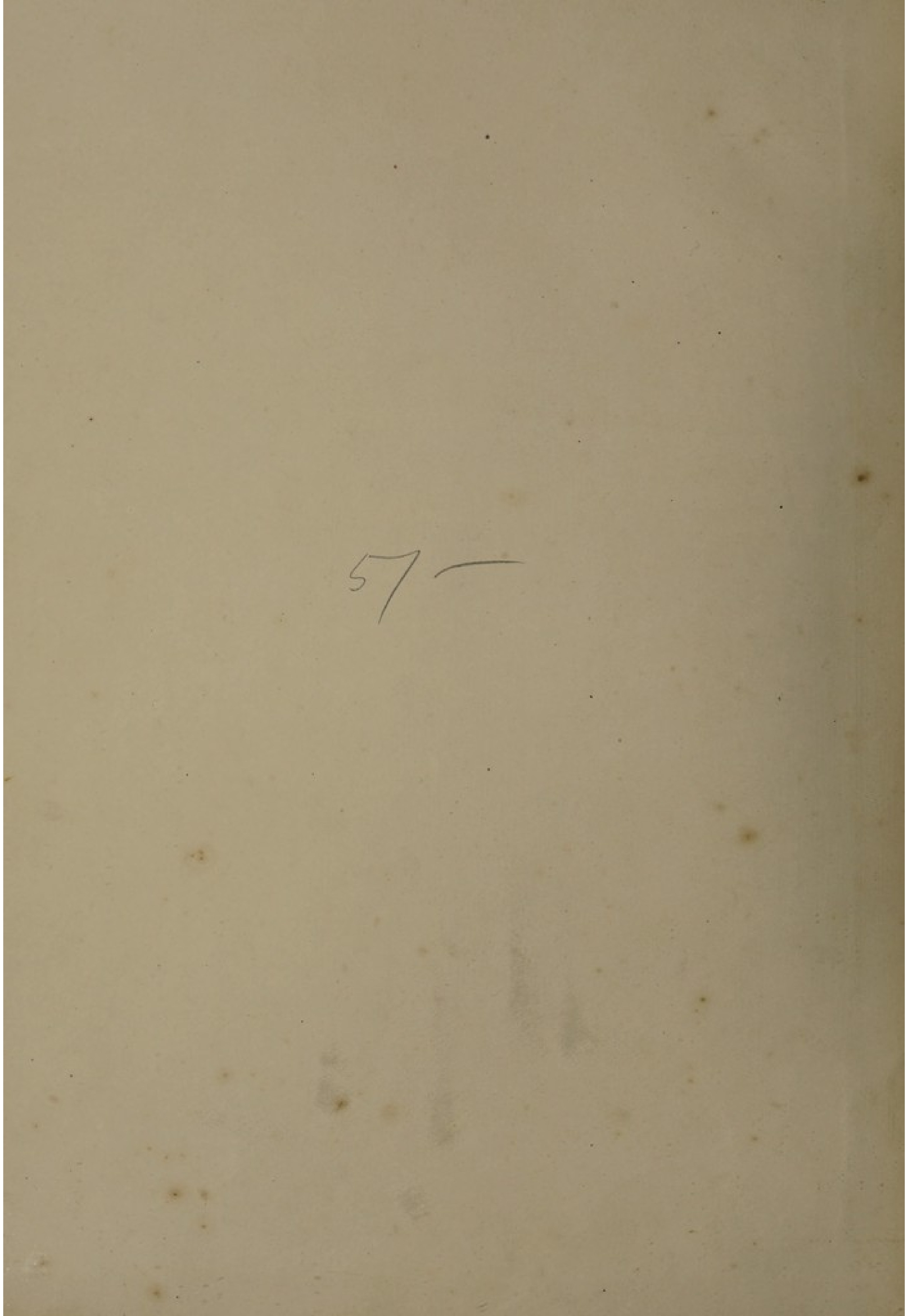
COX
ON
AMPUTATION
AT THE
HIP-JOINT.

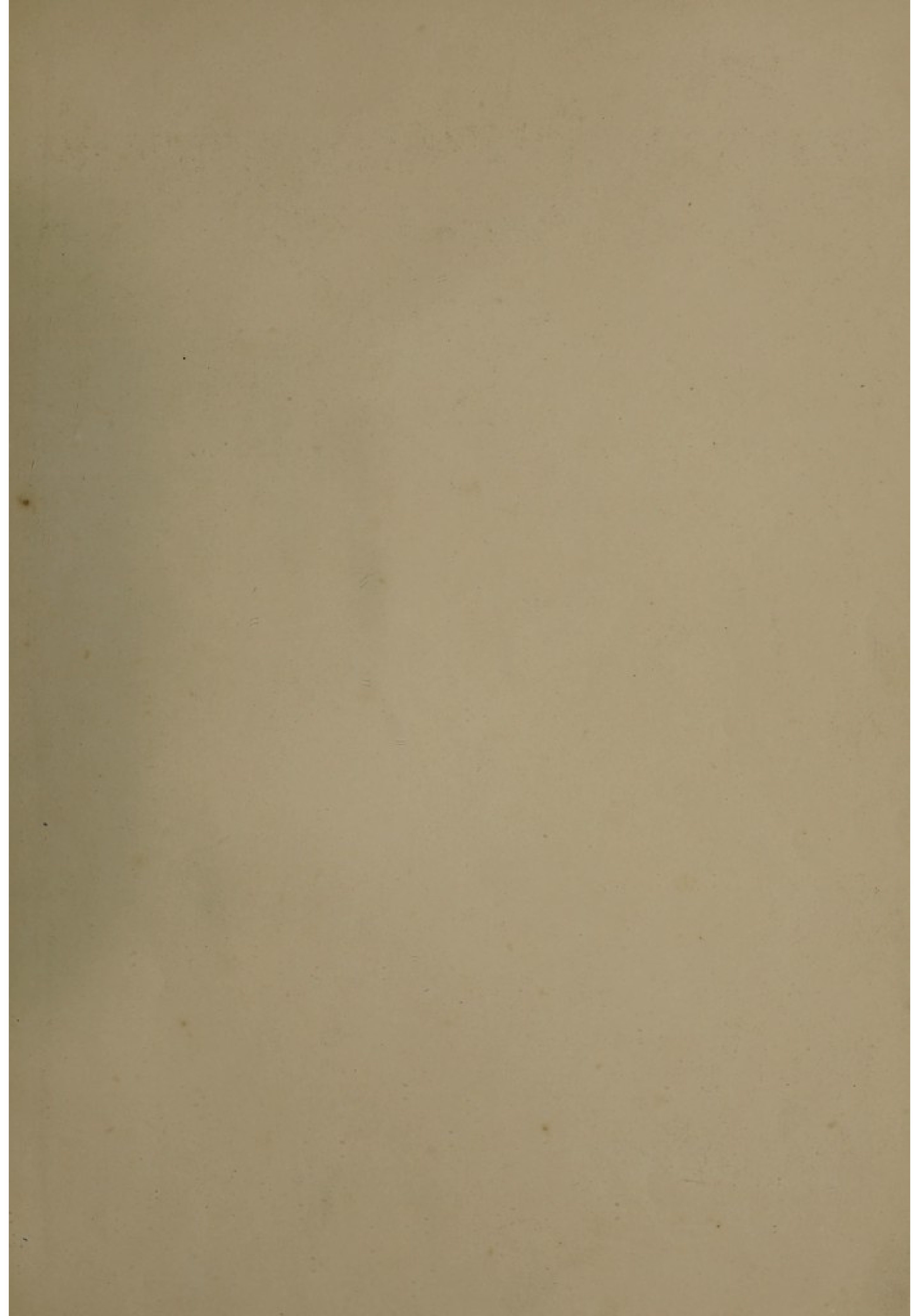
H. XXVII c
19











Bradley, del. Leonard lith. *Reeve, Brothers imp.*

A

MEMOIR

ON

AMPUTATION OF THE THIGH,

AT THE

HIP-JOINT,

(*WITH A SUCCESSFUL CASE*)

BY

WILLIAM SANDS COX, F.R.S.,

FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; DEAN OF THE FACULTY OF QUEEN'S COLLEGE, BIRMINGHAM; SENIOR SURGEON OF THE QUEEN'S HOSPITAL; PROFESSOR OF ANATOMY AND SURGERY AT QUEEN'S COLLEGE; MEMBER OF THE CHEMICAL SOCIETY OF LONDON; HONORARY MEMBER OF THE ROYAL STATISTICAL SOCIETY OF FRANCE, ETC.

Cuncta prius tentanda: sed immedicabile vulnus
Ense recidendum; ne pars sincera trahatur.

OVID MET.

LONDON:

PUBLISHED BY REEVE, BROTHERS, KING WILLIAM STREET, STRAND; AND JOHN CHURCHILL, PRINCES STREET, SOHO.

1845.

REEVE, BROTHERS,
PRINTERS AND LITHOGRAPHERS OF SCIENTIFIC WORKS,
KING WILLIAM STREET, STRAND.

TO

JAMES THOMAS LAW, M.A.,

Chancellor of the Diocese of Litchfield,

VICE-PRINCIPAL OF THE QUEEN'S COLLEGE AT BIRMINGHAM, ETC., ETC.,

UNDER WHOSE AUSPICES

THE QUEEN'S HOSPITAL

WAS UNDERTAKEN,

THIS MEMOIR

IS INSCRIBED

AS A SINCERE, THOUGH HUMBLE TESTIMONY, OF HIS VALUABLE COUNSEL

AND

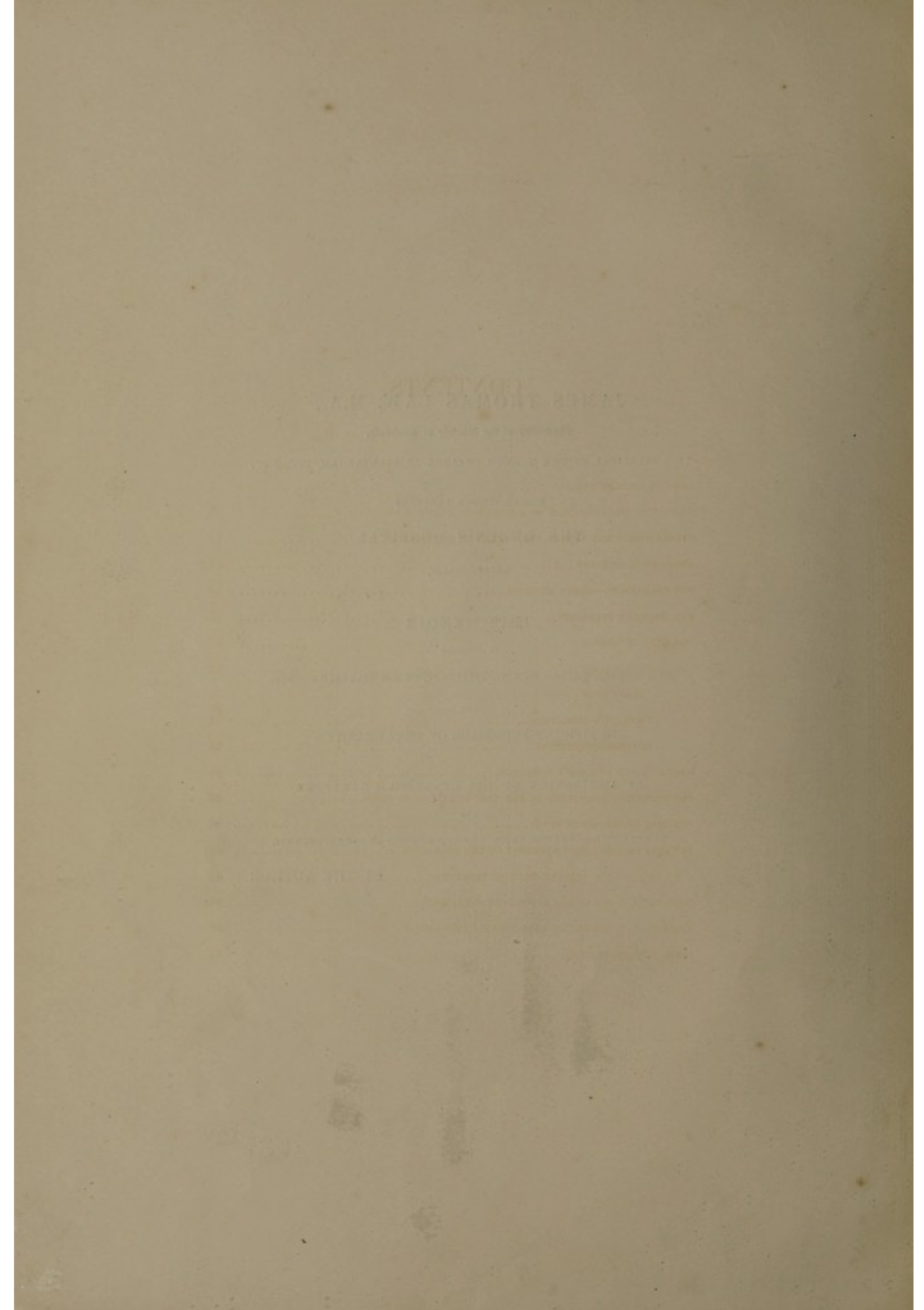
MUNIFICENT PATRONAGE OF THAT CHARITY,

IN ADMIRATION OF HIS GENEROUS CHARACTER

AND

IN GRATEFUL ACKNOWLEDGMENT OF THE HONOUR OF HIS FRIENDSHIP,

BY THE AUTHOR.



CONTENTS.

THE LIST OF SUBSCRIBERS 1

HISTORY OF THE OPERATION OF AMPUTATION AT THE HIP-JOINT 5

CAUSES WHICH MAY RENDER THE OPERATION JUSTIFIABLE 15

ANATOMICAL REMARKS 17

THE OPERATIONS—THREE METHODS 19

THE CIRCULAR OPERATION . . . . . *ib.*

THE OVAL OPERATION 20

THE FLAP OPERATION 21

LARREY'S OPERATION . . . . . *ib.*

LISFRANC'S OPERATION 22

GUTHRIE'S OPERATION 23

BAUDEN'S AND BECLARD'S OPERATION 25

THE OPERATION PERFORMED IN THE CASE OF ELIZABETH POWIS 26

THE CASE OF ELIZABETH POWIS 30

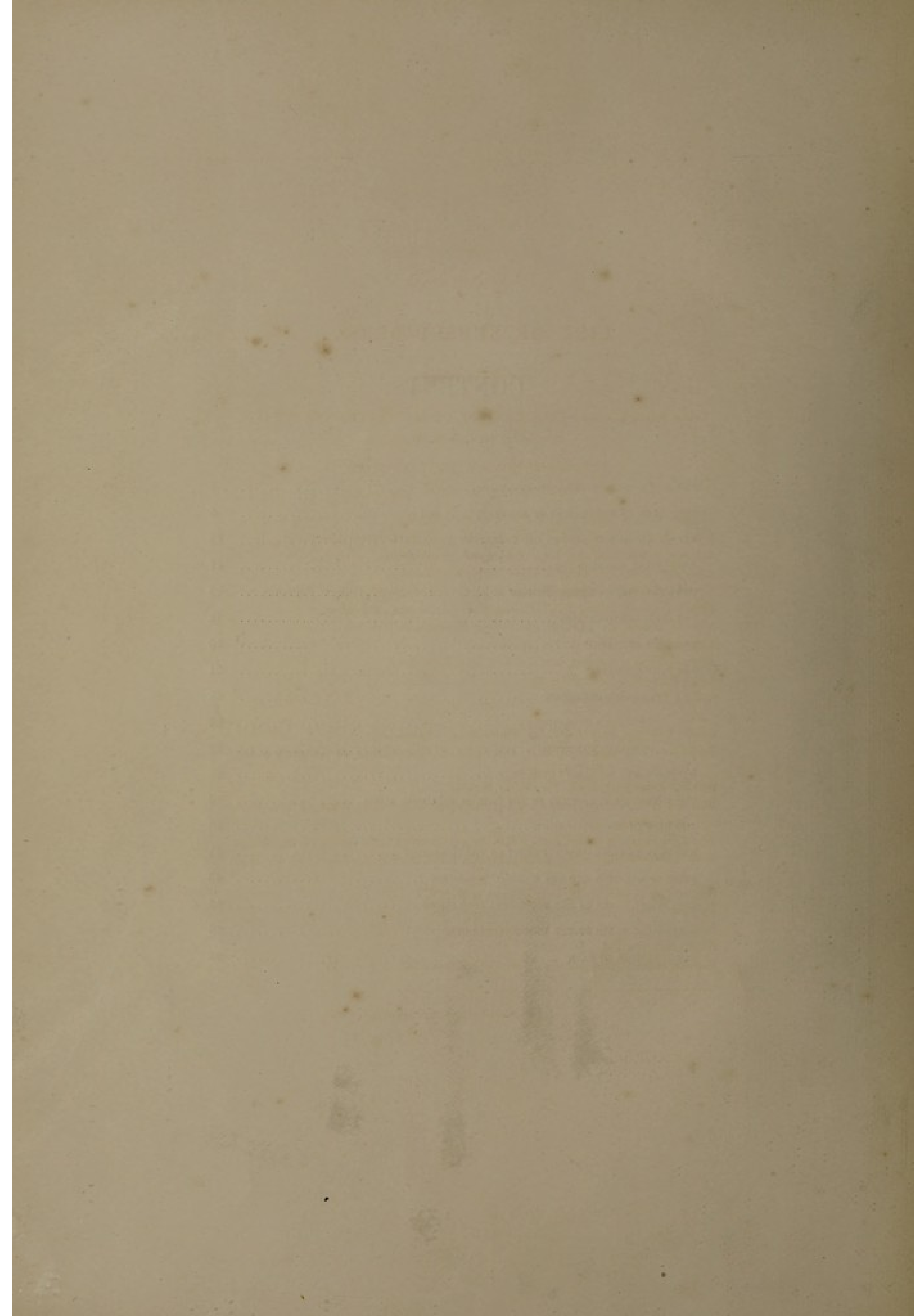
REMARKS ON THE CASE—NECESSITY OF THE OPERATION 41

MODE OF DRESSING AND THE MEDICAL TREATMENT 43

STATISTICAL TABLE OF THE SUCCESSFUL OPERATIONS 45

STATISTICAL TABLE OF THE UNSUCCESSFUL OPERATIONS 46

TOTAL NUMBER OF CASES 47



LIST OF SUBSCRIBERS*.

His Royal Highness PRINCE ALBERT, OF SAXE-COBURG AND GOTHA,
President of the Queen's Hospital.

THE RIGHT HONOURABLE EARL HOWE,
Vice-President of the Queen's Hospital.

