The Scottish Society of the History of Medicine

(Founded April, 1948)

REPORT OF
PROCEEDINGS

SESSION 1961-62

The Scottish Society of the History of Medicine.

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THE past session of the Society has been a very successful one. Three meetings have been held at which attendances were good and the papers delivered were of a high order. Death has taken a heavy toll among members this year but new recruits have come forward and support of the Society has thus been well maintained. The Annual General Meeting was held in October at Edinburgh when the President delivered his Presidential Address on The Symptomatology of Diabetic Coma : A Retrospect. The Forty-first Ordinary Meeting took place in March at Glasgow when Dr. A. T. Sandison contributed a most original paper, A Pathologist looks at Egyptian Mummies, while the Forty-second Meeting was held at Dryburgh most appropriately for a paper by Dr. E. H. Duff on the Health and Character of Sir Walter Scott. Professor Patrick's Presidential Address was printed in the *Scottish Medical Journal* of April, 1962 and reprints were distributed to all members. We are very glad to print in this Report, the full texts of the papers by Drs. Sandison and Duff, together with that of Dr. Wightman who, it will be recalled, was unable by pressure of other work to submit his paper on the Life and Times of Dr. Duncan Liddel of Aberdeen in time for publication in last year's Report. Also printed in this number as an Appendix is the list of books contained in the demonstration arranged by Dr. Wightman for the Society's meeting in Aberdeen in June of last year.

Many and eloquent have been the tributes paid to the late Mr. W. J. Bishop who died so suddenly on July 27, 1961, just as last year's Report was submitted for printing. We in the Society would also like to add our tribute to the memory of a quiet, self-effacing man who carried his great store of knowledge so lightly. His kindness and encouragement were unfailing and he was specially delighted when the Society decided to give its support to *Medical History* which he launched and established. He always took a great interest in the Society's activities and it was a bitter disappointment to him, as it was to us, when illness prevented his coming north to address us earlier last year. We will remember him and all he did to promote the study of the history of medicine in Great Britain.

Sir Andrew Davidson and Mr. James M. Graham, notable men in the fields of medical administration and surgery respectively, both died on March 13 this year. The many demands made on their time prevented their attending meetings of the Society regularly but both gave their support enthusiastically and were keenly interested in our activities. Dr. John Kinnear, one of our Dundee members, died on May 27, after a long illness, contracted on war service, and Mr. Ronald G. Henderson of Falkirk, a more recent member, died suddenly in Norway on June 7. Dr. Arthur H. H. Sinclair died on June 30 in his ninety-fifth year. We remember the help and support those distinguished men gave to the Society, in particular during its early years.

Mr. Charles H. Kemball, one of a band of notable dental surgeons who are members of the Society was honoured by the University of Edinburgh when he was invited to deliver the first A. C. W. Hutchinson Lecture in April. He chose as his subject A Backward Glance and charmed his audience with his racy discourse. Our congratulations are also extended to Professor Norman M. Dott who,

on July 6 had conferred on him the Freedom of the City of Edinburgh in token of his pioneer work as a neurological surgeon and the honour and distinction he brought to his native city. Professor Dott thus joined a select band of medical men who had been made honorary burgesses of the city. It was a stirring sight with the Usher Hall filled almost to capacity, and in his address of thanks, Professor Dott paid tribute to the patients who " with implicit faith and unfaltering courage ventured into the unknown."

Three addresses by Dr. Douglas Guthrie were published during the session under review. These were : Plants as remedies : the debt of medicine to botany (*Trans. Botan. Soc. Edinb.* 1961, 39, 184-195) ; Sherlock Holmes and medicine (*Canad. med. Assocn. J.* 1961, 996-1000) ; and the Traveller looks both ways (*Lancet*, 1961, ii, 1701-1703), this last being an abbreviated version of the Oslerian Oration delivered to the Osler Club of London in July, 1961.

Dr. J. Menzies Campbell wrote three papers which have been noticed—Pierre Fauchard, father of modern dentistry (*Dental Pract.* 1961, xi, 330-333); Theodosius Purland, M.A., Ph.D. (*Dental Mag. and Oral Topics*, 1961, December) ; and A Backward Glance (*Brit. Dent. J.* 1962, 112, 231-232), this being an account of the Annual Meeting of the British Dental Association in Glasgow in 1912.