Adderley, Charles Boyer, Esq., M.P., *Hams Hall, Coleshill.*
Anson, George Edward, Esq., Private Secretary to H. R. H. Prince Albert.
Annesley, Arthur Lyttleton, Esq., *Arley Castle, Staffordshire.*
Allen, Rev. John, Incumbent of *Upper Arley*, near *Bewdley.*
Armfield, Edward, Merchant, Member of the Council of Queen's College, *Edgbaston.*
Arnold, Benjamin North, MD. Coll. Reg. Med. Edin. Socius, *Atherstone.*
Attwood, George, Esq., Banker, *The Priory, Edgbaston.*
Attwood, Thomas, Esq., Banker, *Harborn.*
Attwood, Thomas Aurelius, Gent., *Hawn, near Hales Owen.*
Aston, John, Merchant, *Wharstone House, Birmingham.*
A. J., a Friend, *Stourbridge.*

Bradford, George, Earl of, D.C.L., *Weston Park, Staffordshire.*
Burlington, William, Earl of, M.A., F.R.S., F.G.S., Chancellor of the University of London, *Hardwick Hall, Derbyshire.*
Brooke, George Guy, Lord, *The Castle, Warwick.*
Bath and Wells, George Henry Law, Lord Bishop of, DD., F.R.S., F.S.A., F.L.S., *Wells, Somersetshire.*
Brodie, Sir Benjamin Collins, Bart., F.R.S., Serjeant-Surgeon to the Queen, 14, *Saville Row.*
Botfield, Beriah, Esq., M.P., F.R.S., F.S.A., F.R.A.S., F.G.S., F.L.S., *Norton Hall, Northamptonshire.*
Bracebridge, Charles Holte, Esq., *Atherstone Hall.*
Bacchus, John O., Dartmouth Works, *Birmingham.*
Bacchus, William, Dartmouth Works, *Edgbaston.*
Badger, Thomas, Esq., *Dudley.*
Bagnall, James, Ironmaster, *Gold's Hill, West Bromwich.*

---

* For the benefit of the poor patient.

LIST OF SUBSCRIBERS.

Bagnall, Thomas, Ironmaster, *Gold's Hill, West Bromwich.*

Baldwin, William, Esq., *Bilston.*

Barnett, David, Merchant, Member of the Committee of Council of the Queen's Hospital, *Birmingham.*

Barnett, Richard, Surgeon, *Stourport.*

Barrett, Rev. John Casebow, M.A., Incumbent of St. Mary's, *Birmingham.*

Beaumont, William, M. Birmingham Banking Company, *Birmingham.*

Beddington, William, junior, Merchant, *Birmingham.*

Bellairs, Rev. Henry, M.A., Vicar of Hansingore, Rector of Bedworth, near *Coventry.*

Bennett, William, Esq., *Portway Hall, Dudley.*

Best, Norris, Surgeon, *Bilston.*

Best, Benjamin, Ironmaster, *Withymore, Dudley.*

Bird, Richard, Surgeon, *Tamworth.*

Bolton, Thomas, Esq., *Edgbaston.*

Bradley, Henry, Esq., *Leamington.*

Bradley, Richard, junior, Ironmaster, *Tipton Hall, Dudley.*

Bree, Rev. William T., M.A., Rector of Allesley, near *Coventry.*

Bourne, James, Esq., High Bailiff of Birmingham, Member of the Committee of the Queen's Hospital, *Edgbaston.*

Bourne, William, Gent., *Ashsted, Birmingham.*

Bray, Solomon, Solicitor, Town Clerk, *Birmingham.*

Burman, H. F., L.M., (Cantab), *Henley-in-Arden.*

Busby, James, Gent., *Edgbaston.*

B. T., "A Friend," *Birmingham.*

Clarendon, William Frederick Villiers, Earl of, *Grove Park, Herts.*

Craven, William, Earl of, *Coombe Abbey, Warwickshire.*

Calthorpe, George, Lord, *Elvatham Park, Hants.*

Clarke, Sir James, Bart., M.D., F.R.S., Coll. Reg. Med. Socius., Physician to the Queen, 22, *Brook Street.*

Clarke, Sir Charles Mansfield, Bart., M.D., F.R.S., Coll. Reg. Med. Socius., *Wiggington Lodge, Tamworth.*

Cooper, Thomas Beale, M.D., *Mansion House, Bengworth.*

Clive, Rev. Archer, M.A., Rector of Solihull, *Solihull.*

Cooke, Rev. George Leigh, B.D., Professor of Natural Philosophy, Oxford, Vicar of Rissington, Perpetual Curate of Honningham, Vicar of Cubington, near *Leamington.*

Cox, Rev. Thomas, D.D., Rector of Atherstone and Oxhill, near *Stratford-on-Avon.*

Cox, Rev. Thomas, M.A., Rector of Kimcote, near *Lutterworth.*

Cox, Edward Townsend, Esq., Honorary Surgeon of the Queen's Hospital, *Birmingham.*

Cartwright, Cornelius, Esq., *Dudley.*

Chance, Robert Lucas, Merchant, *Summerfield House,* near *Birmingham.*

Chance, William, Esq., Merchant, *Springfield House, Birmingham.*

Chaplain, T. C., Solicitor, *Birmingham.*
Clarke, Richard Ogle, Merchant, *Birmingham.*
Colmore, Thomas, Solicitor, *Birmingham.*
Crake, William, Esq., *London.*

Dartmouth, William, Earl of, D.C.L., F.R.S., F.A.S., Member of the Committee of Council of Queen's College, *Sandwell Park, Staffordshire.*
Davies, Sir David, Knight, Physician to the Queen Dowager.
Dugdale, William Stratford, Esq., M.P., *Merevale Park, Atherstone.*
Dyott, General, *Freeford,* near *Lichfield.*
Dobson, Sir Richard, Knight, F.R.S., *Royal Hospital, Greenwich.*
Davies, John Birt, Esq., M.D., Professor of Forensic Medicine, Queen's College; Senior Physician of the Queen's Hospital, *Birmingham.*
Davies, Thomas, Ironmaster, *The Austins, Handsworth.*
Dawes, Samuel, Ironmaster, *The Leveretts, West Bromwich.*
Dawes, John S., Ironmaster, *West Bromwich.*
Downes, Thomas, Gent., *Hillsborough Terrace, Ilfracombe.*
Drury, George, Architect, *Birmingham.*

Eccles, John, M.D., Professor of Medicine, Queen's College; Physician to the General Hospital, *Birmingham.*
Edwards, Lieut. Col. Richard, R.M., *Barracks, Plymouth.*
Ellis, Rev. John, M.A., Vicar of Wootton Warwen, near *Stratford-on-Avon.*

Fitzwilliam, Charles William, Earl of, F.R.S., F.S.A., F.G.S., *Milton Park, Northamptonshire.*
Finch, The Hon. and Rev. Charles, M.A., Vicar of Great Packington and Meriden, near *Coventry.*
Forster, Charles, Esq., High Sheriff of the County of Stafford, *Hampstead Hall,* near *Walsall.*
Forster, John, Esq., Banker, *Walsall.*
Foley, John Hodgetts Hodgetts, Esq., *Prestwood Hall, Stourbridge.*
Fenwick, Rev. G. O., M.A., Rector of Rearsby, Vicar of Aston, near *Birmingham.*
Fereday, Dudley, Esq., *Ettingshall Park,* near *Wolverhampton.*
Firmstone, George, Ironmaster, *Lawnswood,* near *Stourbridge.*
Foster, James, Esq., Ironmaster, *Stourton Castle,* near *Stourbridge.*
Freer, William, Gent., *Atherstone.*
Frith, Frederick, Esq., *Manor House, Appleby.*

Gough, The Hon. Frederick, *Perry Hall,* near *Walsall.*
Guest, Edwin, Esq., F.R.S., 4, *King's Bench Walk, Temple,* and *Edgbaston,* near *Birmingham.*

Gale, Charles T., Esq., *London.*
Gwynne, William Cust, M.D., Physician to the Coventry Hospital, *Coventry.*
Gisborne, Rev. Thomas, M.A., Canon of Durham, *Yoxall Lodge,* near *Lichfield.*
Gwyther, Rev. Henry, M.A., Vicar of Yardley, near *Birmingham.*
Greswolde, Henry, Esq., *Malvern Park, Warwickshire.*
Greenway, Kelynge, Esq., *Warwick.*
Gammon, Thomas, Belmount Works, *Birmingham.*
Geach, Alderman Charles, M. Birmingham and Midland Bank, *Birmingham.*
Gem, Roger William, jun., Solicitor, *Birmingham.*
Gibbons, John, Gent., *Westbourne Road, Edgbaston.*
Griffin, James, Gent., *Hagley Road Edgbaston.*
Griffiths, Henry M., Solicitor, *Birmingham.*

Hatherton, Edward, Lord, *Teddesley Park, Staffordshire.*
Howard, The Hon. and very Rev. Henry, D.D., Dean of Lichfield, *Donnington Rectory.*
Hill, Matthew Davenport, Esq., Q.C., Recorder of Birmingham, *London.*
Haines, Samuel, Member of the Committee of Council of the Queen's Hospital, *Chad House,* near *Birmingham.*
Haines, William, Solicitor, *Birmingham.*
Hall, John, Esq., *Tamworth.*
Hasluck, Richard, Merchant, *Birmingham.*
Husluck, Richard, jun., Merchant, *New York, United States.*
Hately, Joseph, Gent., *The Limes,* near *Walsall.*
Hebbert, John B., Solicitor, *Birmingham.*
Hinchcliffe, George, Esq., Solicitor, *West Bromwich.*
Hoddinott, William, Gent., *Edgbaston.*
Homer, John, Gent., *Edgbaston.*
Homphray, Daniel, Ironmaster, *Whitley Lodge, Stourbridge.*
Hutchinson, Richard, M.D., Physician to the Nottingham Hospital, *Nottingham.*

Ingleby, Clement, Solicitor, *Cannon Hill,* near *Birmingham.*

Johnstone, Edward, M.D., Principal of Queen's College, Birmingham, *Edgbaston Hall.*
Johnstone, James, M.D., Coll. Reg. Med. Socius., Senior Physician of the General Hospital, Professor of Materia Medica, Queen's College, *Birmingham.*
Jacot, William, Merchant, *Newhall, Sutton.*
Jephson, Henry, Esq., M.D., *Leamington.*
Johnson, Thomas, Esq., *Lichfield.*

Kennedy, Rev. Rann, M.A., Incumbent of St. Paul's, Birmingham, *Yardley.*
Kennedy, Hartley, Esq., late Physician-general, Bombay, *Emscote House, Leamington.*
Kimberley, James, Gent., *Edgbaston.*

King, Bolton Edward, Esq., *Umberslade Park, Warwickshire.*

Lansdowne, Henry, Marquis of, D.C.L., F.R.S., Trust. Brit. Mus., M.R.L.S., 52, *Berkeley Square.*

Lyttelton, George William, Lord, F.R.S., Lord Lieut. and Custos Rotul. of Worcestershire, *Hagley Park, Stourbridge.*

Leigh, Chandos, Lord, *Stoneleigh Abbey, near Coventry.*

Lichfield, John Lonsdale, D.D., Lord Bishop of, *Eccleshall Park, Staffordshire.*

Lawley, Sir Francis, Bart., *Middleton Park, Warwickshire.*

Landor, Rev. C. Wilson, M.A., Incumbent of *Over-Whitacre.*

Lawson, Rev. William M., M.A., Incumbent of Moseley, Professor of Mathematics, Queen's College, Birmingham, *Moseley.*

Lewis, Edward, jun., Solicitor, *Birmingham.*

Lishman, R. Wilson, Esq., Surg. Roy. Staff. Yeom. Cavalry, *Lichfield.*

Louis, H. T., Merchant, *Birmingham.*

Lloyd, Samuel, Esq., Banker, Member of the Committee of Council of the Queen's Hospital, *The Farm,* near *Birmingham.*

Lloyd, William, M.D., *The Farm,* near *Birmingham.*

Lucy, Rev. John, M.A., Rector of Hampton Lucy, Vicar of Charlecote, near *Stratford-on-Avon.*

Mordaunt, Sir John, Bart., M.P., *Walton Park, Warwickshire.*

Muntz, George Frederick, Esq., M.P., *Ley Hall, Staffordshire.*

Marsh, Rev. William, D.D., *Leamington.*

Moseley, Rev. Thomas, M.A., Rector of the Parish of Birmingham, *Rectory, Birmingham.*

Mendham, Rev. R. Riland, M.A., *Sutton Coldfield.*

Melson, J. B., Esq., M.B., M.A., F.R.C.P.S., Physician Queen's Hosp., Prof. of Natural Philos., Queen's College, *Birmingham.*

Moorson, Capt. Constantine, R.N., *Highfields,* near *Birmingham.*

Matthews, Alderman William, Esq., Member of the Committee of Council of the Queen's Hospital, *Edgbaston.*

Moilliet, James, Esq., Banker, *Selly Hall,* near *Birmingham.*

Moore, George, Surgeon, *Moreton-in-Marsh.*

Moore, John, Surgeon, *Blessington, Gloucestershire.*

Moore, Edward, Esq., Surgeon, *Townsend House, Hales Owen.*

Motteram, James, Solicitor, *Birmingham.*

Middleton, Edward, Gent., *Edgbaston.*

Mabson, John, Gent., *Birmingham.*

Mabson, William, Merchant, *Edgbaston.*

Molineux, C. H., Esq., Banker, *Dudley.*

Middlemore, William, Merchant, *Birmingham.*

Meredith, John, Gent., *Eastnor Terrace, Leamington.*

Mason, Thomas, Gent., *Stratford-on-Avon.*

Newdigate, Charles Newdigate, Esq., M.P., *Arbury Hall*, near *Coventry.*

Ogle, James Adey, M.D., F.R.S., F.R.A.S., Coll. Reg. Med. Socius., Lord Lichfield's and Aldrich's Prof. of Med., Oxford, *Oxford.*
Onslow, The Venerable R. F., D.D., Archdeacon of Worcester, *Newent, Gloucester.*
Oates, J. P., Esq., Assist. Surg. Roy. Staff. Yeomanry Cavalry, *Sutton.*
Osborn, William Henry, Member of the Committee of Council of the Queen's Hospital, *Birmingham.*

Peel, The Right Hon. Sir Robert, Bart., M.P., D.C.L., F.R.S., Trust. Brit. Mus., F.S.A., *Drayton Manor.*
Pigot, Sir Robert, Bart., *Patshull Park, Staffordshire.*
Peel, Edmund, Esq., *Bonehill House, Tamworth.*
Peel, Rev. John, M.A., Prebendary of Canterbury, Vicar of Stone, near *Worcester.*
Perkins, Shirley, Esq., *Sutton Coldfield.*
Pixell, Rev. Charles, M.A., Vicar of Edgbaston, near *Birmingham.*
Phillips, Thomas, Esq., Mayor of Birmingham, Member of the Committee of Council of the Queen's Hospital, *Edgbaston.*
Piercy, John Edward, Esq., Treasurer of Queen's College, *Warley Hall, Salop.*
Proud, Freer John, Surgeon, *Wolverhampton.*
Payn, John Brierley, High Constable of the Hemlingford Hundred, *Edgbaston.*
Peyton, Abel, Chemical Works, *Edgbaston.*
Pitt, Thomas, Surgeon, *Walsall.*
Phipson, J. Henry, Chemical Works, *The Lozells Grove*, near *Aston.*
Parkes, Thomas, Gent., *Bristol Road.*

Russell, Jesse Watts, D.C.L., F.R.S., F.S.A., F.L.S., F.G.S., *Ilam Hall, Staffordshire.*
Russell, William Congreve, Esq., *Leamington.*
Roberts, Rev. James C., M.A., Rector of Witherley and Wolston, near *Atherstone.*
Rowley, Thomas, Esq., M.D. *Lichfield.*
Richards, Josiah, Gent., *Edgbaston.*
Rawlins, John, Solicitor, *Ashley House, Handsworth.*
Reeves, J. Gibson, Merchant, *Moseley.*
Rotton, Henry, M. Nat. and Prov. Bank of England, *Birmingham.*
Room, Alderman William, Member of the Council of Queen's College, *Birmingham.*
Ricketts, Martin, Surgeon, *Droitwich.*
Reece, William Henry, Solicitor, *Birmingham.*
Rabone, Edward, Merchant, *Smethwick Hall.*
The Ratcliff Library, *Oxford.*

LIST OF SUBSCRIBERS.

Richards, Josiah, Gent., *Wellington Road, Edgbaston.*

Sutherland, George Granville, Duke of, Trust. Brit. Mus., Lord Lieut. and Cust. Rotul. of Shropshire, *Trentham Park, Staffordshire.*
Shrewsbury, John Talbot, Earl of, *Alton Towers, Staffordshire.*
Sandon, Dudley, Viscount, *Sandon Park, Staffordshire.*
Skipwirth, Sir Gray, Bart., *Newbold Park, Warwickshire.*
S. E. J., Esq., M.P., "A Friend."
Spooner, The Venerable William, M.A., Archdeacon of Coventry, *Elmdon.*
Steward, Lieut. Col., *Lansdowne Place, Leamington.*
Spooner, Richard, Esq., M.P., *Birmingham.*
Shaw, Charles, Esq., Merchant, *Highfield House, Edgbaston.*
Scholefield, Alderman William, Esq., Merchant, *London.*
Scholefield, Clement C., Esq., Merchant, *Birmingham.*
Suckling, John, Solicitor, Member of the Committee of Council of the Queen's Hospital, *The Ravenhurst, Birmingham.*
Shaw, James, Merchant, *The Grove,* near *Birmingham.*
Steward, John Burdett, M.D., Coll. Reg. Med. Socius., 21 *Gloucester Place,* and *Southall, Middlesex.*
Smith, Henry Smith, Esq., Merchant, *Highfields, Edgbaston.*
Smith, Bassett, M. Birmingham Town and District Banking Company, *Birmingham.*
Simcox, Thomas, Solicitor, *Birmingham.*
Smith, Rev. Jeremiah, D.D., *Leamington.*
Smith, Rev. John, M.A., *Astwood Bank, Redditch.*
Simpson, Charles, Esq., *Lichfield.*
Shore, Joseph, Wine Merchant, *Birmingham.*
Spurrier, William, Solicitor, *Birmingham.*
Sargant, William H., *Carpenter Road, Edgbaston.*
Smith, Richard, Ironmaster, *The Priory, Dudley.*
Shirreff, Rev. S. B., M.A., Rector of Berkeswell, *Berkeswell.*

Talbot, Charles Chetwynd, Earl of, K.P., F.R.S., F.S.A., Lord Lieut. and Cust. Rotul. of Staffordshire, *Ingestrie Hall,* near *Stafford.*
Throckmorton, Sir Robert, Bart., *Buckland Park, Wilts.*
Thomas, Rev. Vaughan, B.D., Vicar of Stoneleigh and North Yarnton, *Oxford.*
Townsend, Rev. E. J., M.A., Rector of Ilmington, near *Shipston.*
Tonyn, Rev. J. F., M.A., Rector of Alvechurch, near *Redditch.*
Turner, Rev. John, M.A., Rector of Hagley, near *Stourbridge.*
Travers, Benjamin, Esq., F.R.S., Surgeon Extraordinary to the Queen, 12, *Bruton Street.*
Taylor, James, Esq., *Moseley Hall, Worcestershire.*
Thornycroft, G. B., Ironmaster, *Wolverhampton.*
Tindall, Charles, Esq., M. Branch Bank of England, *Birmingham.*

Thompson, John, Esq., M.D., Physician to the Stratford-on-Avon Hospital, *Stratford-on-Avon.*

Taylor, Joseph, Surgeon, *Appleby.*

Thompson, Richard, Gent., *Bilston.*

Taylor, George, Surgeon, Member of the Committee of Council of the Queen's Hospital, *Birmingham.*

Upfill, Thomas, Merchant, Member of the Council of Queen's College, *Edgbaston.*

Underhill, William, Surgeon, *Tipton.*

Warwick, Henry, Earl Brooke and Earl of, K.T., D.C.L., Lord Lieut. and Cust. Rotul. of Warwickshire, *The Castle, Warwick.*

Ward, William, Lord, *Himley Park, Staffordshire.*

Wrottesley, John, Lord, F.R.S., *Wrottesley Park, Staffordshire.*

Worcester, Henry Pepys, D.D., Lord Bishop of, *Eccleshall Palace.*

West, James Roberts, Esq., High Sheriff for the County of Warwick, *Alscot Park.*

Warneford, Rev. Samuel Wilson, LL.D., Honorary Canon of Gloucester, *Bourton-on-the-Hill.*

Wolferstan, S. P., Esq., *Statfold Hall, Tamworth.*

Webster, Joseph, Esq., Member of the Council of Queen's College, *The Priory, Derby.*

Webster, Baron Dickenson, Esq., *Penns,* near *Sutton Coldfield.*

Wart, Alderman Van, Esq., Merchant, *Edgbaston.*

Weston, William Woods, Gent., *Stratford-on-Avon.*

Walton, Rev. Daniel N., M.A., *Handsworth.*

Wakefield, Rev. William, M.A., Vicar of Curdworth, near *Birmingham.*

Wilmot, Joseph Pratt, Esq., 3, *King's Bench Walk, Temple, London.*

Williams, John, Ironmaster, *The Friary, Handsworth.*

Whitfield, Thomas, Esq., Low Bailiff of Birmingham, *Edgbaston.*

Winfield, R. W., Merchant, *Birmingham.*

Wright, John, Gent., *Spark Brook House.*

Whittingham, John, Gent., *Ashsted House.*

W. J., F.R.S.

Williams, Phillip, Esq., Ironmaster, *Wednesbury Oak.*

Wilmshurst, John, Surgeon to the County Gaol, Warwick, and Dispensary, *Warwick.*

Welch, Thomas, Gent., *Bristol Road.*

Yorke, Hon. and Rev. Grantham, Rector of St. Phillips, Birmingham, *Rectory, Birmingham.*

ADDENDUM.

Crake, William, Esq., 10, *Stanhope Street, Hyde Park Gardens, London.*

AMPUTATION

OF THE

THIGH AT THE HIP-JOINT.

HISTORY.

AMPUTATION of the thigh at the hip-joint, which the experience of the late war has proved to be simple and in many cases successful, is rarely performed, except in hospital practice; the operation being rejected by many eminent teachers in their works and lectures[1], both in this country and on the continent.

I venture, with diffidence, to call the attention of the profession to the subject, and to the case herein recorded, under the firm conviction that very many lives may be saved by having recourse to the operation. The idea of performing this amputation was first conceived by Morand, and brought forward by his two pupils, Volher, Surgeon-major to the Horse-Guards of the

[1] "There has been no amputation at this hospital (Bartholomew's, London) within the last thirty years or more. I have never seen it done or had occasion to perform it, and I apprehend the chances are that none of the gentlemen in this theatre will ever be called upon to do it. It is hardly necessary for me to enter much into the particular mode of doing it."—*Lawrence's Lectures on Surgery* (Lancet, 1829–30, p. 950).

Manuel de Chirurgien d'Armée. Paris, par Percy, 1792. "Percy Nullam, proh pudor hujus operationis fecit mentionem."—*Hedenus Lipsiæ*, 1823.

Richerand, Professeur d'Operations de Chirurgie à la Faculté de Médecine de Paris, says that "unless the limb be nearly separated by the disease or accident, a prudent surgeon should decline making the attempt."—*Nosograph Chir.*, tom. iv. p. 519, 4th edition.

"The amputation at the hip-joint has been performed with success. I cannot approve of its performance in the cases which have come to my knowledge; and, unless I felt myself authorized to enter on that very difficult question, I must omit the description of the operation."—*Illustrations of the capital Operations of Surgery by Sir Charles Bell*, Part III. p. 67; 1821.

King of Denmark, and Puthod, Surgeon at Nyon, in the canton of Berne, Switzerland, in the year 1739[1]. Ravaton, in the year 1743, proposed to perform the operation in the case of a gun-shot wound, with fracture of the neck of the thigh-bone, but was prevented by the opposition of other surgeons[2].

In the year 1756, the Royal Academy of Surgery of France proposed as the first prize subject "*What are the circumstances which render amputation at the hip-joint necessary, and what may be considered the best mode of performing it?*" but not being satisfied with the memoirs received, the same subject was again proposed for the year 1759. On the former occasion twelve essays were sent in, on the latter thirty-four, of which number nineteen were favourable to the performance of the operation; and the premium was adjudged to M. Barbet[3]. In addition to the memoir of M. Barbet, the essays of Gour-

[1] Les Registres de l'Académie Royale de Chirurgie à la date du 3 Mars, 1739, qu'on a commencé la lecture d'un Mémoire de M. Volher, chirurgien-major des gardes à cheval du roi de Danemark, et sur l'amputation de la cuisse dans sa jointure avec la hanche: que le 17 on a achevé cette lecture; que le 24 Mars, on a commencé la lecture d'un mémoire de M. Puthod, chirurgien de Nyon, en Suisse, sur l'amputation de la cuisse dans l'article, continué le 2 Avril et achevé le 7; et ce jour MM. Le Dran et Guerin le fils furent nommés Commissaires pour l'examen des mémoires de MM. Volher et Puthod. Le jugement des Commissaires pour l'examen ne paroitra pas precipitè, ils n'ont fait leur rapport que le 26 Juillet 1740, quinze mois après, et il a été favorable aux auteurs.—*Mémoires de l'Académie Royale*. Paris, tom. iv. edit. 4to. 1778.

Mémoire sur l'Amputation de la cuisse dans l'articulation avec l'os de la hanche, par M. Volher.—*Opuscules de Chirurgie*, par M. Morand. Paris, 1778; vol. i. p. 282.

Mémoire sur l'Amputation de la cuisse dans l'articulation avec l'os de la hanche, par M. Puthod.—*Le meme ouvrage*. Paris, 1778; vol. i. p. 189.

Quæstio medica-chirurgica præside M. Petro et Alouettee, M.D. Resp. Carol Francisco Theroulde de Toulouse de vallum Bojoceo equite a cadomens Bascal Parisiensis.—Parisiis, 7 Mars, 1784. "An Femur in cavitate cotyloidea aliquando amputandum."—*Disputationes chirurgicæ selectæ colligit, edidit, præfactus est Albertus Haller;* tom. v. p. 265, Lausannæ.

[2] Ravaton Chirurgien d'Armée. Traité des plaies à feu et d'armes blanches. Paris, 1786; 8vo. p. 374.

[3] Mémoire couronne d'un prix double sur la question suivante, "Dans le cas ou l'amputation de la cuisse dans l'article paroitroit l'unique ressource pour sauver la vie à un malade, determiner si l'on doit pratiquer cette operation et quelle seroit la méthode la plus avantageuse de la faire, par M. Barbet.—*Mémoires sur les Sujets proposés pour le prix de l'Academie Royale de Chirurgie*. Paris, 4to. tom. iv. p. 1. 1778.

sault, Moublet, Le Febure, Puy, Le Comte, were published. Barbet grounded his arguments on experiment and on the case of a child fourteen years of age, a patient at the Hotel Dieu at Orleans, affected with gangrene of the lower extremities, produced by the use of spured wheat; in whom the left thigh was spontaneously separated at the hip-joint, except the round ligament and sciatic nerve, and was removed by La Croix in the presence of Le Blanc: and in four days afterwards the right thigh, which was much sphacelated, was likewise removed. Under all these disadvantages, the case went on well, and the boy lived until the fifteenth day[1].

In the year 1774, Perault, of Saint Maure, operated upon a man named Gois, who had had his right thigh crushed between a wall and the wheel of a cart, and which was in a state of gangrene. The patient recovered and afterwards became cook at an inn in Saint Maure, married, and had one son[2].

About the same period, Kerr performed the operation in the Northampton Infirmary, but the patient, a girl between eleven and twelve years of age, died on the eighteenth day[3].

Pott in this country[4], and Callisen in France, condemned the operation;

[1] L'Hiver de 1748 on amena à l'Hotel Dieu d'Orleans un jeune garcon, âge de 13 à 14 ans, attaqué d'une gangrène causée par l'usage du blé ergoté maladie endémique chez les habitans de la Sologne dans les années pluvieuses qui corrompent le blé de cette province. Dans ces circonstances M. La Croix, en presence de M. Le Blanc, ne se servit que de ciseaux pour achever cette amputation que la nature avoit presque entièrement faite.—*Richerand in Nosographie et Therapeutique Chirurgicales.* Edit. 5eme, tom. iv. Paris, 1821.

[2] Médecine Operatoire, 2 edit., par Sabatier. Paris 1811, tom. iii. page 422.

[3] Duncan's Medical Comment, vol. vi. p. 337. London 1779, ubi legitur; "Kerr an 1779 puellæ femur ex articulo excindebat cariei in articulo et in capite ossis femoris causa. Post operationem autem cavitatem articuli ipsam esse cariosam animadvertebat. Quinta a vulneris obligatione die ligatura decidit. Undecima die ægra respiratione anxia et aliis symptomatibus pthisicis corripiebatur et duodecima diem supremam obiit. Post mortem superficies pulmonum ulcusculis plena inveniebatur, ex quo facile concludi potest, vulnere bene sese habente, puellam potius phthisi quam operatione mortuam sese."

[4] That amputation at the hip-joint is not an impracticable operation (although it be a dreadful one) I very well know: I cannot say that I have ever done it, but I have seen it done, and am now very sure I shall never do it unless it be on a dead body."—*Pott's Chirurgical Works*, vol. iii. London, 1783.

"It is a misfortune that Mr. Pott imbibed opinions injurious to the useful tendency of this

while Bilguer, surgeon-general of the army of the king of Prussia[1], and Tissot, ably defended it.

Notwithstanding the exertions of many eminent surgeons, an unfavourable opinion was very generally entertained of it, till the commencement of the present century, about which period several successful operations were performed by surgeons in the French republican army. M. A. Blandin, a distinguished army-surgeon, relates three cases. His first patient was operated upon fructidor an 3 (August 1794) and recovered; the second also recovered; and the third lived until the fifty-eighth day after the operation. About the same period M. Perret, another military surgeon, had one successful case; and in the year 1798, Mulder amputated at the hip with success, the patient being a young woman aged eighteen[2]. A successful operation is related by Dr. Wendelstädt[3].

great and necessary operation, as his authority was calculated to have much weight on the minds of professional men, and probably has, in many cases, reconciled them to the idea of relinquishing it. I will venture to affirm that had he adopted a different line of conduct in delivering his opinion on this subject, and not acted towards this operation in a manner somewhat inconsistent with the principles which he has clearly and ably laid down, under those circumstances where a patient is placed between the necessity of submitting to the operation or the grave, that amputation at the hip-joint would long before now have rewarded the surgeon with as great a proportion of success as other operations."—*Veitch, Surgeon of the Royal Naval Hospital, Plymouth; Edinburgh Medical Journal*, vol. iii. p. 131; 1807.

[1] Dissertatio inauguralis medico-chirurgica de membrorum amputatione rarissime administrandâ aut quasi abrogandâ M. Bilguer. Traduite en Francois et augmentie de quelques remarques par M. Tissot, 1764.—*Opuscules de Chirurgie, par M. Morand*. Paris, 1768. vol. i. p. 189.

[2] Nouveau elements de Médecine Operatoire, par A. A. L. M. Velpeau. Paris, 1832, vol. i. p. 514.

[3] Auszug aus den reminiscenzen vom Medicinalrath Dr. Wendelstädt zu Emmerichof bey Limburg an der Lahn: *vide*, Journal der prakt: Heilk: von Hufeland und Himly, 1811, vi. Bd. oder xxvi. Band, oder xxxiii. Bd. 7; St. July, p. 110. "Noch war es, so viele chirurgische Werk ich auch gelesen zu haben mich entsinne, bis jetzt Problem, ob man constatirte gerathene Fälle von Amputationem des Oberschenkels aus der Pfanne aufzuweisen habe? Ich rede natürlich nicht vom Extirpiren des Schenkelgelenkkopfs aus dem acetabulo und Amputation dieses bey Caries im Gelenk oder in des Kopfes schwammicher Substanz; diese haben Wundärzte aller Nationem mit Success unternommen. Ich habe aber einem *Engländer* geechen und untersucht, welcher als Matrose auf der englischen Flotte gedient, und in dem mörderischen Treffen Bey *Abukir* den

Baron Larrey performed the operation seven times[1]. Milligen operated

25. July, 1799, durch eine Kanonenkugel den Schenkel verloren, und darauf die Operation der amputation des vielleicht gesplitterten Stumpfes aus dem acetabulo ausgehalten und *Jahre lang überlebt hat. Auf den letzten Punkt* lege ich vorzügliches Gewicht; denn dass die Operation vorgeschlagen, oft gemacht auch als unternommen beschrieben worden ist, ist mir, wie jedem wohl bekannt. *Diesser Britte hatte sie wirklich überlebt.*

[1] The extreme interest of these cases will, I trust, plead my apology for the long note from his work (Memoires de Chirurgie Mil, tom. iv. Paris, 1812–1817), and I must gratefully acknowledge the valuable information which I received from him during my residence in Paris. "In the first case, the operation was performed whilst serving with the army of the Rhine, and the soldier was so easy for some hours after, that a favourable result might have been expected, if he had not been obliged to undergo a hurried journey of twenty-four hours, in the winter season, which with the fatigue and inconvenience of the conveyance most probably caused his death."

"The second was an officer, M. Bonhomme, of the 18th demi-brigade, wounded by the splinter of a shell at Saint Jean d'Acre in Egypt, and brought to me with an enormous wound of the right thigh. The muscles were either torn or carried away from a great part of the circumference, the femoral artery was torn about five or six fingers breadth below the crural arch, and the femur was broken as high as the trochanter major. He had lost a great deal of blood and was considerably weakened. I thought he would die in a few minutes if the removal of the thigh was not immediately accomplished. He passed the day and night after the operation in as quiet a state as could be desired. He continued to progress favourably until the sixth day, and I had every reason to expect a cure. A soldier, who had for some days been affected with the plague, which he had concealed, was wounded in the leg by a cannon shot, whilst on his way from the camp to the hospital. Although very ill with the plague, he was in consequence of this accident placed, without my knowledge, amongst the wounded, by the side of, and on the same straw as the officer, to whom he communicated the plague, which appeared on the sixth and seventh days. In the morning the stump was in a gangrenous state, and its progress was so rapid that death in a short time destroyed all the hopes I had entertained from the favourable state of my patient the day before."

"The subject of the third case was a drummer of the second demi-brigade of light infantry, twenty years of age. He had his right thigh carried away by the splinter of a shell at the last assault at Acre. The fracture of the femur extended as far as the joint, and the soft parts were bruised and disorganized. The operation was very quickly performed, and without loss of blood. In a few minutes he became easy and slept quietly for some hours. The return of the army to Egypt, which took place immediately afterwards, obliged me to move this young man; and I subsequently learned that he died on the road.

"In the 3rd vol., page 349, the two following cases are related. Speaking of the Battle of Wagram, he says, "Before night near five hundred wounded were collected at my station, far the greater part wounded by cannon shot, or having very severe wounds that required some capital operations. In the list of wounded were two soldiers of the Imperial Guard; I had not an idea of saving them, and merely laid some simple dressings on their wounds, which were of great extent with fracture of the bone to the great trochanter. These two men in the meantime

twice successfully[1]. Brownrigg, surgeon to the forces, performed the operation at the General Hospital at Plymouth, on a private of the 13th light dragoons, in consequence of a gun-shot wound[2].

After the battle of Waterloo, Guthrie performed the operation with success[3]; since which period successful cases have been recorded by Astley Cooper[4],

underwent the most horrible sufferings, they begged for relief by the operation, and even endeavoured to destroy themselves. The repeated solicitation of my colleagues and the dreadful situation of these poor men at last determined me to perform the operation. I had no other prospect than to be able to remove the cause of their dreadful sufferings, and to take from the sight of their comrades so horrible a spectacle. The operation was performed, the one man died in three hours afterwards; the other passed the night tolerably well, but continued in a very exhausted state. I saw him at four o'clock in the morning, when I left the hospital to obtain a little repose, and on my return at six I found him dead."

The sixth and seventh cases occurred during the Russian Campaign; "In the sixth instance on a Russian at Witepsk, whose thigh-bone was broken to pieces up to the trochanter, and the soft parts of two-thirds of the thickness of the limb destroyed. This man went on as favourable as possible until the twenty-fifth day from the operation, the parts being healed, except at two points, where the ligatures had been brought out; but unfortunately a scarcity of provisions now occurred, and the patient died on the thirtieth day."

The seventh operation was performed "on a French dragoon after the battle of Mozaïsk, who was afterwards seen perfectly cured by the surgeon-major at Orcha."

[1] Journal de Médicine, par M. Vantermonde, tom. ii. p. 240. 1759.

[2] "It was required in consequence of a gun-shot wound received in a skirmish at Merida, in Spain, in the month of December, 1811. The man completely recovered and went to live at Spalding in Lincolnshire. For this statement I am indebted to Mr. Brownrigg himself, whom I accidentally met in Weiss' shop in the Strand. Mr. B. also performed the operation in two other cases: these terminated fatally."—*Averill's Operative Surgery*. London, 1825; 2nd edition, p. 217.

[3] After the battle of Waterloo, Guthrie performed the operation on a French soldier, Francois de Gay, who had been left for several days on the field of battle without surgical aid or sustenance. The poor fellow got quite well, and was made an inmate of the Hotel des Invalides. —*Hennen's Military Surgery*, p. 283. *Thompson's Reports on the Hospitals in Belgium, after the Battle of Waterloo*, p. 26. London, 1828.

[4] Sir A. Cooper operated at the hip-joint, at Guy's Hospital, January 1824. The patient had formerly undergone amputation above the knee. For some time after the operation his health remained very bad, and he was twice tapped for abdominal dropsy. He at length recovered. In reference to this case I am enabled to state Sir A. Cooper's opinion on the subject of the operation.

(*Extract from Letter.*)

"My dear Sir, London, June 30, 1831.

* * * * * * *

I may venture perhaps to say that it is an operation which ought not to be performed, if it be possible to saw through the bone at the trochanters without opening the cap-

Orton[1], Bryce[2], Delpech[3], Macfarlane[4], Baudens[5], Mott[6], Jaeger[7], Hysern[8], Textor[9], Orthon[10], Mayo[11], Rossi[12], Sedilott[13], Syme[14], and Alcock[15].

sular ligament. My patient, it is true, recovered and is now healthy, but the suppuration was excessive, the articular cartilages exfoliated, and ascites was produced, so that I was obliged twice to tap him and remove him a short distance from London; all this would have been prevented by sawing through the bone below the insertion of the capsular ligament.

"I am, my dear Sir,

"Yours very truly,

"Willam Sands Cox, Esq." "ASTLEY COOPER."

[1] Patient a young man, Æt. 25, was operated upon on account of caries of the femur, accompanied with extensive abscesses.—*Medico-Chirurg. Transactions*, vol. xiii. p. 605; London.