The *Scottish Medical Journal* had a series of articles at the close of 1961 on the historical development of the three Scottish Royal Medical Corporations. Mr. A. L. Goodall contributed the account of the Royal Faculty of Physicians and Surgeons of Glasgow (October), Mr. G. R. Pendrill that of the Royal College of Physicians of Edinburgh (November) and Professor John Bruce that of the Royal College of Surgeons of Edinburgh (December). The magazine, *Scottish Field* also featured coloured and black and white illustrated articles on the Royal Faculty by Mr. Goodall (November) and the Royal College of Physicians of Edinburgh (February) by the Honorary Secretary.

Professor John Craig's address given at Banchory East Church on the centenary of the death of Dr. Francis Adams, to which reference was made in last year's report, on 26 February, 1961, was published in the *Aberdeen University Review* (1961, xxxix, 125-128). Dr. Ian H. Porter contributed an interesting paper on a nineteenth century physician and cardiologist, Thomas Bevill Peacock (1812-82) *Medical History*, 1962, vi, 240-254). Dr. John Simpson, one of our most recent members, contributed three historical articles during the year—A public health petitition : The 1848 Act and Middleton, a township in Lancashire (*Medical History*, 1961, v, 384-391), the Black Death, 1348-49 (*Med. Officer*, 1961, 106, 158-160), and A Note on the Elizabethan Sanitary Code (*Medical History*, 1962, vi, 275-280).

MEDICO-HISTORICAL NOTES

August 7, 1961, was the two-hundredth anniversary of the death of a well-known eighteenth-century Scottish physician and author, James Mackenzie, whose *History of Health* was published in 1758. Mackenzie was M.D. Edinburgh, and also a Fellow of the Edinburgh College of Physicians and he practised at Worcester.

One hundred and fifty years ago, on August 28, 1811, the remarkable John Leyden was born at the Teviotside village of Denholm. He was physician, poet, preacher, linguist and orientalist, and died at Batavia when only thirty-six years old. A handsome monument stands on the village green of his native Denholm to commemorate his unique achievements.

An important conference organised by W.H.O. was held in Edinburgh from September 21-25, to discuss the future work and training of Europe's family doctors. Some forty representatives from twenty-three countries met in Holland House, and among the items discussed was the place of the General Practice Teaching Unit at Edinburgh University in undergraduate medical training.

In the same month, on the 28th and 29th, the Second British Congress on the

History of Medicine and Pharmacy was held in London, the theme being Chemistry in the Service of Medicine. The Proceedings of this Congress will be published later. It is good to know from the Third Annual Report of the Faculty of the History of Medicine and Pharmacy of the Society of Apothecaries of London that excellent progress is being made and it is hoped that the exertions of the Faculty will help to spread the necessary stimuli for the further promotion of the study of the history of medicine. Under the same auspices, the Third British Congress will take place in London on September 27 and 28, 1962, when papers and discussions will be concentrated upon The Evolution of British Hospitals. The President of this Congress will be Lord Amulree.

The bicentenary of the birth of Matthew Baillie, fell on October 27. He was born at Shotts, Lanarkshire, where his father was parish minister. Baillie was the nephew of the Hunters, a famous morbid anatomist, and the last owner of the celebrated Gold-headed Cane.

British medical historians will always be grateful to Sir John Forbes for his translations of Laennec's famous work on auscultation (1821) and Auenbrugger's *Inventum Novum* (1824). The centenary of Forbes's death fell on November 13, 1961.

Lawson Tait, the distinguished nineteenth century surgeon, who was a Scotsman and educated at George Heriot's Hospital and Edinburgh University, was commemorated by the establishment of a fund for medical research on November 18. This fund, known as the Lawson Tait Memorial Trust, has already made its first award. Tait was the first British surgeon to diagnose acute appendicitis and treat the malady by removal of the appendix in May, 1880.