[2] A Soldier, Æt. 23, wounded by a six-pound shot, at the disastrous battle of Athens, was operated upon May 6th, 1827, and discharged cured in six weeks.—*Medico-Chirurgical Review*, vol. xv. p. 513; 1831.

[3] The operation was performed on account of necrosis of the thigh, which had given rise to numerous fistulous orifices near the joint.—*Lancet*, vol. ii. p. 682; 1827-28.

[4] The patient was a little girl *two years of age*. The thigh had been fractured transversely a little below the trochanters by the wheel of a loaded waggon passing obliquely across it. The operation was performed on the 6th of July, 1831, and the child was discharged cured on the 12th of August.—*Clinical Reports of Surgical Cases at the Glasgow Royal Infirmary*, p. 181; Robertson, Glasgow, 1832.

[5] The patient, a soldier, Æt. 24, was admitted into the General Hospital at Algiers with fractured femur from a gun shot. The operation was performed on the 16th day of April, 1836; and the patient was discharged cured at the end of forty days.—*La Lancette Francaise*, No. 34, Juillet 14ième, 1836.

[6] The patient, a boy, Æt. 10, was operated upon on the 7th of October 1834, on account of fractured femur, followed by extensive suppuration, and diseased bone. He was discharged cured November 20th.—*Philadelphia Medical Journal*, No. 9, vol. v. New Series.—*Medical Journal*, vol. lviii. p. 229. Edited by Macleod.

[7] The patient, a peasant girl, Æt. 25, was operated upon on the 8th of November 1832, on account of extensive caries of the femur.—*Dublin Medical Journal*, vol. ix. p. 149.—*Zeitschrift für die gesdammte Medicin*, band iii. heft 1.

[8] La Médecine Operatoire, par Bougery, tom. vi. p. 271.

[9] A secondary amputation, following amputation above the knee on account of gangrene. The cure was perfected in four months.—*Gazette Medicale de Paris, Sept. 4th*, 1841.—*Edinburgh Medical Journal*, vol. xlviii.

[10] La Médecine Operatoire, par Bougery, tom. vi. p. 271.—Nouveau Eléments de Médecine Operatoire, par A. Velpeau, tom. i. p. 514.

[11] The patient, a young woman, was operated upon on account of the agony which she experienced from a neuralgic affection of the stump, which remained from a former amputation.—*Cooper's Dictionary of Practical Surgery*, Seventh Edition, p. 85. London 1838.

[12] La Médecine Operatoire, tom. ii. p. 224.

[13] The patient, a young man, Æt. 28, was operated upon on the 17th of August 1840, on

On the other hand the failures of this operation are numerous, unsuccessful cases being mentioned by H. Thomson[1], La Croix, Ravaton, Kerr, Badley[2], Baffos[3], Cole[4], Samuel Cooper[5], Emery[6], Blicke[7], Handyside[8],

account of a compound fracture of the thigh, followed by profuse suppuration. He was discharged cured on the 2nd of November.—*Mémoires de Chirurg*, tom. l. p. 271.

[14] The patient, a young man, Æt. 28, was operated upon on the 17th of August 1840, on account of necrosis of the femur. The case at first progressed successfully; but he became dropsical, and sank at the end of the eighth week.—*Edinburgh Medical Journal*, vol. xxv. p. 19.

[15] "Dr. Belmunt, a Spanish physician and a graduate of Edinburgh, to whose services we were much indebted, informed me, that a colleague of his, educated at Barcelona, had during the war twice amputated at the hip-joint, and once with success, an operation which can never be performed with success by an indifferent surgeon, nor is it indeed likely to be attempted."—*Medical History and Statistics of the British Legion in Spain, by* R. Alcock, K.T.S., p. 78. London: Churchill.

[1] It is a remarkable fact in the history of surgery, that an operation which had been invented in France, and concerning which so much had been written in that country, should have been first put into practice in England. I have been informed (says Professor Thompson) that the operation was first performed in London by the late Mr. H. Thompson, surgeon to the London Hospital, and I imagine that it must have been his operation to which Mr. Pott alludes.—*Observations in the Military Hospitals in Belgium*, p. 264.

[2] The patient was a boy, a miner. The thigh was crushed by machinery in 1814. The operation was performed immediately and he died the following day.—*Communicated by the Operator.*

[3] M. Baffos, chirurgien-en-chef de l'Hopital des Enfans, a fait l'extirpation de la cuisse le 3ième, Janvier 1812. Son malade etoit un enfant de sept ans scrophuleux et si maigre que la cuisse et la hanche avoient bien moins de volume que le bras et l'epaule de l'adulte le moins chargé d'embonpoint. Le petit malade guérit de la plaie resultante de l'opération, mais mourut trois mois après par le progrès des ecrouelles.—*Bulletin de la Faculté de Médecine*, vol. viii. p. 112. an. 1812.

[4] The patient was a soldier serving with the army in Holland in 1814. Amputation was performed under unfavourable circumstances, and the patient died the following day.

[5] The patient was a soldier. The operation was required for fracture of the upper part of the femur by a grape-shot, at the assault of Bergen-op-Zoom. The shock of the operation was such, that he survived it but a few minutes, though scarcely any blood was lost.—*Cooper's Surgical Dictionary*, Seventh Edition, p. 84.

[6] The patient was a soldier. The operation was required on account of a gun-shot wound received in a skirmish near St. Sebastian, on the 20th of July 1813. He died on the 20th of August.—*Guthrie on Gun-shot Wounds*; p. 116. London.

[7] Cooper's Surgical Dictionary, p. 85, Seventh Edition, 1838; London.

[8] The patient was a boy. The operation was performed on account of osteo-medullary sarcoma of the femur, June 30th, 1843. He died November 11th.—*London and Edinburgh Monthly Journal*, April 1845, p. 254.

Korseniewsko[1], Brainard[2], M. Blandin[3], Peliken[4], Walther[5], M. Roux[6], Brownrigg[7], Dieffenbach[8], Guthrie[9], Bromfield[10], Smith[11], Larrey[12], Dupuytren[13],

[1] The name of the patient was Rayche Mordechow. The operation was performed on account of neuroma, May 3rd, 1833. He died May 25th.—*L'Expérience*, 1839.

[2] The patient, Æt. 25. The operation was performed on account of a large osseous tumor following a severe fracture of the femur, January 14th, 1837. He died, March 2nd.—*American Journal of Med. Science*, vol. xxii. p. 372.

[3] The patient, a female, Æt. 15, was admitted into the Hopital Beaujon with hypertrophy of the femur, accompanied with spontaneous fracture. The operation was performed on the 28th of January 1832, and she survived it ten days.—*Medico-chirurgical Review*, p. 195, 1838.—*Transactions Medicales*, tom. x. p. 353.

[4] The patient was a man, Æt. 25. The operation was performed on the 12th of March 1820, on account of fungus hæmatodes. He died the ninth week from typhus.—*Act. Med. Chir. de l'Academ. de Vilna.—L'Expérience*, p. 225 : 1822.

[5] The patient, a peasant, Æt. 21, was admitted into the surgical wards of the hospital of the University of Bonn on account of a complicated fracture of the thigh, with extensive suppuration. He died on the eleventh day after the operation.—*Lancet*, November 6th, p. 185 : 1824. —*Gräef et Walther's Journal de Chirurg.*, tom. vi. p. 1.

[6] The patient, a subaltern Swiss officer, was operated upon on account of a gun-shot wound of the thigh, accompanied with fracture of the trochanter-major on the 19th of July 1830. He died the same day.—*Gazette des Hopitaux*, p. 392 : 1830.

The patient, a boy, Æt. 17, was operated upon on account of a fungous tumor connected with the periosteum, and died a few days afterwards.—*Archives Generales*, tom. xv. p. 469 : 1827.

[7] Four unsuccessful cases were performed during the late war.—*New Medical and Physical Journal*, p. 117 : 1815.

[8] The patient, a child, Æt. 13, was operated upon on account of an enormous osteo-sarcoma of the thigh, and died on the fourteenth day from the effect of suppuration.—*Lancet*, p. 908 : 1834–35.

In a case of fracture through the trochanter major, secondary amputation was performed. Death took place ten hours afterwards.—*Journal Universelle des Sciences Medicales*, vol. xlviii. p. 381.

[9] The patient, a soldier, was operated upon after the battle of Waterloo, on account of hæmorrhage from sloughing after amputation, but he survived it only seven hours.—*Guthrie on Gun-shot Wounds*, p. 332.

[10] Alluded to in the leading article of the *Lancet*, p, 70 : 1824.

[11] The patient, a boy, Æt. 15, was operated upon on account of a compound fracture of the femur, accompanied with severe hæmorrhage, May 24th, 1835. He died thirty hours afterwards.—*London Medical Gazette*, vol. xvi. p. 551.

[12] Mémoires de Chirurg. Militaire, tom. ii. p. 180, de l'armée du Rhin.—Mémoires de Chirurg. Militaire, tom. ii. Campagne de Russie.—Relation Chirurgicale de l'Armée de l'Orient, p. 332.—Mémoires de Chir. Militaire, tom. iii. p. 350, Campagne d'Autriche.

[13] Cl. Dr. Ammon, spectatæ juvenis industriæ, et ingenio, ut probitate præstans casus sequentis, qui infelicem. *Dupuytreno operante* habebat exitum, *Parisiis* fuit testis, et thesauri istius

Clot Bey[1], Gensoul[2], Krimer[3], Gouraud[4], Delpech[5], Velpeau[6], Gerdy[7],

me liberaliter participem fecit; epistola autem *Cl. Ammonii* ea de re ad me perscripta sic se habet.

In dem Augenbliche, in welchem ich Deine freundlichen. Zeilen erhalte, eile ich, Deinen Wunsch zu erfüllen.

I. Lisfranc Professor der Chirurgie in Paris, ein Mann, den man Meister in operativer Hinsicht nennen kann, hat *seine Operationsmethod der Excisio femoris noch nicht* behannt gesmacht. Ein deutscher junger Arzt Dr. A. J. *Münzenthaler* beschreibit die Methode *Lisfranc's* in seiner. Schrift. "*Versuch über die Amputationen in den Gelenken*," Leipzig, bey *Kummer* 1822, p. 37–39, leidlich, jedoch nicht ausführlich genug.

II. *Lisfranc* hat die Exarticulation des Schenkels noch nie am Lebenden gemacht. Wohl aber.

III. *Dupuytren* im Sommer 1822, und zwar den 26. April Abens 7 Uhr nach Lisfranc's Methode. In meinen Tagebuche findet sich folgendes:

"Ein knabe von 11½ Jahr glitsche auf der Strasse aus; ein eben vorbeyfahrender Fiacker, zu rasch im Gange um angehalten zu werden, geht über den gefallenen knaben hinweg. Der ein Schenkel wurde, nahe unter dem Trochanter major gebrochem, und der andere hatte ein Fractura complicata und comminuta im höchsten Sinne des Wortes. Die Quetschung erstreckte sich bis in die regio pubis. Da nun wegen der ausgebreiteten Verwundung der weichen Theile an eine amputation des Schenkels nicht zu denken war, hielt *Dupuytren* für nöthig die Exarticulation des Schenkels zu machen welche er auch nach *Lisfranc's* Methode Abends 7 Uhr vollführte, so dass bey diesem Abendbesuche nur unsrer wenige, die gerade zufällig da waren, bey der operation gegenwärtig seyn konnten. Sie warde ohne grosse Schwierigkeiten gemacht:—Der kranke starb aber 48 Stunden nach derselben, nachdem er viel gefiebert und vorzüglich einige Stunden vor dem Tode über starke Frissons geklagt halte.—*Die section* zeigte folgendes.

"Es war eine starke Fractura rami horizontalis ossis pubis vorhanden, die man beym Leben des Knabem nicht wahrgenommen hatte; im Beken Eyterdepots zwischen Blase un Rectum, allein keine Entzündung des Bauchfelles. Wäre der Bruch des rami horizontalis o. p. nicht vorhanden gewesen, unstreitig die Ursache des im Bechen gefundenen Eyterdepots, so hätte diese operation gelingen können."—*Commentatio Chirurgica Auct. Hedeno Saxone*, p. 63: Lipsic, 1823.

[1] Ali Homer, an arab, Æt. 26, was operated upon on account of a fracture of the femur from a gun shot, November 10th; and died November 17th.—*Gazette des Hopitaux*, tom. iv. p. 96.

[2] Lancette Francaise, tom. ii. p. 220.

[3] An old soldier was operated on in consequence of a gun-shot wound. He died on the tenth day. *Gräef et Walther's Journal de Chirurg.*, tom. xii. p. 80.—*Bulletin de Ferussac*, tom. xviii. p. 165.

[4] Velpeau Eléments de Médecine Opératoire, tom. ii. p. 539.

[5] The operation was performed on account of extensive suppuration in consequence of a compound fracture of the upper part of the thigh. The wound healed completely, but the patient died, from chronic peritonitis, six months after the operation.—*Lancet*, p. 682: 1827–28.

[6] Two cases. In the first the person survived the operation thirteen days; in the second, fourteen days.—*Eléments de Médecine Opératoire*, tom. ii. p. 451. Paris.

[7] Bulletin de Therapeut, tom. viii.—Velpeau Eléments de Médecine Opératoire, tom. ii. p. 539.

Vidal[1], Kerst[2], Syme[3], Liston[4], Brodie[5], F. Blandin[6], Porcienko[7], Gräef[8], Pelletan[9], Broocke[10], Brownley[11], Carmichael[12], and Alcock[13].

CAUSES.

The causes which may render amputation at the hip-joint justifiable are :—

1st. Compound fractures and compound dislocations, or other severe injuries of the head, neck, and upper part of the femur. Whenever much violence has been done to the limb ;—where the wound is large and in the neighbourhood of the joint ;—the femur splintered ;—and the vessels, nerves, or tendons lacerated ;—the operation should either be performed *immediately* ;—before an inflammatory and gangrenous tendency in the limb has had time to supervene,—since the constitution has then but one shock to sustain ; or it should be delayed till the first inflammatory symptoms consequent to the injury have subsided.

[1] Le méme ouvrage.

[2] Two cases. Le méme ouvrage.

[3] & [4] During my residence in Edinburgh the operation was performed four times ; twice by Mr. Liston and as often by Mr. Syme ; all the patients died.—*Practical Surgery by Ferguson*, p. 362. Churchill, 1842.

[5] In the case of a gun-shot wound from accident. The man survived only a few hours.—*Guthrie on Gun-shot Wounds*, p. 116.

[6] Opérations générales, par Bougery, p. 271.

[7] The first case operated upon in 1821 was a woman, Æt. 50 ; the second case, a jewess, May 3rd, 1834.—*Actes Med. Chir. de l'Academ. de Vilna.*

[8] Cooper's Surgical Dictionary, Seventh Edition ; p. 85. 1838.

[9] The same, p. 85.

[10] Nouveau Eléments de Médecine Opératoire, par Velpeau, tom. i. p. 514.

[11] Lancet, 1824, p. 79.

[12] The patient, a girl, Æt. 19, was operated upon for osteo-sarcoma, and died on the sixth day.—*Transactions of the Fellows of King and Queen's College of Physicians, Ireland*, vol. iii. p. 8. Dublin.

[13] Gun-shot wound in Spain.—*Notes on Medical History and Statistics of the British Legion of Spain*, by R. Alcock, K.T.S., p. 78. London, 1838.

2ndly. *The removal of the Thigh by machinery.*—Such injuries cannot occur without the femur being shattered or splintered, and the soft parts torn, contused, and ragged;—a state highly unfavourable to union. Amputation should be immediately performed. In this class may be placed gun-shot wounds in the neighbourhood of the joint, removal of the limb by a cannon ball, &c., &c.

3rdly. *Mortification.*—Amputation at the hip-joint may be required in cases of extensive gangrene of the thigh, whether from internal or external causes. As a general rule the operation should be delayed in such cases until a line of separation is marked out between the living and dead parts; but in traumatic gangrene, the experience derived from the late continental war has shown that the operation *ought to be performed without waiting* till the inflammatory action has ceased to spread or the line of demarcation is formed.

4th. *Caries and Osteo-necrosis.*—Although extensive caries of the femur is in general supposed to render amputation of the thigh necessary, yet this rule can only be admitted under certain restrictions. Thus when the patient is young and the constitution vigorous, the disease may be thrown off by exfoliation and the production of new bone; but if caries of the femur be accompanied with deep and extensive ulceration of the soft parts extending to the joint and the constitution be suffering, the operation is warranted.

5th. *Exostosis and Hyperostosis.*—This state of bone may render amputation necessary, when the tumor or swelling is of such a size as not only to affect the bone and articulation, but to reduce the soft parts to a grumous mass;—when they destroy the health, and when they cannot be removed by any other means.

6th. Various tumors of a non-malignant character, viz. Osteo-sarcoma, Osteo-steatoma, Spina ventosa. These, when they destroy the texture of the limb and produce such constitutional derangement as to threaten life, may give rise to the necessity of operation, and the operation has been performed in cases of *neuroma*.

Under all these circumstances the operation is not only justifiable, but

holds out to the operator a prospect of cure; but at the same time it is necessary, before resorting to so decisive a measure, most maturely to reflect upon the case, with a view to the ultimate results; to consider well the age, the habit of body, the strength and constitution of the patient. We must weigh well the consequences against the vanity of having to say "I have done it."

ANATOMICAL REMARKS.

The femoral articulation.—The articulation is situated at the union of the head of the femur with the cotyloid cavity of the acetabulum. The head of the femur forms about three-fourths of the segment of a circle, being directed inwards and forwards. The fibrous capsule of the joint is in its upper part attached to the circumference of the acetabulum, and in its lower to the base of the neck of the femur.

Various methods have been laid down as guides to the articulation:

1st. If a perpendicular line, one inch in length, be drawn from the anterior inferior spinous process of the ilium, the external and anterior part of the joint will be about half an inch to the inside of the inferior extremity of the line.

2nd. If a perpendicular mark be drawn from the anterior superior spinous process of the ilium fifteen lines in length, the external and anterior part of the joint will lie exactly six lines to the inner side of the lower termination of such.

3rd. The articulation corresponds with a perpendicular line which would bisect Poupart's ligaments at the union of its middle with its external third.

Muscles.—The numerous muscles surrounding the joint may be divided into two sets: 1st, those connected with the anterior and internal parts of the thigh; and 2ndly, those connected with the external and posterior parts. The former consist of the M. sartorius, M. rectus, M. iliacus internus, M. psoas

magnus, M. pectinalis, M. gracilis, the M. adductor longus and brevis. The latter comprise the M. tensor vaginæ femoris, the M. glutei, the M. obturators, M. pyriformis, M. gemini, M. quadratus femoris, the M. adductor magnus, and the origins of the flexor muscles of the leg.

Vessels.—The vessels may be similarly arranged. The anterior and internal regions contain the deep and superficial femoral and obturator vessels and their branches; the posterior and external regions the descending branches from the gluteal, ischiatic, and internal pudic vessels.

The femoral artery at the superior third of the thigh is situated in the centre of a triangular space, bounded *above* by the crural arch; on the *outer side* by the M. sartorius; on the *inner side* by the M. adductor longus and M. gracilis. *Anteriorly* it is covered by the integuments, superficial fascia, lymphatic glands, and fascia lata, and is enclosed in a sheath formed in front by the fascia transversalis, posteriorly by the fascia iliaca. *Posteriorly* it lies upon the M. psoas magnus, crosses the insertion of the M. pectinalis and M. adductor brevis, though separated from them and the neck of the thigh-bone by adipose cellular tissue. The femoral vein is placed on the *inner side* within the same sheath but separated by a distinct septum. *On the outer* side the anterior crural nerve lies between the M. psoas magnus and M. iliacus internus muscles.

The deep femoral artery arises from the back part of the femoral superficial, from about an inch and a half to two inches below Poupart's ligament, and runs down behind the latter vessel. From the situation of the arteries a knife may, in the flap operation, be passed between the vessels and the neck of the thigh-bone without wounding or dividing them, until the flap be completed by cutting outwardly. The hæmorrhage from these vessels may be restrained by compressing the external iliac artery as it passes over the os pubis.

The obturator artery usually arises from the internal iliac; and its external branch passes from the pelvis between the two obturator muscles, and winds beneath the acetabulum between it and the tuberosity of the ischium.

The vessels of the external and posterior regions are not compressible

by mechanical means previous to the operation; and when divided, the hæmorrhage must be stopped by the points of the fingers or a soft compress of sponge.

Nerves.—The anterior crural nerve is situated as before described. The great sciatic nerve leaves the pelvis between the pyramidalis muscle and superior gemellus, then lies behind the small rotators; in front of the M. glutæus maximus, and afterwards in front of the long head of the M. biceps and M. semitendinosus. It must be exposed in the operation; and should it be divided low down, a portion of it should be removed, so that it may not be engaged in the cicatrix of the wound.

OPERATIONS.

Amputation at the hip-joint has been performed by three methods;—by the flap,—by the circular,—and by the oval incision. It has been recommended by Volher, Puthod, Lefébure, A. Blandin, Brulatour, Delpech, Roux, Flagani, Unger, and Larrey, previously to the operation, to secure by ligature the superficial femoral artery about an inch below Poupart's ligament: while, on the other hand, Langenbeck, Graef, Krimer, Colles, Abernethy, Dupuytren, Lisfranc, and Guthrie maintain that tying the artery after passing over the os pubis beneath the crural arch does not avert the danger of hæmorrhage, and that it is further objectionable as superadding the operation of aneurism to that of amputation. These distinguished surgeons trust to compression of the external iliac artery as it passes over the os pubis.

Circular operation.—This operation, advocated by Abernethy at the commencement of the present century, has met with supporters in Graef, Krimer, Colles, and Veitch[1].

[1] Veitch, Surgeon of the Royal Naval Hospital, Plymouth.—*Edinburgh Medical Journal*, vol. iii. p. 131: 1807.

In performing the operation the external iliac artery is to be pressed against the horizontal ramus of the os pubis, with a pad or by the fingers of an intelligent assistant; a circular incision is then to be made about three inches below Poupart's ligament through the integuments down to the fascia lata; the integuments are next to be reflected back as high as possible; by a second circular incision the muscles inserted into the trochanters, and those arising from the tuberosity of the ischium are then to be divided, and the capsule of the joint to be opened; the round ligament cut through; and the head of the bone disarticulated; which will complete the operation.

The oval operation.—The oval method, with modifications, has been recommended by M. Cornuau, M. Malgaige, M. Belmas, and M. Scoutetten[1]: but it has not been performed on the living subject.

The patient is to be placed on the sound hip, and the limb is to be supported by an assistant. The first incision is to be made from an inch above the great trochanter, and is to descend obliquely forwards to the anterior part of the thigh, to the extent of six or eight inches, (if the patient be an adult), so that the incision terminate at a point, at which a perpendicular line from the superior spinous process of the ilium would cross another line drawn transversely from the tuberosity of the ischium, and the integuments and the muscles are to be divided down to the bone. Another oblique incision of the same length is to be carried from above the head of the femur downwards to a little below the tuberosity of the ischium. The joint being thus fairly exposed, the capsule and internal ligaments are to be divided; the head of the femur is to be luxated outwards, and the knife is to be carried to the inside of the neck of the bone. The assistant is now to compress the femoral artery

[1] Procédé de M. Cornuau.—*Opérations générales*, par Bougery, vol. vi. p. 274. Paris 1839. Procédé de M. F. Malgaige.—*Manuel de Médecine Opératoire*, p. 356. Procédé de M. Belmas.—*Opérations générales*, par Bougery, vol. vi. p. 274. Paris 1839. Scoutetten, la Méthode ovalaire ou nouvelle méthode pour amputer dans les articulations.—*Desarticulatio Coxo-femorale. Anatomie Chirurgicale*, p. 31.—Procédé Opératoire, p. 35. 4to. Paris 1827. The oval Method proposed by Scoutetten.—*The Cyclopædia of Practical Surgery*, edited by Dr. Costello, Part II. p. 185. London 1837.

by inserting his thumb and fingers into the wound, and the operation is to be terminated by cutting downwards and inwards through all the soft parts on the inside of the thigh, so as to unite the two extremities of the inverted V formed by the two first incisions.

The flap operation.—The flap operation, with various modifications, has been advocated by Lalouelte, Plantade, Kerst, Manec, Ashmead, Delpech, Beclard, Guthrie, Dupuytren, Baudens, Larrey, and Lisfranc[1]. The operation may be performed either with a single or a double flap. When two flaps are formed, they are cut in such a manner as to constitute either an anterior and a posterior flap, or two lateral flaps, the one external, the other internal. The other modes of forming the flaps are but modifications of these.

Plantade, Manec, Ashmead, and Delpech, make their single flap from the muscles and integuments of the inner and anterior part of the thigh about four or five inches in length, varying according to the volume of the limb.

Larrey, Dupuytren, Lisfranc, and Guthrie advocate the operation with an *internal* and *external* flap.

Larrey's operation[2].—He began with making an incision in the track of the external iliac artery in the bend of the groin, and tied this vessel as closely as possible to Poupart's ligament, in order that the ligature, which was tied above the origin of the circumflex arteries and the profunda, might obviate all inconvenience from the bleeding, which might otherwise have happened from their numerous branches. This being done, a straight knife was plunged perpendicularly between the tendons of the muscles attached to the trochanter minor and the base of the neck of the femur, so as to bring out its point at the back part of the limb, or in a diametrically opposite situation to its first entrance; and then by directing the knife obliquely inwards and downwards,

[1] Opérations Générales, par Bougery, tom. vi. p. 272. Paris, 1839.—Encyclopædia of Practical Surgery, by Costello, Part II. p. 185. London, 1837.—Nouveau Eléments de Médecine Opératoire, par A. L. M. Velpeau, tom. i. p. 522. Paris, 1832.—Cooper's Surgical Dictionary, Seventh Edition, p. 85. London 1838.

[2] Mem. de Chir. Mil., tom. ii. p. 186–188.—Dictionary of Practical Surgery, by Samuel Cooper, Seventh Edition, p. 82. London, 1838.

a flap of a moderate size was made of the soft parts at the inner and upper portion of the limb. This flap was now drawn towards the opposite thigh by an assistant, and the articulation was brought into view,—the obturator artery and some branches of the pudendal, wounded in making the flap, were immediately tied. The thigh was now put into a state of abduction; the inner part of the capsular ligament, made tense by this position, was divided and the joint opened. The ligamentum teres was then cut and the bone dislocated. The knife was next brought to the outside of the great trochanter, and an external flap was formed of the soft parts, calculated to meet that which had been made at the inner side of the limb. In proceeding with the operation, Larrey secured, as soon as they were divided, the obturator arteries and several branches of the pudendal, gluteal, and ischiatic arteries. The two flaps were brought together and kept in their position with strips of adhesive plaster and a woollen spica bandage.

The Method of Lisfranc[1].—*The first stage.*—The femoral artery is to be compressed as it passes over the os pubis. When the left limb is to be removed, the surgeon is to stand on the outer side of it; and when the right, on the inner side; while the patient is in the recumbent posture, with the tuberosities of the ischia projecting a little way beyond the end of the operating table. If possible, the limb itself is to be placed in the middle position between adduction and abduction. A long narrow, but strong, sharp-pointed knife is to be introduced, with its edge directed towards the apex of the great trochanter. The point having passed down close to the head of the femur is to be carried round its outer side; but as the point enters further into the part, the handle must be inclined outwards and upwards, so that the point may pass out a few lines below the tuberosity of the ischium. In order to fulfil this object, either an assistant, or the surgeon himself, should grasp and draw outwards the integuments and muscles at the back of the limb. The transfixion having been completed, the knife, with the edge still turned towards the apex of the great trochanter, is to

[1] The first lines of the Theory and Practice of Surgery, including the principal Operations, by Professor Samuel Cooper, Seventh Edition, p. 789. London, 1840.

be carried downwards along the bone with a sawing motion rather than by pressing much upon it, and thus the external flap is formed. This is to be immediately raised, and such arteries as pour out much blood must be compressed with the fingers of the assistants and tied, before the rest of the operation is proceeded with.

The second stage.—The surgeon with his left hand is then to push the soft parts inwards, and to introduce the point of the knife, with the edge turned directly downwards, below the head of the femur, on the inner side of its neck. Then the knife is to be carried under the neck of the femur, and pushed through the limb, without touching the bones of the pelvis, at the posterior and superior angle of the wound. Being now held perpendicularly, the knife is to be conveyed two inches downwards close to the femur, avoiding, however, the trochanter minor; and as soon as the incision affords room enough, an assistant should compress the femoral artery contained in the flap; and the second stage of the operation is concluded by giving to this internal flap a length corresponding to the external.

The third stage.—The surgeon should now take hold of the femur with his left hand, and with a scalpel freely divide the capsular ligament at the inner side of the joint; which being done, the ligamentum teres can easily be reached with the end of the knife and cut through. Lastly, the knife, held perpendicularly, is to be applied to the inner side of the joint, and carried from within outwards, so as to cut through the rest of the orbicular ligament, and any fasciculi of muscular fibres which may not have been previously divided.

Guthrie's Flap-operation[1].—The patient should be laid on a low table or two field panniers placed together, covered with a folded blanket to prevent the edges from giving pain, and he should be properly supported in a horizontal position. An assistant leaning over and standing on the outside, should compress the artery against the brim of the pelvis, with a firm, hard compress of linen, such as is commonly used before the tourniquet, and he should be able

[1] On Gun-shot Wounds of the Extremities requiring the different Operations of Amputation, with their after treatment; establishing the advantages of amputation on the field of battle to the delay usually recommended; by G. J. Guthrie, p. 178. London, 1815.

to do it with his thumb behind the compress, if it be found insufficient. The surgeon standing on the inside, with a strong pointed amputating-knife of a middle size, with the back curved, is to make his first incision, through the skin, cellular membrane, and fascia, so as to mark out the flaps on each side, commencing about four fingers breadth, and in a direct line below the anterior superior spinous process of the ilium,—in a well-sized man,—and is to continue it round in a slanting direction at an almost equal distance from the tuberosity of the ischium, till nearly opposite to the place where the incision commenced. Bringing the knife to the outside of the thigh, he is to connect the point of the incision, where he left off, with the place of its commencement, by a gently curved line, so that the outer incision be not in extent more than one-third of the size of the inner one. The integuments having retracted, the M. glutæus maximus is to be cut from its insertion in the linea aspera, and the tendons of the M. glutæus medius and minimus from the top of the trochanter major. The surgeon now placing the flat edge of the knife on the line of the retracted muscles of the first incision, is to cut steadily through the whole of the muscles, blood-vessels, &c., on the inside of the thigh. The artery and vein,—or the two arteries and vein,—if the arteria profunda be given off high up,—are to be taken between the fingers and thumb of the left hand, until the surgeon can draw out each vessel with the tenaculum and place a ligature upon it. The surgeon is then to cut through the small muscles, which are on their way, to be inserted between the trochanters, and those on the under part of the thigh, which have not yet been divided; and with a large scalpel he is to cut into the capsular ligament, the bone being moved outwards, by which its round head puts the ligament on the stretch. Having extensively divided the parts on the fore part and inside, the ligamentum teres comes into view and may be readily divided. The head of the bone is now easily dislocated, and two or three strokes of the knife separate any attachment which the thigh may still have to the pelvis. The vessels are now to be carefully secured. The capsular ligament, and as much of the ligamentous edge of the acetabulum as can be readily taken away, may be removed. The nerves, if long, are to be cut short.

Bauden's and Beclard's Operation with posterior and anterior Flaps[1].—The patient is to be placed on a firm table with the nates projecting a little beyond its edge. The point of a long catlin is to be introduced horizontally a little above the summit of the trochanter major,—to be carried behind the neck of the femur,—and to protrude beneath the tuberosity of the ischium. The operator is now to cut downwards to the extent of three inches, and then outwards and backward, so as to form the posterior flap. The knife is to be again introduced at the same point; is to be carried in front of the joint; and to protrude at the same point internally. An anterior flap is now to be formed by cutting downwards and then outwards to the extent of three inches. The flap thus formed is to be carried upwards, and the vessels are to be compressed; the capsule is next to be divided all around, as well as the remaining muscular fibres attached to the femur. This will complete the operation.

The following is the mode of operating which I have had the honour to demonstrate to my surgical class during a period of sixteen years. It is a modification of Beclard's and Lisfranc's plan, to whose instructions, whilst in attendance on their practical courses of anatomy and operative surgery, I am so deeply indebted.

The great objections to amputation at the hip-joint have been the difficulty of restraining the hæmorrhage, and the shock given to the nervous system by the operation itself. The invention of the arterial compressor by Dr. Segnoroni of Padua, has overcome the first difficulty; whilst the rapidity by which the limb may be removed by an anterior and posterior flap, greatly lessens the second. To measure the skill and science of the surgeon by a stop-watch is at all times absurd; nevertheless it must be admitted, that when the pain and irritation of a tedious and protracted operation come to tell, as they must do, injuriously on the system, we are certainly warranted, under such circumstances, in expediting the operation as much as is consistent with

[1] Malgaigne's Manuel de Médecine Opératoire.—Procédé de Beclard.—Nouveaux Eléments de Médecine Opératoire, par A. L. M. Velpeau, tom. i. p. 324. Paris, 1832.

the safety of our patient[1]. These remarks especially apply to the oval and circular incisions. The arterial compressor in shape resembles a horse-shoe. It consists of two blades connected together in the centre by means of a screw and rack; by which contrivance the ends of the two blades, to which permanent compressors are affixed, can be brought into perfect apposition, so as completely to check arterial circulation, when applied over a vessel, without impeding the return of blood by the veins[2]. Previously to the application of

[1] The following anecdote is related of Sir A. Cooper, in reference to the operation performed by him in 1824. "The limb was removed in twenty minutes, the securing the arteries occupied fifteen more, the whole was completed in thirty-five minutes. The patient bore the operation with extraordinary firmness and fortitude, and after all was finished said to Sir Astley, 'that it was the hardest day's work he had ever gone through,' to which Sir Astley replied, 'that it was almost the hardest he ever had.'"—*Lancet*, vol. ii. p. 96: 1824.

[2] Since the operation on the subject of this memoir, I have tested the value of this instrument on several occasions particularly in the three following cases. In the first case of E. B., Esq., where secondary amputation of the leg became necessary in consequence of sloughing and uncontroulable hæmorrhage from the stump. The compressor was applied over the external iliac artery, and scarcely any blood was lost during the operation. In the second case, James Cliff, of Oldbury, admitted on the 27th of April into the Queen's Hospital for popliteal aneurism. In the first instance the compressor was applied over the femoral artery with a view to cure, and the size of the tumor diminished and became much firmer. Mortification of the leg and foot supervened, and amputation of the thigh high up became necessary; the external iliac artery was compressed by the instrument, and not more than four ounces of blood were lost during the operation. On an examination of the aneurism it was found to be principally fed by the descending branch of the ischiatic artery, which was greatly enlarged, and passed in company with the sciatic nerve to the sac. In the third case of H. B., Esq., I was called upon to remove a tumor of a malignant character from which hæmorrhage had several times taken place. It was situated over the biceps and the insertion of the deltoid, and weighed two pounds and a half. The axillary artery was compressed at the bottom of the axilla by the instrument applied across the deltoid, and not more than one ounce of arterial blood and little more than two ounces of venous blood were lost during the operation.

Still further to test the power of the compressor, I have instituted many experiments on the dead subject. In one instance the external iliac artery on the right side was compressed, and the right internal iliac was tied, a stop-cock was introduced into the abdominal aorta below the renal arteries, the nozzle of a twelve-ounce syringe, charged with a solution of coloured gelatine, was introduced into the stop-cock, and though considerable force was employed, no injection passed into the right femoral artery beyond the compressor. The external iliac artery being still compressed, the popliteal artery was exposed, the pipe of the syringe was introduced, and the same force was employed, but no injection could be driven beyond the compressor.

From the extreme simplicity of the instrument and its ready application I would venture to recommend it not only to the profession but also to those engaged in manufacturing and mining ope-

the instrument, a small piece of wash-leather or sheet caout-chouc may be laid upon the integuments to prevent the injurious effects of pressure on the skin; and still more effectually to perform the compression, either a piece of perfectly smooth, soft cork, about two inches in length and about an inch wide, with its under surface slightly groved, or a pad of soft linen may be placed beneath the pad of the compressor.

The patient is to be supported in a recumbent posture, and so placed that the tuberosities of the ischia project a little beyond the margin of the table. The compressor is to be applied over the external iliac artery, as it passes over the body of the os pubis, and the thigh must be partially flexed. The operator is to stand on the outer side; the point of a narrow double edged knife, about twelve inches in length, is to be boldly and steadily introduced at an inch below the anterior superior spinous process of the ilium, and made to glide across the neck of the femur, parallel with, and a little below Poupart's ligament so as to pass beneath the muscles of the anterior and internal region of the thigh, and beneath the superficial and deep femoral vessels, and be brought out about an inch below the margin of the anus. The knife is now to be carried downwards on a line with the anterior surface of the femur, from three to three inches

The Compressor applied, the first incision with anterior flap.

rations, &c. In case of the wound of any vessel, either of the upper or lower extremity, by the simple application of the compressor in the former case across the shoulder, below the middle of the collar bone on the first rib over the axillary artery; and in the latter case over the external iliac artery at the middle of the groin, any hæmorrhage may be commanded until surgical assistance arrives; and many a life may be saved.

and a half, in proportion to the bulk of the limb, and then brought obliquely downwards and forwards through the integuments; by which means the anterior flap will be formed. The flap is immediately to be thrown back, and its vessels, viz. the deep and superficial femoral arteries, at once compressed

The limb is now to be depressed and rotated outwards, when the capsule being fairly exposed, is to be divided close to the edge of the acetabulum and next the round ligament. The head of the bone will then be made to slip from the socket by a slight rotatory movement outwards, and the knife is to be carried through the joint. The posterior layer of the capsule, the extensor muscles of the hip attached to the trochanter major, and the small rotators inserted into the digital fossa of the same process are then to be divided, the knife is to be passed downwards on a line with, and close to the posterior surface of the femur for about three inches or three inches and a half, and afterwards downwards and backwards through the integuments,—thus completing the operation. The posterior vessels are first to be secured, and afterwards the vessels of the anterior region. The majority of surgeons recommend that the synovial membrane and cartilage of the

The second incision, with the anterior flap carried back and the vessels compressed.