The Annual Presidents' Dinner, held on November 23, was the occasion for the Royal Medical Society to launch an appeal for £50,000. This money is required to improve the fabric, furnishings, library and heating of its premises and also to assist towards the building of new premises, since it is expected that the present Hall at 7 Melbourne Place, Edinburgh, will need to be vacated within the next ten to twenty years.

A hundred years ago, on December 10, the English sanitary reformer, preacher, and Edinburgh M.D., Thomas Southwood Smith died in Florence. He deserves to be remembered not only for his exertions in the field of sanitary reform but also for his work in the realms of mental illness.

The newly formed Old Musselburgh Club honoured the memory of a well-known doctor and author, David Macbeth Moir (1798-1851) when the members of the Club assembled at the Moir Monument and laid a wreath at it on January 5, the anniversary of Moir's birth. Moir developed an early gift for writing and was a frequent contributor to Blackwood's Magazine under the pseudonym of " Delta ", and is probably best known for his novel the Autobiography of Mansie Waugh, published in 1824. As a physician, Moir was much loved and respected, and among his technical writings was an account of the ravages of cholera at Musselburgh during the 1832 epidemic.

Medical education of women owes much to the exertions of Dr. Sophia Jex-Blake, especially so in Edinburgh, and it is fitting to recall that she died near Tunbridge Wells only fifty years ago, on January 7, 1912.

An important Government White Paper, a Hospital Plan for Scotland, was published on January 23. This paper outlined a plan for a £70 million expenditure to build some twenty new hospitals in Scotland and to modernise old and obsolete buildings. It is planned to bring up to date key teaching centres and provide new district hospitals in a period of ten years.

The one hundred and fiftieth anniversary of the birth of Charles Dickens deserved to be remembered by doctors, and by paediatricians in particular. Not only was Dickens a great novelist, but he was a social reformer, and a pioneer in the establishment of children's hospitals. His zeal for the founding of the Hospital for Sick Children, Great Ormond Street, London, is well known. Dickens was

born on February 7, 1812. Mention of children's hospitals brings to mind that the Birmingham Children's Hospital celebrated the centenary of its foundation by a dinner on January 2.

Scotland has always been in the forefront of medical missionary work, and it was in Manchuria, fifty years ago on March, 28, 1912, that the Mukden Medical College was opened, thanks to the vision of Dr. Dugald Christie. About 1948 the Mukden Medical College disappeared as such when it passed into the hands of the present Chinese Government.

The medical history of the Niger River expedition of 1841 was told by a little-known doctor in 1843. This was James Ormiston McWilliam who was born in Dalkeith in 1808, and died a hundred years ago on May 4, 1862. Not only did he describe the malignant fever which struck the crews of the ships sailing up the Niger, but he was selected by the government to investigate an outbreak of yellow fever in the Cape Verde Islands. His services there were praised by the British ambassador in Lisbon, and in 1847 McWilliam was appointed Medical Inspector of the Customs, and in 1850 he was made a Companion of the Bath.

The centenary of the death of Thomas Wakley fell on May 16, and an account of the commemoration ceremonies of the zealous founder of the *Lancet* is to be found in that journal for May 26. On the evening of June 15, the B.B.C. Home Service broadcast a programme for half an hour on Wakley.

The month of May marked the centenary of health visiting, and commemorative exhibitions and meetings were held in various centres throughout the country. Also in the world of nursing was the announcement of the proposed establishment in Edinburgh of the world's first International School of Advanced Nursing Education by W.H.O. The new school would be incorporated within the Nursing Studies Unit of the University and would provide facilities for research as well as training.

An interesting anniversary which occurs after the publication of this Report is the fiftieth anniversary of the first meeting, on November 20, 1912, of the Section of the History of Medicine of the Royal Society of Medicine. We would wish to convey our warmest greetings and congratulations to our colleagues of this section which owed its foundation to Sir William Osler, its first president. The anniversary will be celebrated on November 21, 1962, by a meeting at which the papers, some 400 in number, contributed to the Section during its existence, will be briefly reviewed and a dinner will afterwards be held.

We congratulate our Australian friends on the foundation of the Australian Medical Association which came into existence on January 1, 1962, and met for its first Annual General Meeting on May 19, in the Bonython Hall of the University of Adelaide. We hope that the History of Medicine Section of the former British Medical Association, Victoria Division, will continue to flourish under its new parent's name.

SCOTTISH MEDICINE IN INDIA

The Honorary Secretary has received a letter from the Professor of History of Medicine, Hyderabad, India, enquiring if members of the Society can help his department in securing pictures, books, life sketches, etc., of Scottish medical officers who served in India in the eighteenth and nineteenth centuries. The writer goes on to say : " The Department particularly welcomes co-operation between the members of your Society who are interested in bringing to light the lives and work of some of the pioneers connected with the medical relief, medical education, and medical research in India."

We would greatly appreciate if any members of the Society who have such material would communicate direct with :

Professor D. V. Subba Reddy, Upgraded Department of History of Medicine, Osmania Medical College, Nizam Baugh, Dewan Devdi, Hyderabad, Andhra Pradesh, India.

BOOKS AND OTHER NOTICES

The year under review has brought its usual crop of books and other publications of medico-historical interest. A feature of recent years has been the increasing number of paper-back books dealing with both medico-historical subjects and matters of modern medicine. In the United States the paper-back publishing industry caters much for the medical worker, and Dr. Frederick J. Spencer has published two valuable bibliographies of the history of medicine available in paper-backs there (*Bull. Med. Lib. Assocn.* (1961), 49, 72-82 ; (1962), 50, 177-183).

Looking over my shoulder (1961) by C. Willett Cunnington is the only autobiography perused this year. It is a charming story told by a man who is not only a doctor but an antiquarian of note, and an acknowledged authority on ceramics and the history of dress.

The biographical approach to medical history has a fascination all of its own. The *D.N.B. Concise Dictionary, Part II*, 1901-1950 contains shortened accounts of several medical notabilities, and the volume is an eminently useful tool to the medical historian, as well as not making too heavy a demand on his pocket ; *Biographical Memoirs of Fellows of the Royal Society*, Vol. 7 (1961) is another useful biographical dictionary, including a sympathetic account of Sir Geoffrey Jefferson ; *William Harvey : Englishman* (1961) by Kenneth J. Franklin is a new book on the discoverer of the circulation by an authority on Harvey's work. Sir Zachary Cope's pen is as busy as ever and three volumes from him have come to our notice : *Sir John Tomes : A Pioneer in British Dentristry* (1961) is a good account of a remarkable man ; *Some Famous General Practititioners : And Other Medical History Essays* (1961) a delightful book ; and *Six Disciples of Florence Nightingale* (1961) includes descriptions of Mrs. Strong who had connections with Dundee and Glasgow and Miss Pringle with Edinburgh. *Henry Head Centenary : Essays and Bibliography* (1961), by K. W. Cross, R. A. Henson, Macdonald Critchley and Lord Brain, is a collection of tributes to Head previously published in *Brain* from which they have been reprinted ; *C. G. Jung* (1961) by E. A. Bennet is a biographical and critical study of the eminent Swiss Psychiatrist, in which the break between him and Freud is graphically described ; *The Dismissal* (1961) by Jurgen Thorwald recounts the last tragic years of the life of Ferdinand Sauerbruch, the thoracic surgery pioneer.

An outstanding volume published during the year was the *British Medical Dictionary* (1961), edited by Sir Arthur MacNalty. This is a first rate production, but it is essentially a book for libraries since its price is prohibitive for the individual.

Of general medical histories, the appearance of the late Professor Sigerist's second volume (1961) dealing with early Greek, Hindu and Persian medicine, is warmly welcomed. Ludwig Edelstein, the editor, has had a difficult task since the volume was left by Sigerist in draft form only but by and large he has accomplished this well under the circumstances. *A Short History of Medicine* (1961), by F. N. L. Poynter and K. D. Keele, is the second of a projected series of primers on Science in Society designed for sixth formers, and is a most readable and good account of the history of medicine. *The Life Savers* (1961) by Ritchie Calder is a Great Pan paper-back and describes the discovery and development of modern preventive and therapeutic measures ; *Medicine Today* (1961) by David Margerson, is a Penguin glossy paper-back, well written and illustrated by diagrams and photographic reproductions, and describes the story of modern medicine in simple terms.