The anterior and posterior flaps.

acetabulum should be scraped off; but I believe this to be a bad practice, and often productive of suppuration and disease of the bone. The cartilage and synovial membrane will take on adhesive inflammation in the same manner as the other soft parts, and the secretion will be suspended. The nerves should be cut off as high as possible; for if they should become engaged in the cicatrix of the wound, they would cause the most violent pain, not only during the cure, but even after the wound had healed.

The advantages of this operation are; 1st, The great security against hæmorrhage; 2ndly, The rapidity with which it may be performed[1]; 3rdly, the perfect manner in which the flaps may be made to meet in a line most favourable to union, so that they may remain properly applied to each other as it were by their own weight.

[1] "I consider the success of the operation to depend very much upon the quickness with which it is performed, not on account of hæmorrhage, but to avoid the shock the constitution receives from the continued exposure and irritation of so large a surface in the immediate vicinity of the trunk of the body."—*Guthrie*, p. 181.

CASE.

ELIZABETH POWIS, sempstress, now aged 23, was admitted into the Adelaide wing of the Queen's Hospital, under my care, on the 20th of July, 1842. She stated that she had undergone amputation of her left leg, above the knee, at the General Hospital, fourteen years ago, in consequence of disease of the knee-joint; that she remained in the General Hospital about two months, and that the stump was not quite healed when she was discharged; that about a month after this period the integuments around the cicatrix ulcerated, and a substance formed on the posterior surface of the stump, which was extremely painful; that the ulcerations healed from the centre towards the circumference, and that they never entirely cicatrized; that about six years after the operation, the integuments became hard and thick, and that she experienced a sensation as though pins and needles were sticking in the stump; at length fungous growths showed themselves on the surface, and the parts became more and more painful; that about eight years from the date of the operation she was again under surgical treatment, and was at intervals a patient at the Dispensary and Town Infirmary. She remained in the Queen's Hospital until

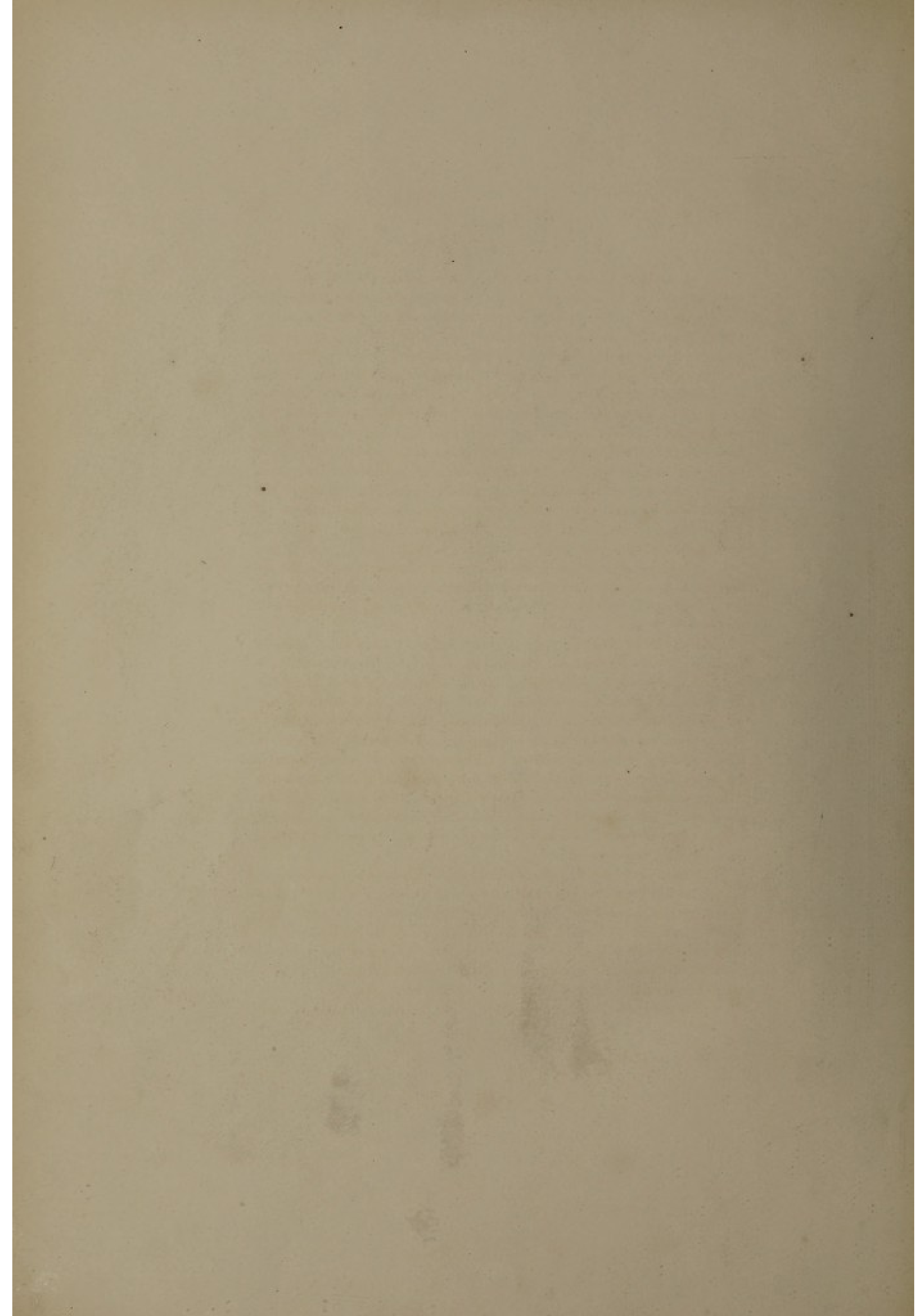
November 13, 1842.—During that period numerous topical remedies were applied; viz. *lotion of dilute nitric acid; lotion of nitrate of silver; liquor of diacetate of lead diluted; liquor of iodine* (Lugol); and tonic and alterative medicines were also administered internally, from all of which she derived little or no benefit. From the time of her discharge until her re-admission on the 1st July 1844, she continued under the care of Dr. Birt Davies and myself, as an out-patient, and was subjected to a variety of treatment with no permanent benefit.

July 1, 1844.—The stump presents the following appearances:—

The integuments extending upwards, anteriorly, for about three inches, and posteriorly for about four inches and a half, are of a dull white colour, and of a cartilaginous hardness; and above this, for a limited extent, anteriorly, posteriorly, and laterally, the same parts have a glazed, corrugated appearance, like that presented by an old cicatrix. Patches of fungous growth, of a livid colour, protrude from a half to one-third of an inch from the general surface, at intervals. From these excrescences blood occasionally exudes, and at

A

A. Great Sciatic nerve.



times a sanious fluid. These excrescences are extremely tender, and bleed on the least touch. The integuments of the upper part of the stump are of a perfectly healthy character and feeling. There is no enlargement of the cutaneous veins, or of the inguinal or femoral glands. The stump generally is tender to the touch; the pain nearly constant, sometimes of a dull, aching character, at other times throbbing. Her disposition is remarkably mild and placid; her complexion is clear; her hair and eyes black; her chest is well developed; she is inclined to *embonpoint*. She states that her general health has been good, and that her catamenial periods have occurred regularly every five weeks; that her father died asthmatic, and that a short time previous to his death, a tumour, of what character she knows not, appeared in his axilla; that her mother died in a decline, as also did her only sister, and that she has three brothers living, who enjoy good health.

Various topical remedies were again applied, and tonics and alteratives administered internally, but to no purpose, as the fungoid growths and morbid condition of the integuments continued to extend towards the body. She now became very anxious that amputation should be performed. After mature consideration, it appeared to me a very favourable case for amputation at the hip-joint, the only operation likely to be attended with permanent success, in which opinion my colleagues were also unanimous. The operation was proposed; she most readily consented, and her determination was seconded by her friends.

November 1*st*.—On this day, in the presence of Professor Dr. Birt Davies; Professor Dr. Melson; Edward Townsend Cox, Esq., honorary surgeon of the Institution; Richard Wood, Esq., senior surgeon of the General Hospital, (who most handsomely attended on the occasion); Dr. Annesley, late of the Scots Greys; Dr. Warren, 7th Hussars; Dr. Mair, 39th regiment; R. Davies, Esq., senior, Coleshill; George Moore, Esq., Moreton-in-Marsh; William Lees Underhill, Esq., Tipton; J. Stallard, Esq., jun., Leicester; and upwards of fifty students of Queen's College; assisted by Professors Knowles and Parker, amputation was performed by an anterior and posterior flap, this plan affording greater facility for restraining hæmorrhage from the femoral and profunda arteries, and the formation of a better line of union. The existence of a patch of fungoid growth on the inner and posterior side of the stump, within about three inches of the anus, precluded the operation by lateral flaps, had such a mode been preferred.

The admeasurement of the parts, made about a week before the operation was as follows: viz. from the anterior superior spinous process of the ilium to the limit of healthy structure anteriorly, seven inches; from the tuberosity of the ischium to the healthy limit posteriorly, not quite four inches; circumference of the thigh at the upper part, twenty inches; transverse diameter of the same, seven inches; length of proposed line of incision, ten inches. The urinary and intestinal secretions were ascertained to be natural; the latter had been regulated for a few days previous to the operation by castor oil.

At *half-past eleven*, A.M., The patient was placed on the table, the nates slightly pro-

jecting over its edge, the horse-shoe compressor, invented by Dr. Segnoroni, of Padua, and manufactured by Messrs. Weiss, was applied on the external iliac artery, as it passes over the body of the os pubis, so as completely to command the flow of blood through the arteries, without impeding its return by the veins. Mr. Knowles took charge of the right leg; the compressor was placed in the care of Mr. L. Parker, and the stump was entrusted to Mr. John Moore, the resident medical officer. The point of a narrow double-edged knife, twelve inches in length, was introduced at an inch below the anterior superior spinous process of the ilium, and carried across the neck of the femur, parallel with, and a little below, Poupart's ligament, beneath the muscles of the anterior region of the thigh, beneath the femoral vessels, and brought out about an inch below the margin of the anus; it was now carried downwards, on a line with the anterior surface of the femur, from three inches to three inches and a half, and then brought obliquely downwards and forwards through the integuments. The flap thus formed was immediately thrown back, and the capsule of the hip-joint was fairly exposed. The flap was retained and the vessels compressed by Mr. Parker. The stump being now slightly depressed and abducted, the capsule of the hip-joint was opened, and rotation outwards and depression being simultaneously effected, the head of the femur slipped, without any force, from the acetabulum. The ligamentum teres was then divided, the posterior layer of the capsule, the extensor muscles of the hip and small rotators were separated from the trochanter major, and the knife passed downwards, on a line and close against the posterior surface of the femur, for about three inches, and then carried downwards and backwards, through the integuments posteriorly. The surface of this flap was immediately covered with a sponge, by Mr. Knowles. It was now ascertained that the compressor completely commanded the hæmorrhage from the anterior flap; the posterior arteries were therefore first secured—namely, two muscular branches, and the descending branch of the ischiatic artery. The screw of the compressor was now slackened, and a jet of blood was thrown from the mouths of the superficial and deep femoral arteries; the latter vessel was covered by a piece of sponge, and the former instantly seized with a tenaculum, and a ligature applied at about three-quarters of an inch above its division; the latter vessel was then secured in the same manner. All hæmorrhage now ceased. The operation was completed under thirty-five seconds. All the vessels were secured under five minutes; and not more than four ounces of blood were lost during the operation. The flaps were now brought into apposition; they fitted admirably, and were retained in contact by long wide strips of adhesive plaster; and near the outer angle of the wound a strong suture was inserted. The stump was supported by strips of bandaging, attached before and behind to a broad belt, carried round the waist, and still farther supported by a square pad, covered with oiled silk, to the four corners of which were attached leather straps, which straps were connected anteriorly and posteriorly to buckles attached to the belt before mentioned. The operation and dressing were well borne; during the former, the pulse did not falter, but towards the close of the latter the patient became very faint;

she was placed in the horizontal posture on the operating table, and carried on it into her ward, and immediately placed in bed, the stump being supported by pillows. Though scarcely five ounces of blood had been lost during the operation, and though the patient had drunk a full half pint of port wine, she was now in an extremely collapsed condition; the pulse was excessively quick and feeble, but regular; the countenance much pinched; the lips were exsanguine; the skin cold and clammy; much aching pain in the cavity of the hip-joint was complained of.

Cold weak tea was given, a bottle of hot water applied to the foot, and perfect quietude observed.

Two o'clock, P.M.—Countenance still pallid and anxious; pulse improved; bandages coloured to a slight extent by venous oozing; aching pain in the joint still felt; hiccough. To take—

Bicarbonate of Potass, one scruple,
Tincture of Henbane, twenty minims,
Camphor Mixture, one ounce,
Every three hours, with a tea-spoonful of lemon-juice in a state of effervescence.

Four o'clock, P.M.—Pulse 90; weak; slight headache; hiccough relieved; countenance less anxious; still great pain in the stump, which appears to extend even to the absent toes. She has always, from the time of the first operation, complained of acute sensations in the absent limb, and now more acutely, especially in the foot and toes.

Six o'clock, P.M.—Pain is less, but still acute; pulse 110, soft, and compressible; countenance still somewhat anxious.

Twelve o'clock, P.M.—Pulse 100, small and soft; severe darting and "tugging" pains in the stump. Instructions were given to the resident medical officer, Mr. John Moore, of whose skill, unwearied kindness, and assiduous attention, night and day, I cannot speak in too high terms, to administer to the poor patient, *if absolutely necessary*, the following opiate:

Twelve minims of the sedative solution of opium in a draught.

NOVEMBER 2.—Draught afforded almost instant relief: she fell asleep about one, P.M.

Half-past two o'clock, A.M.—She now awoke with return of pain in the stump, and sickness. An effervescing draught was given and afforded relief.

Eight o'clock, A.M.—Has had four hours comfortable sleep; no pain nor tenderness; no hæmorrhage. Pulse 110, soft and weak; tongue white, but moist; has not micturated since the operation; no tension nor tenderness of abdomen.

Noon.—Passed about ℥viii of clear, healthy-looking urine; is quite comfortable; countenance still pallid, but cheerful.

To continue the effervescing mixture.

No action on the bowels.

Six o'clock, P.M.—Pulse 110; no pain; slight delirium.

Twelve o'clock, P.M.—Pulse 110; soft and weak; tongue slightly furred, but moist; return of pain in stump.

Repeat the sedative draught.
Take a pill containing ten grains of powdered rhubarb.
Diet. *Weak* tea, toast and water, lemonade.

NOVEMBER 3.—*Six o'clock,* A.M.—My dresser, Mr. Davies, reported to me that she passed a good night, nearly five hours' sleep; no pain of head, delirium, or hæmorrhage; tongue moist; slightly furred; pulse 120, soft and small.

Two o'clock, P.M.—Some pain and tenderness of bowels, which have not acted since the operation; countenance natural; pulse 118, soft; at patient's request, a change of linen was effected without injury. In consultation with my colleague Dr. Birt Davies, this morning, to whom I am indebted for valuable counsel and suggestions in the medical treatment, and for his almost daily benevolent attentions to the poor sufferer, we deemed it advisable to administer

Compound senna draught, two ounces;
Calomel, grains three;
James's powder, grains six.

Ten o'clock, P.M.—Feels comfortable; no action upon the bowels; pulse 118, soft and compressible.

To take a pill as before prescribed.
Diet. Weak tea, toast and water, lemonade.

NOVEMBER 4.—*Half past One,* P.M.—Feels quite comfortable; there has been no action upon the bowels. In consequence of violent recurrence of pains, the sedative draught was given about three, A.M. It afforded relief; tongue moist, still furred; pulse 118, soft and compressible.

Compound senna draught repeated.

Ten o'clock, A.M.—The straps were severally and separately removed from the upper flap; flaps nearly throughout united by adhesive inflammation; but slight discharge and, what there is, healthy; no appearance of synovia; no redness, and but little tenderness of the integuments. The edges of wound having been carefully sponged, the dressings were replaced. Bowels have not yet acted; abdomen rather tender; pulse 110, sharp, small; tongue furred; she complains of a sensation of burning in the hip-joint.

Six o'clock, P.M.—Countenance anxious; bowels have not acted; pain and tenderness of abdomen continue; pulse 120, hard and sharp; tongue white and moist; continuance of burning sensation in the hip-joint.

An enema, with three ounces of castor-oil, to be administered.

Half past Ten o'clock.—Enema operated, but not freely; secretions of dark colour, pain and tenderness of abdomen diminished; countenance less anxious; pulse 120, softer; patient altogether more comfortable.

Diet. Weak tea, toast and water, lemonade.

November 5.—*Half past One o'clock*, A.M.—Has twice been suddenly disturbed from sleep by violent "tugging pain" in the stump; the pulse is now extremely quick and irritable; the countenance anxious; and she is evidently much alarmed; skin cool and moist.

To repeat the sedative draught.

She experienced relief and slept comfortably until about six o'clock, with slight intervals.

Six o'clock, A.M.—Quite comfortable; some thirst; no pain of head; tongue clean and moist; pulse 120, increased in power and volume, but not hard; urinary secretions healthy, both as to character and quantity; bowels still confined.

To repeat the aperient draught.
To continue the effervescing mixture.
Diet. Mutton broth.

Ten o'clock, A.M.—Stump dressed; it looks well; inner angle of wound quite united; discharge slight and of healthy character; no secretion of synovia; she complains of occasional burning pain in the joint.

Seven o'clock, P.M.—Much general pain and uneasiness; the abdomen is tender, and the stump extremely painful.

To repeat the castor-oil enema.

Twelve o'clock, P.M.—Having endeavoured to improve her position, she shook the stump, and brought on much pain, which continued so long and with such violence, that the sedative draught was again, though reluctantly, administered; this afforded relief, and she had afterwards a tolerably comfortable night. Bowels still confined.

November 6.—*Eight o'clock*, A.M.—Quite easy, excepting a dull aching sensation in the centre of the stump; there is also slight tenderness of the abdomen; pulse 110, of moderate volume and compressible; the tongue covered with brownish fur but clean and moist at the edges; bowels have not acted.

To repeat the compound senna draught every three hours until the bowels are acted upon.

Ten o'clock.—Stump again dressed and looks well; discharge rather increases; bowels not open; tenderness of abdomen continues.

Seven o'clock, P.M.—Bowels have acted freely about an hour since; tenderness of abdomen less; pulse 110, soft and compressible.

Half past eight.—Much general irritability.

To take the sedative draught.

Twelve o'clock, P.M.—Irritability diminished; pulse 100, weak; countenance natural; tongue cleaner and moist; skin cool. Diet mutton broth.

November 7.—Passed a restless night; pulse 110, small and weak; tongue coated with brown fur but moist, clean at the edges.

Ten o'clock.—Skin moist and cool; but little pain; bowels confined; wound dressed; looks healthy. A small portion of boiled chicken for dinner.

To continue the effervescing mixture.
To take—One grain of calomel;
One grain of ginger;
Two grains of jalap, in the form of pills, every six hours.

Eight o'clock, P.M.—After taking a second dose of the pills the bowels acted freely; pain during the day has been less; pulse 104, soft and compressible; tongue cleaner.