Several histories of special subjects fall to be mentioned. *The Surgeon's Tale* (1958) by R. G. Richardson is a graphically recounted story of the modern development of surgery, accurate and easily understood by the layman ; *The Century of the Surgeon* (1961) by Jurgen Thorwald is a Pan Giant, and a re-issue in paper-back form of a book previously published in 1957 and noticed in a former Report.

David Edwardes : *Introduction to Anatomy*, 1532 (1961) by C. D. O'Malley and Kenneth F. Russell, traces the origin of anatomical study in England by a hitherto unknown anatomist who made the first dissection in England in 1531 and wrote the first anatomical treatise by an Englishman in 1532.

Essays on the First Hundred Years of Anaesthesia (1961) constitute the second volume by the late Dr. W. Stanley Sykes, and like the essays in the first volume make profitable reading. The *Black Death* (1961) by Johannes Nohl, is an Unwin paper-back of C. H. Clarke's translation which first appeared in 1926, and is a chronicle of the plague compiled from contemporary sources. *The Eternal Search* (1958) by Richard Mathison is an amusing recital of the lore and legend of drugs.

Two books dealing with the history of hospitals should be noted. These are : *The History of England's Hospitals* (1961) by Courtney Dainton which gives an admirable and comprehensive account of the development of hospitals in England as a whole ; *St. Bartholomew's Hospital* (1961) by Gweneth Whitteridge and Veronica Stokes is an excellent short history of this great hospital.

A Short History of Clinical Pathology (1961) by W. D. Foster is the first book we have read dealing with the development of this important new branch of medical science, while the *Historical Development of British Psychiatry* (1961) by Denis Leigh is the first volume of what promises to be a notable series. Sir John Charles's Heath Clark Lectures of 1959, *Research and Public Health* (1961) is an erudite exposition by a noted scholar and public health administrator. *The Natural History of Quackery* (1961) by Eric Jameson tells of the blend of charm and effrontery which characterise the quack and the gullibility of the general public. *The Coming of the Welfare State* (1961) by Maurice Bruce is a well written account of our social history culminating in the appointed day, July 5, 1948. *Virus Hunters* (1960) by Greer Williams is a fascinating popular account of the lives, difficulties and triumphs of some of the well-known names in the world of virology.

From Canada comes *The Origin of Medical Terms* (1961) by Henry A. Skinner which contains much interesting and abstruse information. Several books worthy of note have been published in the United States. Those which we have perused include : *Thirteen Famous Patients* (1960) by N. D. Fabricant is a paper-back, and deals with Franklin D. Roosevelt, Hitler, Gandhi, Woodrow Wilson, Proust, D. H. Lawrence, James Joyce, Scott Fitzgerald, Freud, Clarence Darrow, Gauguin, Gershwin, and Caruso ; *Thomas Bartholin, On the Burning of his Library*, and *On Medical Travel* (1961) translated by C. D. O'Malley are two writings of this distinguished member of a notable family and which have now been made available for medical readers whose Latin may be rusty. The translations make these two essays most readable and give some insight into the character of Bartholin ; *Classics of Cardiology*, two volumes (1961), are reprints in unabridged form of the former *Cardiac Classics* (1941) by Frederick A. Willius and Thomas E. Keys, the new volumes being Dover paper-backs ; *History of Psychology and Psychiatry* (1961) by A. A. Roback takes the predominantly biographical approach to the subject with considerable success. This volume is another paper-back issued by the Citadel Press, New York.

As the latest volume from the indefatigable Professor Marti-Ibanez of New York comes *Ariel* (1962), a collection of essays on the arts and on the history and philosophy of medicine. In this altogether delightful book, the professor tells how he launched the medical news magazine, *MD*, which has such a wide circulation in the United States, and more recently has been extended to Canada. His introductory essays published with each chapter of the Epic of Medicine which appeared in serial form in *MD* are gems in descriptive writing and constitute thumbnail sketches of the characteristics of each epoch in medical history, and in this volume they have been slightly expanded and form in themselves a brief history of medicine. Two essays stand out from this collection, those dealing with Symbols and Medicine, and the Great Historical Challenges in Medicine, but

undoubtedly the finest piece of writing in the whole book is the address entitled " To be a Doctor ", delivered to his class of medical students at the close of the professor's course on the history of medicine. The spirit of William Osler permeates this essay and we would that every medical student could read it. The volume constitutes an admirable book for the bedside library.

From Dr. F. N. L. Poynter we have received a reprint on the Museums and the Library of the Wellcome Trust which contains an account of these activities of the Trust. On the occasion of the nineteenth Congress of the International Society of Surgery and the fifth Congress of the International Cardiovascular Society which were held jointly in Dublin in September, an exhibition on the history of Irish surgery was held in the library of the Royal College of Surgeons in Ireland and the Honorary Secretary received a copy of the catalogue of the exhibition from Mr. J. D. H. Widdess, Librarian of the College. Many notable exhibits were shown including two medieval medical manuscripts, one of John of Arderne's surgical works, and the other of Irish compilation, the first charter of the Royal College of Surgeons in Ireland, and many relics associated with Abraham Colles.

Through the courtesy of Dr. Genevieve Miller we receive the Bulletin of the Cleveland Medical Library, while from Sweden comes the Medico-Historical Yearbook, which contains papers given before the Danish Society for Medical History, The Norwegian Society for Medical History. This yearbook is edited by Dr. Wolfram Kock, and contains excellent summaries of the papers in English. Papers delivered before the Medical History Library of Hungary and the Polish Academy of Sciences, Warsaw, are also sent, and are accomodated in the Library of the Royal College of Physicians of Edinburgh.

The Fortieth Meeting and The Thirteenth Annual General Meeting

The Fortieth Meeting and Thirteenth Annual General Meeting was held on Friday, October 28, 1961, in the Hall of the Royal College of Physicians of Edinburgh, Professor Patrick, President, in the chair. The Society's Annual Report for 1960-61 was presented and formally adopted. The Honorary Treasurer in his report drew attention to the increasing costs borne by the Society, but indicated its generally secure financial position, thanks to the money accruing from the anonymous gift given to the Society some years previously. Dr. Guthrie presented a short account of the Second British Congress on the History of Medicine and Pharmacy held in London the previous month.

On the motion of Dr. A. Allan Bell, seconded by Mr. G. R. Pendrill, the President, Vice-Presidents, Honorary Secretary and Honorary Treasurer, and Members of Council eligible for re-election, were unanimously re-elected, and Professor Norman M. Dott, Drs. E. H. Duff, Ian H. Porter and A. T. Sandison were elected Members of Council in place of Drs. R. S. Dewar, H. W. Y. Taylor, W. N. Boog Watson and Mr. R. B. Wright who retired by rotation. After thanking the Society for re-electing him President, Professor Patrick paid tribute to the work of the retiring Members of Council. Thereafter, he delivered his Presidential Address entitled *THE SYMPTOMATOLOGY OF DIABETIC COMA : A RETROSPECT.**

Aretaeus described the symptoms of diabetes in the second or third century, but the symptoms of coma seem not to have attracted attention till the second part of the nineteenth century. Kussmaul described three cases of diabetic coma in

*Scott. *med.* J. (1962), 7, 153-158.

1874, and his name has been attached to the condition, and especially to the associated dyspnoea. The textbooks of medicine from 1900 onwards give an adequate description of it, and discuss what may be the exciting causes. The most common of these would appear to be : (a) fatigue, especially that brought on by walking, and (b) an intercurrent illness, or an operation under general anaesthesia.

In the twenty-seven years during which Professor Patrick was a physician to Dundee Royal Infirmary, 1268 patients suffering from diabetes were admitted to the professorial wards, 30 per cent. of them male, and 70 per cent. female. Among these there were 156 cases of diabetic coma ; and to the list was added 11 other cases of patients seen elsewhere. In the record of symptoms ketosis was taken for granted in every case ; the other symptoms included vomiting in 106, and abdominal pain in 67. The commonest exciting cause was fatigue, and next to that, some intercurrent illness. In the 167 cases of coma there were 44 deaths ; 17 patients died within six hours of admission, and in 12 patients the diabetes was complicated by some other serious affection.