November 8.—*Ten o'clock*, A.M.—Pains came on last night, as usual, about twelve o'clock, and continued until near three, a draught was then administered, and she passed the remainder of the night comfortably; the bowels since the last report have acted four times, their secretions are more natural; tongue clean and moist; pulse 100, weak. Wound dressed, looks extremely well; discharge healthy; some enlargement of inguinal glands of left side, no discoloration of integuments.

To continue the effervescing mixture.

Ten o'clock, P.M.—Has been rather low spirited during the day; bowels have been twice moved, secretions improved; tongue much cleaner; pulse 110, small and soft.

Five grains of compound soap pill as a suppositary.

November 9.—Passed a comfortable night and feels much better; tongue clean; pulse 100, sharp; bowels opened once; wound dressed; looked healthy. Boiled mutton for dinner.

To continue the effervescing mixture.

Ten o'clock, P.M.—About six o'clock this afternoon had a recurrence of violent neuralgic pains, which lasted about two hours; is now quite comfortable; pulse 95, soft; bowels opened twice during the day.

November 10.—Slept about six hours comfortably during the night and feels much better; pulse 100, sharp; but little discharge and that healthy; wound not dressed.

To continue the effervescing mixture.
Diet. Broth for dinner. Jelly as required.

Ten o'clock, P.M.—The "tugging" pains have recurred at intervals during the day, but are on the whole diminished in intensity; she is now quite comfortable, the pulse being 95, soft and compressible, and the tongue clean and moist.

November 11.—Sleep has been disturbed; the pulse is quick, small, and weak; tongue, as at last report; the bowels have not acted since last evening; wound dressed; general appearance healthy, as are the discharges; the anterior margin of the wound is

slightly ulcerated, and there are two or three small excavated spots in its centre; perspirations and occasional hectic flushes have been present.

> Di-sulphate of quinine, twelve grains;
> Water, eight ounces;
> To take one ounce three times a day.
> Chicken and light pudding for dinner.

Ten o'clock, P.M.—Has taken two doses of her mixture, the pains have been less severe, although they have recurred at intervals; the bowels have not acted since last evening; pulse firmer and slower, 82; tongue still improves; passes from thirty to forty ounces of urine in the twenty-four hours.

> Compound rhubarb pill, ten grains; to be taken at bed-time.

November 12.—Only had between two and three hours sleep, nevertheless feels better; bowels acted during the night; tongue, nearly clean and moist; pulse 100, soft; stump looks well; ulceration not extended; ligatures will not separate.

> To continue the bark and effervescing mixtures.
> Chicken and light pudding.

Ten o'clock, P.M.—Enjoyed her dinner much; has passed the day comfortably; pains much diminished in intensity; has slept for about half an hour; bowels opened twice during the day; secretions healthy; pulse 90, soft; slept for about four hours; tongue slightly furred; hectic symptoms continue. The stump progresses favourably.

> Continue the bark and effervescing mixture.
> Fish and light pudding for dinner.

November 13.—*Six o'clock*, P.M.—The resident medical officer was summoned by the nurse in great alarm, stating that Powis was "in a fit;" her teeth were set, her hands clenched; countenance wild; pupils much dilated, but answering slightly to light; pulse quick, small, and weak; the forehead being sponged with cold water, she speedily got better and complained of "tugging pain" in the stump.

Ten o'clock, P.M.—Feels better; tongue in the centre covered with darkish brown fur, and dry, clean and moist at the edges; pulse 108, weak; urine acid; non-coagulable by heat or nitric acid. Under the microscope it is found to contain a copious deposit of the chrystals of lithate of ammonia, specific gravity 1·028.

November 14.—Passed a good night; tongue cleaner and moist; bowels acted twice yesterday; hectic symptoms diminished; pulse 110, weak; wound decreases rapidly; but little discharge, and that healthy.

> To continue the quinine mixture;
> To continue the effervescing mixture (alkali in excess).
> Roast chicken for dinner.

Has passed a better day; hectic symptoms still present.

NOVEMBER 15.—Slept well; less pain; bowels open; urine of lighter colour and clearer; pulse 108; tongue clean and moist; wound much contracted.

To continue the mixtures.
Sweet-bread, light pudding.

NOVEMBER 16.—Passed a good night; bowels open; tongue clean and moist; skin cool; pulse 100, soft and compressible; wound contracts rapidly; pain decreases.

To continue the mixtures,
Cold chicken.

NOVEMBER 17.—Not so good a night; recurrence of pains; her manner is hysterical; bowels free; tongue clean and moist; pulse 90, firmer; skin natural; stump heals rapidly.

To continue the mixtures.
Sweet-bread and light pudding.

Evening.—Has passed a comfortable day.

NOVEMBER 18.—Wound considerably contracted since yesterday; of extremely healthy appearance; countenance cheerful; complexion clear; pulse 90, firm but compressible; tongue clean; some pain and tenderness of left side.

To continue the mixture.
Fish dinner and light pudding.

Evening.—Pain of the side continues; has passed on the whole a comfortable day.

NOVEMBER 19.—*Half-past Three,* A.M.—The resident medical officer was called up and found the patient complaining of pain and tenderness of the left side; the whole abdomen is exquisitely tender; countenance excited; pulse 100–110; tongue clean; skin cool and moist.

Let her take a sedative draught, &c.

Ten o'clock, A.M.—About half an hour after taking the draught last evening, she fell asleep and had a good night's rest; has now but little pain; pulse 90; tongue and skin natural; stump heals rapidly.

Continue the mixture.
Fish and pudding.

Has passed a comfortable day with occasional pains only.

NOVEMBER 20.—Same as yesterday. Has passed a comfortable day.

NOVEMBER 21.—Passed a good night; feels better; tongue clean but dry in centre; pulse 90, soft; bowels open; urine natural in quantity, but found to be alkaline; this is probably owing to the long continuance of the alkaline mixture, specific gravity, 1·015, clear, without spontaneous sediment, but deposits, on application of heat, triple phosphate copiously. The stump looks well; one ligature came away.

Intermit the alkaline mixture.

Evening.—Some pain in the stump during the day; bowels rather confined.

Senna draught to be taken in the morning.

NOVEMBER 22.—*Evening.*—Bowels opened; she feels better; complains of pain of side and inability to sleep; begs for a draught. To take

A bread pill.

NOVEMBER 23.—Good night; much less of pain; pulse 95; tongue clean; stump looks well.

Evening.—Bowels confined; pain "*coming on*"; begs for a sleeping pill. The nurse was told, in the hearing of the patient, not to give the pill unless absolutely necessary.

Aperient draught in morning.

NOVEMBER 24.—Going on well; wound not dressed.

Evening.—Some slight pains; bowels open; pill not given.

NOVEMBER 25.—A bad night; disturbed by much "tugging pain," which was prolonged down the absent leg; pulse good; last ligature removed. Wound much contracted.

Evening.—Pain recurred; bowels confined.

Bread pill and senna draught.

NOVEMBER 26.—*Eleven o'clock,* A.M.—Countenance expressive of anxiety; slept well; tongue slightly furred at the back and centre; pulse 100, small; thirst; bowels still confined. (The draught was not taken this morning as ordered).

Calomel, grains two;
James's powder, grains five;
To be taken immediately.
Senna draught in two hours after the pill.

Evening.—Bowels freely moved, much better; tongue cleaner; pulse slower; urine, specific gravity 1·025; thick, copious, lithic sediment, extremely acid.

To take the effervescing mixture.

NOVEMBER 27.—Had a tolerable night and feels better; stump looks well; general symptoms much improved.

To take the effervescing mixture

Evening.—Had return of pain; begs to be allowed a pill, which was accordingly given.

NOVEMBER 29.—Tongue furred; some heat of skin and pain; pulse quick; bowels confined; wound progressing favourably; there is some hardness of integuments of inner side of stump.

November 30.—Is much better; had an hysterical fit whilst the stump was being dressed.

December 1.—Pain at the inner side of stump complained of; the cicatrix is here much raised, and presents a vesicular appearance; wound looks healthy.

> To continue mixture and bread pills.
> Poultice to inner side of stump.

December 2.—Vesicle has burst, leaving an ulcerated surface; discharges pus.

> Two grains of di-sulphate of quinine, three times a day.
> To continue the effervescing mixture.

December 6.—Inner angle of stump much better; general surface of sore healthy; slight ulceration at outer angle; pulse natural; countenance good; secretions healthy; tongue pale, but clean and moist;

> Continue mixture and pills.
> Ale half a pint daily.

December 10.—Surface of sore now measures about 3¼ inches; general symptoms good.

> To continue the quinine.
> Ale continued.

Sat up to-day for about two hours with little inconvenience; the pains have much diminished, and she does not ask for sleeping pills.

December 17.—Superficial ulcerations of the cicatrix occasionally take place, but speedily heal; the stump is of healthy appearance and feel; the wound contracts rapidly.

> Port wine, four ounces daily.
> To continue the quinine.

Sat up to day five hours.

December 20.—*Evening.*—Superficial ulcerations have disappeared; rheumatic pains of right shoulder and right leg and also of stump complained of; tongue clean and moist; pulse natural; skin cool and moist.

> Compound Ipecacuanha powder, nitrate of potass, five grains of each at bed-time.
> Senna draught in the morning.

December 21.—Passed a good night.

> One ounce of guaiacum mixture three times a day.

December 24.—Pains much diminished; stump looks well; bowels quite open.

> Continue mixture.

December 28.—Medicine causes sickness; pains have disappeared; tongue, skin, and pulse natural; right leg becomes œdematous towards night; the wound is now about an inch and a half long by a quarter of an inch wide. She sits up for four or five

hours daily. The quantity of urine passed in the twenty-four hours is thirty-two ounces, specific gravity 1·016; no coagulation by heat or nitric acid; contains lithates.

Resume the quinine mixture.

JANUARY 1, 1845.—Œdema diminished; appetite good and general improvement.

JANUARY 5.—*Morning*.—Pains much diminished; wound now about the size of a sixpenny piece, looks healthy; slight hæmorrhage took place from ulcerated surface during the dressing.

JANUARY 7.—Catamenia ceased to-day, having been scarcely so plentiful as formerly.

FEBRUARY 5.—From the last date up to this period she has continued gradually to gain her strength, and has been able to take exercise with crutches; the wound is entirely healed. On Sunday last she attended divine service in the chapel of the hospital, with the other patients, without any inconvenience, and on Wednesday last she was discharged by the committee of the hospital, cured.

AUGUST 12, 1845.—Through the generosity of a benevolent lady[1] she has enjoyed, during the last two months, the benefit of a residence in the country; she is now in robust health, and by the kindness of friends enabled to support herself by her own industry.

REMARKS.

Necessity of the Operation.—The history of the case and the character of the morbid growths led to the opinion that the disease was of a specific nature, consequently the operation was not proposed for a period of nearly two years, and then only from the progressive increase of the disease and the constant and distressing pain. Under these circumstances I felt myself fully warranted in recommending it. I was induced to hope for a favourable result on the following grounds: first, there was no enlargement of the cutaneous veins; secondly, there was no enlargement of the inguinal and femoral glands; thirdly, the various functions and secretions were regularly and duly performed. The diagnosis of the disease and the absolute necessity of the operation were confirmed by the following appearances of the stump after amputation.

[1] Mrs. P———, of Warley Hall, Salop.

Integuments.—On making a section of the diseased mass, the whole of the integuments inferiorly to the extent of about four inches were converted into an indurated mass, of cartilaginous hardness, of a pearly whiteness, from three-eighths to five-eighths of an inch in thickness. Under the microscope, this structure appeared cellular and vascular, with myriads of minute globules, interspersed with spindle-shaped bodies as observed by Müller in various tumors[1].

The cellular and adipose tissues.—These tissues were in considerable quantity; the latter remarkably dense and intersected with fibrous bands.

The muscular tissue.—The muscles presented a peculiar granular appearance, were softened in texture, intersected with fibrous bands, and with the exception of the muscles inserted into the trochanters, appeared to have undergone fatty degeneration.

The vascular tissue.—The deep and superficial femoral arteries were not enlarged, the muscular and perforating branches on being injected with size and vermillion, were found to terminate in a vascular net work distributed to the integuments, and fungoid growths.

The nervous tissue.—The nerves terminated in bulbous enlargements: that of the great sciatic nerve was as large as a walnut, greyish, solid, and vascular, and from it fibrous bands proceeded, which were lost in the adipose tissue.

The osseous tissue.—The ilio-femoral articulation was quite healthy; ossific matter, to the extent of an inch and a half, sharp and pointed, had been deposited on the inferior surface of the femur.

The accompanying drawing, most carefully taken the following day by Mr. R. W. Bradley, Student of Queen's College, will give a clearer idea than any verbal description.

The operation.—Had I attempted to operate by sawing through the

[1] Müller on the Nature and Structural Characteristics of Cancer and of those morbid growths which may be confounded with it; translated from the German, with notes, by Charles West, M.D., Part I. Carcinoma Medullare, p. 62. London 1840.

neck of the thigh bone, the want of sufficient sound and healthy integuments, laterally and posteriorly, would have proved a serious impediment. I was even compelled to include in the posterior flap a small patch of fungoid growth which was afterwards completely destroyed by caustic during the progress of the cure. I had the honour to be a pupil of the late Sir Astley Cooper at the time of his successful case, and I hold, with diffidence, the opinion then formed, notwithstanding a correspondence with him on the subject in the year 1834[1], that the dreadful anxiety and bodily pain when the operation is protracted by making a section of the bone through its neck, is productive of more exhaustion and of greater danger than disarticulation. I believe it to be unnecessary to scrape off the synovial membrane and cartilage from the cotyloid cavity, since these tissues will take on adhesive inflammation and throw out plastic lymph in the same manner as the soft parts, while their removal gives rise to suppuration and caries.

The mode of dressing.—With regard to the mode of dressing, the flaps were simply retained in contact by adhesive plaster, by a compress of lint anteriorly and posteriorly, and by strips of bandaging attached behind and before to a broad belt passed around the loins; the application of the bandage I still prefer to the modern practice of water-dressings, as I believe it operates beneficially not only by giving a better support to the parts, but by the exercise of moderate pressure on the muscles thereby preventing spasm; and the compresses are serviceable in suppressing secondary hæmorrhage, especially from the veins. One ligature was applied at the external angle of the wound, not only to support the glutæus maximus muscle, but also most accurately to close the parts at this situation and to prevent the possibility of the access of air to the cotyloid cavity.

Medical treatment.—The use of opium, so strongly recommended by some surgeons, was sparingly administered. I doubt very much the propriety of its employment, under ordinary circumstances, after operations. It may

[1] See *note*, No. 4, page 10.

allay the pain and irritation for a time, but I am convinced that the depression which succeeds its exhibition more than counterbalances its good effects, and it at the same time checks the secretions of the chylopoietic viscera.

The separate ward in which the patient was placed was lofty, and twenty-one feet by sixteen, and the temperature, night and day, was most carefully maintained at 60°. Little or no meat, wine, or beer were allowed. I believe that the suppuration frequently witnessed in stumps, often arises from the injudicious administration of stimuli, under the absurd idea of giving tone to the system, and of supporting the patient under the discharges; the very secretion it is intended to prevent being, in point of fact, often thereby promoted.

Towards the latter end of the cure it will be seen that pains of a hysterical character occasionally occurred, but were at once suspended by an imaginary opiate.

In conclusion, I have endeavoured carefully to record the facts of this case, and if the memoir should conduce to the earnest consideration of the subject and the adoption of the operation, when necessary, I shall be most amply repaid.

STATISTICAL TABLE OF SUCCESSFUL OPERATIONS.

Date.	Name of Operator.	Sex and Age.	Cause of Operation.	Method of Operating.	Result.	Where recorded.
1774.	PERAULT.	Male.	Compound fracture of the thigh.	External and internal flaps.	Cured.	Médecine Opératoire, 2nd edit. par Sabatier, tom. iii. p. 422. Paris 1811.
1794.	BLANDIN.	Soldier.	Compound fracture of the thigh from a gun shot.	....	Cured.	Opérations Générales, par Bourgery, vol. vi. p. 270. Paris 1827.
1794.	BLANDIN.	Soldier.	Compound fracture of the thigh from a gun shot.	....	Cured.	Idem.—Nouveau Eléments de Médecine Opératoire, par A. A. L. M. Velpeau.
1798.	PERRET.	Soldier.	Compound fracture of the thigh from a gun shot.	....	Cured.	
1798.	MULDER.	Female, Æt. 18.	....	....	....	Cyclopædia of Practical Surgery, by Costello, Part II. p. 182. London 1837.
1799.	....	English sailor.	Gun-shot wound received at the battle of Aboukir.	....	Cured.	Journal der Prakt. Heilk. von Hufeland und Himley 1811. vi. Bd. Oder xxvi. Band, Oder xxxiii. Bd. 7; St. July, p. 110.
1803.	LARREY.	Soldier.	Gun-shot wound received at the battle of Mozaïks.	Artery previously tied. Two lateral flaps.	Was seen perfectly cured at Witterp three months afterwards by M. Bachelet.	Mémoire de Chirurg. Militaire, vol. ii. Campagne de Russie.
1803.	MILLINGEN.	....	....	....	Cured.	Cyclopædia of Practical Surgery, edited by Costello, Part II. p. 182. London 1837.
1803.	MILLINGEN.	....	....	....	Cured.	
1812.	BROWNRIGG.	Soldier.	Gun-shot wound of the thigh, with fracture of the bone close to the trochanter, on the 29th of December, 1811, near Madeira, in Spain.	....	Cured. The man is now living in perfect health at Spalding in Lincolnshire.	Guthrie on Gun-shot Wounds, p. 163. London 1815.—Averill's Operative Surgery, 2nd edit., p. 217. London 1825.
1815.	GUTHRIE.	Soldier.	Gun-shot wound received at the battle of Waterloo.	Internal and external flaps.	Was discharged cured and became an inmate of the Hotel des Invalids, at Paris.	Hennen's Military Surgery, p. 283.—Thompson's Reports on the Hospitals in Belgium, after the battle of Waterloo, p. 26, 1828.
1824.	ASTLEY COOPER	Male, Æt. 40.	Leg amputated above the knee some years before; the thigh-bone had become diseased from the extremity of the stump to the trochanters.	Internal and external flaps.	Discharged cured at the end of six months; at which period ascites made its appearance, and he was tapped twice.	Lancet, vol. ii. p. 96, 1824.
1826.	ORTON.	Male, Æt. 25.	Caries of the femur with diseased knee-joint.	In consequence of the diseased condition of the integuments on the outside of the limb, one internal large flap, twelve ligatures applied to vessels.	Operated upon, June 10th, discharged cured, Sept. 24th, 1826.	Medico-Chirurgical Transactions, vol. xiii. p. 605. London.
1826.	ORTHON.	....	....	....	Cured.	Opérat. Générales, par Bourgery, tom. vi. p. 271.—Cyclopædia of Practical Surgery.—Nouveau Eléments de Médecine Opératoire, par A. Velpeau, tom. i. p. 514.
1827.	BRYCE.	Sailor, Æt. 23.	Fractured femur from a six-pound shot at the disasterous battle of Athens.	External and internal flaps.	Operated upon May 6th, discharged cured in six weeks.	Medico-Chirurgical Review, vol. xv. p. 513. 1831.
1828.	MOTT.	Boy, Æt. 10.	Fractured femur followed by abscesses and diseased bone.	Femoral artery previously secured. Internal and external flaps.	Operated upon October 7th, discharged cured, November 20th.	Philadelphia Medical Journal, No. 9, vol. v. new series.—Medical Journal, vol. lviii. p. 229. Edited by Macleod. London.
1828.	DELPECH.	....	Necrosis of the thigh, which had given rise to numerous fistulous orifices.	Femoral artery first secured. Internal and external flaps—great difficulty experienced in bringing the flaps over the articulation. Two branches of the profunda artery and gluteal secured by ligatures.	Cured. Cicatrix formed in thirty days.	Lancet, vol. ii. p. 682. London 1827–28.
	ROSSI.	....	....	....	Cured.	Médecine Opératoire, tom. ii. p. 224.
1831.	MACFARLANE.	Girl, Æt. 2.	Compound fracture of the thigh, from the wheel of a loaded waggon.	An outer and inner flap. Not more than six drachms of blood were lost. Five vessels were secured by ligatures.	Operated upon, July 6th; discharged cured, August 12th, 1831.	Clinical Reports of Surgical Cases at the Glasgow Royal Infirmary, p, 181. Robertson. Glasgow 1832.
1832.	JAEGER.	Girl, Æt. 25.	Extensive caries of the femur.	External and internal flap. Femoral arteries, deep and superficial, tied.	Discharged cured on the seventh week.	Dublin Journal of Medical Science, vol. ix. p. 149.
1836.	BAUDENS.	Soldier, Æt. 24.	Fractured femur from gun-shot wound received at the siege of Algiers.	Beclard's operation.	Discharged cured in forty days.	La Lancette Francaise, No. 84, Juillet 14ieme, 1836.—Medico-Chir. Review, 1837.
1836.	....	Soldier.	Gun-shot wound in Spain.	....	Cured.	Notes on the Medical History and Statistics of the British Legion of Spain, by R. Alcock, K.T.S., p. 78. London 1838.
1840.	SEDILOTT.	Male, Æt. 28.	Compound comminuted fracture of the thigh, followed by profuse suppuration.	Single anterior flap. Twenty-two vessels secured by ligatures.	Operated upon, August 17th; discharged cured, November 2nd.	Mémoires de Chirurgie, tom. l. p. 271. Paris.
1840.	HYSERN.	....	....	....	Cured.	Opérations Générales, par Bourgery, tom. vi. page 271. Paris 1839.
1841.	TEXTOR.	....	Gangrene following amputation of the knee.	....	Cure perfected in four months.	Gazette Médicale de Paris, Sept. 4th, 1841.—Edinburgh Medical Journal, vol. xlviii.
	MAYO.	....	Neuroma from primary amputation above the knee.	....	Cured.	Cyclopædia of Practical Surgery, Part II., p. 182. Edited by Costello, 1837.—Cooper's Dictionary of Prac. Science, 7th edit., p. 85. London. 1838.

I have been informed that Lisfranc has operated successfully, the patient was stated to be alive on the tenth day, but no report was afterwards given. Dr. Rush, of New York, has also, I believe, operated successfully.

STATISTICAL TABLE OF UNSUCCESSFUL OPERATIONS.

⁎ The great difficulty of obtaining an account of the failures of the operation, especially of the cases which were operated upon on the field of battle, where the operators had no time or opportunity to commit the details to paper, must plead the apology for the following imperfect statistical Table.

Date.	Name of Operator.	Sex and Age.	Cause of Operation.	Method of Operating.	Result.	Where recorded.
1748.	La Croix.	A young boy.	Mortification of both thighs.	The limbs were nearly separated, requiring only the division of the soft parts with a pair of scissors.	Survived the operation fifteen days. Died of typhus.	Barbet in Prix de l'Academie Roy. de Chir., tom. i. 12th edit. Paris 1778.
1779.	Kerr.	Girl.	Caries of the femur.		Died on the twelfth day from diseased lungs.	Duncan's Med. Com., vol. vi. p. 337. London 1779.
1786.	Thompson.					Pott's Surgical Works, vol. iii. 1790. London. —Cooper's Surgical Dict., 7th edit. 1838.
1786.	Ravanton.				Unsuccessful.	Chirurgien d'Armée ou traité des plaies d'armes à feu et d'armes blanches, p. 374. Paris 1786.
1793.	Larrey.	Soldier.	Fractured femur, produced by cannon shot whilst serving with the army of the Rhine.	Larrey's operation.—External and internal flap.	Went on well for a few hours; but a forced march of a day and night and its consequences caused his death on the third day.	Mémoire de Chirurg. Militaire, vol. ii. p. 180. A l'arméé du Rhin.
1794.	Blandin.	Soldier.			Unsuccessful.	Opérations Générales, par Bourgery, tom. vi. p. 270. Paris 1838.
1799.	Larrey.	Soldier.	Fracture of the femur from the bursting of a bomb-shell at Saint Jean d'Acre.	Larrey's operation. External and internal flap.	Was going on well, but took the plague from a soldier on the sixth day.	Relation Chirurgicale de l'armée de l'Orient, p. 332.
1799.	Larrey.	Soldier.	Fracture of the hip-joint from the bursting of a bomb-shell at Saint Jean d'Acre.	Larrey's operation. External and internal flap.	Died in his transit to Egypt shortly afterwards.	
	Krimer.	Soldier.	Gun-shot wound.	Larrey's operation.	Death on the tenth day with tetanic symptoms.	Bulletin de Ferrusac, tom. xviii. p. 165.—Graef et Walther's Journ. de Chir., tom. xii. p. 80.
1809.	Larrey.	Soldier.	Compound fracture of the femur, through the trochanter, at the battle of Wagram.	Larrey's operation.	Died in a few hours. Both patients were operated upon contrary to Larrey's judgment at the earnest entreaty of the sufferers and at the wish of his confrères.	Mémoire Militaire, tom. iii. p. 350. Campagne d'Autriche.
1809.	Larrey.	Soldier.	Compound fracture of the femur at the battle of Wagram.	Larrey's operation.		
1812.	Baffos.	Boy, Æt. 12.	Scrofulous disease of the femur.	External and internal flaps. Eight vessels secured by ligature.	The wound healed healthily; on the sixty-third day pain came on, the cicatrix ulcerated and opened, and he died at the end of the third month.	Bulletin de la Faculté de Médicine, tom. viii. p. 112. 1812.
1813.	Emery.	Soldier.	Gun-shot wound, with fractured femur, received in a skirmish near Saint Sebastian, on the 20th of July, 1813.	Lateral flaps.	Survived the operation thirty days.	Guthrie on Gun-shot Wounds, p. 116. Lond.
1813.	Larrey.	Soldier.	Comminuted fracture of the femur with great destruction of soft parts, caused by a cannon shot.	Larrey's operation.	On the twenty-fifth day the wound had nearly healed, when famine destroyed him.	Mémoire de Chirurg. Militaire, tom. ii. Campagne de Russie.
1814.	Badley.	Boy.	Compound fracture of the femur from machinery.	Femoral artery first tied. Circular operation.	Died the following day.	Cooper's Surgical Dictionary, 7th edit. p. 83. London.
1814.	Cole.	Soldier.	Compound fracture of the femur from gun-shot wound whilst serving with the army in Holland.	Circular operation.	Died the following day.	
1814.	S. Cooper.	Soldier.		Circular operation.	Died the following day.	
	Blicke.				Unsuccessful.	Ditto.
	Brodie.		Gun-shot wound from accident.		Lived only a few hours.	Guthrie on Gun-shot Wounds, p. 116.
	Guthrie.	Soldier.	Sloughing, with hæmorrhage, after amputation of the thigh, during the siege of Cuidad Roderigo.	Femoral artery previously tied. Guthrie's operation. Fourteen ligatures applied.	Died seven hours after the operation.	Guthrie on Gun-shot Wounds, p. 141. London 1816.
	Brownrigg.	Four cases.—Soldiers.	Gun-shot wounds.		Unsuccessful.	New Monthly Medical and Physical Journal, p. 157. 1815.
1815.	Brownlow.				Unsuccessful.	Alluded to in Sir A. Cooper's Fiftieth Surgical Lecture, p. 70.—Lancet, 1824.
	Blomfield.				Died forty hours after the operation.	
1819.	Carmichael.	Girl, Æt. 19.	Osteo-sarcoma of the thigh.	Guthrie's operation. Femoral artery and three or four deep muscular branches tied.	Operated upon August 20th, she sank on the sixth day.	Transactions of the Fellows of King and Queen's Coll. of Physicians, Dublin, vol. viii. Dublin 1820.
	Broocke.				Unsuccessful.	Nouveau Eléments de Médecine Opératoire, par Velpeau, tom. i. p. 514. Paris 1832.
1820.	Pelikenan.	Male, Æt. 25.	Fungus hæmatodes of the thigh.	Artery first tied. Larrey's operation.	Died, on the ninth week after the operation, of typhus.	L'Experience, p. 200. Paris 1829.—Actes Med. Chir. de l'Academie Imperiale de Vilna.
1821.	Porcienko.	Female, Æt. 50.	Necrosis of the femur.	Same.	Operated upon on the 15th of December, died on the 27th of December.	
1824.	Gerdy.	Female, Æt. 42.	Large cancerous tumor of the thigh.	An attempt was previously made to cut out the tumor; amputation was had recourse to for fear of her sinking from hæmorrhage.	Death on the ninth day from tetanus.	Bulletin de Therapeut, tom. viii. p. 318. Paris.
	Graef.				Unsuccessful.	Cooper's Surgical Dictionary, 7th edit., p. 83. London.
	Pelletan.				Unsuccessful.	
1824.	Walther.	Male, Æt. 21.	Fracture of the femur followed by extensive suppuration.	Lateral flaps. Femoral vein tied.	Died of fever on the eleventh day after the operation.	London Medical Physical Journal, vol. liii. p. 21.—Lancet, Nov. 6th, 1824, p. 185.—Graef et Walther's Journal de Chirurg. tom. vi. p. 1.

Date.	Name of Operator.	Sex and Age.	Cause of Operation.	Method of Operating.	Result.	Where recorded.
1825.	SYME.	Boy, Æt. 17.	Painful swelling of the left thigh, extending to the trochanters, with sinuses.	Lisfranc's operation, an external and internal flap; twelve vessels were secured by ligature.	Operated upon, Sept. 20th; about a month after the operation, on the wound being nearly healed, symptoms of ascites made their appearance, and it at last carried him off at the commencement of the eighth week.	Edinburgh Medical and Surgical Journal, vol. xxi. p. 19. (error, p. 12, note 14.)
1827.	DELPECH.	....	Extensive suppuration in consequence of compound fracture of the thigh.	....	The wound healed completely, but the patient died six months afterwards of chronic peronitis.	Lancet, p. 682. 1827–28.—Lancette Française, tom. xiii. p. 301.
	VELPEAU.	....	....	....	Two cases; one survived the operation thirteen days, the other fourteen days.	Eléments de Médecine Opératoire, vol. ii. p. 451. Paris.
	DUPUYTREN.	....	....	....	Three unsuccessful cases,	(Eléments de Médecine Opératoire, vol. ii. p. 451. Paris.)
1832.	M. BLANDIN.	Female, Æt. 24.	Malignant tumor of the thigh followed by a spontaneous fracture.	Femoral artery previously tied. Large internal flap. Femoral vein tied.	Died on the tenth day from phelebitis.	Medico-Chirurg. Review, new series, vol. xix. p. 195.—Transactions Médicales, vol. x. p. 353.
	GOURAUD.	....	....	....	Unsuccessful.	Velpeau Eléments de Médecine Opératoire, vol. ii. p. 539.
1834.	KORSENIEWSKO.	Female, Æt. 26.	Osteo-sarcoma extending from the popliteal space to the trochanter.	Artery compressed. Circular operation. Incision commenced about five inches below the joint.	Survived the operation twenty days.	L'Expérience, p. 201. Paris 1839.—Act. Méd. Chir. de l'Academ. de Vilna.
1834.	DIEFFENBACH.	Child, Æt. 13.	Osteo-sarcoma of the thigh.	....	Sank under the suppuration on the thirteenth day after the operation.	Lancet, p. 901. 1844–45.
1834.	DIEFFENBACH.	....	Fracture through the trochanters secondary amputation.	....	Died ten hours afterwards.	Journal Universel des Sciences, vol. xlviii. p. 381.
	VIDAL.	....	....	....	Unsuccessful.	Eléments de Médecine Opératoire, vol. ii. p. 451.
	KERST.	....	....	....	Two unsuccessful cases.	(Eléments de Médecine Opératoire, vol. ii. p. 451.)
	....	Soldier.	Gun-shot wound in Spain.	....	....	Notes on the Medical History and Statistics of the British Legion of Spain, by R. Alcock, K.T.S., p. 78. London 1838.
	SYME.	....	....	....	....	Practical Surgery, by Ferguson, p. 362. Churchill, 1842.
	LISTON.	....	....	....	Two unsuccessful cases.	(Practical Surgery, by Ferguson, p. 362. Churchill, 1842.)
1835.	SMITH.	Boy, Æt. 15.	Compound fracture of the femur from machinery.	Femoral artery previously tied. Lateral flaps. Two arteries secured.	Death thirty hours after the operation.	London Medical Gazette, vol. xvi. p. 551.
	ROUX.	Subaltern Swiss Officer.	Gun-shot wound of the thigh. Compound fracture of the trochanter.	Lateral flaps.	Death during the operation. Patient much exhausted by previous suppuration.	Gazette des Hopitaux, p. 392. Paris 1830.
	ROUX.	Æt. 17.	Fungoid tumor in connection with the periosteum.	Femoral artery just tied. Lateral flaps operation.	Died in a few days.	(Gazette des Hopitaux, p. 392. Paris 1830.)
	CLOT BEY.	An Arab soldier.	Fractured femur from gun-shot wound.	....	Died on the seventh day.	Gazette des Hopitaux, tom. iv. p. 96.
	GENSOUL.	....	....	....	....	Lancette Française, tom. ii. p. 220.
	BRAINARD.	Æt. 25.	Osseous tumor, the result of fracture.	Circular operation. Seven ligatures applied to vessels. Hæmorrhage came on on the 1st of March. External iliac artery tied.	Operated upon, January the 14th, died March the 2nd.	American Journal of Medical Science, vol. xxii. p. 392.
1843.	HANDYSIDE.	Boy.	Osteo-medullary sarcoma of the femur.	Anterior and posterior flaps. Fifteen vessels secured by ligature.	Operation, June 30th, died November 11th, Malignant disease of the orbit preceded the fatal termination.	London and Edinburgh Monthly Journal, p. 254. April 1845.

DURING THE PERIOD OF A CENTURY THERE HAVE BEEN

SUCCESSFUL CASES .. 26. UNSUCCESSFUL CASES .. 58. TOTAL .. 84.

SUCCESSFUL CASES.

	England.	Scotland.	Ireland.	France.	Germany.	America.	Lithuania.	Portugal.	Syria.	Unknown.
Civil	3*	1	0	6	3	2	0	0	0	
Army	4	0	0	5				1	0	1
	7	1	0	11	3	2	0	1	0	1

UNSUCCESSFUL CASES.

	England.	Scotland.	Ireland.	France.	Germany.	America.	Lithuania.	Portugal.	Syria.	Unknown.
Civil	4	5	1	17	6	1	3	0	1	
Army	11	0	0	8	0			1		
	15	5	1	25	6	1	3	1	1	

* It is remarkable that two out of the three cases had previously undergone amputation above the knee-joint.

REEVE, BROTHERS,
PRINTERS AND LITHOGRAPHERS OF SCIENTIFIC WORKS,
KING WILLIAM STREET, STRAND.

Important Scientific Works now in course of publication.

I.

CURTIS'S BOTANICAL MAGAZINE,

BY SIR WILLIAM JACKSON HOOKER, K.H., D.C.L.,

Director of the Royal Gardens of Kew.

A New and greatly improved Series commenced with the present year.
Monthly, Royal 8vo, Seven Plates, price 3s. 6d. coloured,

II.

[*Under the Authority of the Lords Commissioners of the Admiralty.*]

THE BOTANY OF THE ANTARCTIC VOYAGE,

BY JOSEPH DALTON HOOKER, M.D., R.N., F.L.S.,
Assistant-Surgeon of the 'Erebus' and Botanist to the Expedition.

"The descriptions of the plants in this work are carefully drawn up, and much interesting matter, critical, explanatory, and historical, is added in the form of notes. The drawings of the plants are admirably executed by Mr. Fitch; and we know of no productions from his pencil, or in fact any botanical illustrations at all, that are superior, in faithful representation and botanical correctness.—*Athenæum.*
In Twenty Monthly Parts, Royal 4to, Eight Plates, price 8s. coloured, 5s. plain, Eleven Parts are now published.

III.

THE

CRYPTOGAMIA OF THE ANTARCTIC VOYAGE,

BY THE SAME AUTHOR.

In about Six Monthly Parts, Royal 4to, Eight Plates, price 8s. coloured, 5s. plain.
Three Parts are now published.

IV.

MADEIRA FLOWERS, FRUITS, AND FERNS.

A Selection drawn and coloured from nature by Jane Wallas Penfold. Royal 4to, 20 Plates, 21s. cloth.

V.

A SELECTION OF MADEIRA FLOWERS,

Drawn and coloured from nature by Augusta J. Robley. Folio, Eight Plates, 21s. cloth.

VI.

CONCHOLOGIA SYSTEMATICA, OR GENERA OF SHELLS,

BY LOVELL REEVE, A.L.S., F.Z.S., &c.

Illustrated with 1500 copper-engraved figures by the Messrs. Sowerby.
In Two Vols., 4to, 300 Plates, price 10l. coloured, 6l. plain.

VII.

CONCHOLOGIA ICONICA, OR SPECIES OF SHELLS,

BY THE SAME AUTHOR.

With a Figure of every Species, by G. B. Sowerby, Jun. In Monthly Parts, 4to, Eight Plates, price 10s. coloured. Thirty-one Parts are now published, containing nearly two thousand figures of shells, of which about one-fourth are new to science.

VIII.

AN ELEMENTARY TREATISE ON CONCHOLOGY,

BY THE SAME AUTHOR.

Showing in familiar language the physiological relation between Shells and their Animal Inhabitants. Profusely illustrated from the collection of H. Cuming, Esq., by G. B. Sowerby, Jun.
Complete in one volume, imperial 8vo. In preparation.

IX.

THE CONCHOLOGIST'S NOMENCLATOR,

BY AGNES CATLOW AND LOVELL REEVE.

A systematic and alphabetical catalogue of all the known species of recent shells with their authorities, synonymes, and references to works where figured or described.
In Sheets for labels, 20s., in cloth, 21s., in calf interleaved, 25s.

X.

THE LIFE OF A COUNTRY SURGEON,

By "Stat nominis umbra."

8vo, price 1s.

XI.

WISDOM AND BENEVOLENCE OF THE DEITY,

Illustrations of, as manifested in nature. (Dedicated to young Philosophers.)

BY DR. EDWARDS.
In One Vol., square 16mo, price 3s. 6d.

XII.

THE PLANETARY AND STELLAR UNIVERSE,

(A Series of Lectures.) In One Vol., 12mo, (in the Press).

BY ROBERT JAMES MANN.

London: Reeve, Brothers, King William Street, Strand.