The Forty-First Ordinary Meeting

The Forty-First meeting of the Society was held in the Bloch Lecture Theatre, Royal Faculty of Physicians and Surgeons of Glasgow, on Friday, March 2, 1962, Professor Patrick, President, in the chair. It was agreed that the summer meeting should be held at Dryburgh. Intimation was also made of the Eighteenth International Congress of the Society of the History of Medicine which was to take place at Warsaw from September 17-21, and at Cracow from 22-24 September.

Dr. A. T. Sandison then read his paper, entitled :

A PATHOLOGIST LOOKS AT EGYPTIAN MUMMIES

I spent some time in the Middle East while serving in the R.A.M.C., partly at 63rd B.G.H. near Cairo and was able to visit not only the important sites at Gizeh, Memphis and Sakkarah, but also the wonderful collections in the Cairo Museum. After my return to civil life, I was reluctant to abandon all interest in Egyptology and decided that, as a pathologist in a University department, I might investigate histological structure of Egyptian mummies, this being a study in which laboratory medicine and Egyptology come together. Through the kindness of the curators of several Scottish museums, I was able to obtain samples of mummy tissues and began a series of studies which have not been without interest. As a result of this investigation, I was led to study the literature on embalming and have made some experiments which I think may have some relevance to the problem.

I do not propose to go into great detail about these technical matters and in this talk I should like to discuss briefly the following five points :—

(a) The purpose of mummification.

(b) The probable explanation of the evolution of the concept of mummification.

(c) The technique of mummification.

(d) The results obtained by mummification.

(e) The importance attaching to the mummification cult of the Egyptians.

(a) *The Purpose of Mummification.* This can be summarised by a rubric from the Book of the Dead. " He shall come forth by day, he shall rise up to walk upon the Earth among the living, and he shall never fail and come to an end, never, never, never ".

Although they seem to have been an essentially happy people, the Ancient Egyptians were much concerned about survival of the individual personality after death, and there are several facets to their hopes for immortality. They wished to preserve the Khat or temporal body from putrefaction and decay, to maintain by some means the identity of the dead person, and finally to create a form which would resemble the embalmed God Osiris. We tend, perhaps, to think of Osiris. in the sophisticated form of the " Golden Bough " (Frazer, 1914), but in fact the Osirian myth seems to have permeated Egyptian thought over thousands of years. Emery (1961) states that Osiris already played an important part in Egyptian religion as early as the first dynasty of the Archaic Period (3400-3200 B.C.) ; interestingly enough, in the Archaic Period the God Seth was also a prominent figure in the Egyptian pantheon. The wrapped mummified body represents the God Osiris after the reassembly of the parts of his body by his sister-wife Isis, following their mutilation by his brother, Seth.

(b) *The Evolution of the Concept of Mummification.* The oldest and possibly best preserved bodies from Ancient Egypt come from the predynastic period when bodies were placed in a contracted position in a simple hole made in the desert sand. Excellent examples are seen in the British Museum. The hot dry sand proved to be an excellent dehydrating agent and the bodies were naturally mummified. Possibly as a result of depredations of animals or because of the opening of graves by robbers in search of grave goods, the Egyptians became familiar with the preservation of the body (Breasted, 1912). It seems possible that this discovery may have played some part in the evolution of the idea of personal immortality noted above. This concept of personal survival prompted the provision of more food and tomb-furniture so that larger and more elaborate tombs were required. Such provision was, of course, at first more important in the cases of the Pharaoh and nobility, but presumably with the growth of a prosperous middle-class, became widely extended. This provision of elaborate entombment prevented the intimate contact of the body with the desiccating action of the hot dry sand and the body was no longer well preserved. Tomb-robbery probably made this evident to the Egyptians and a method of artificial preservation of the body became mandatory.

There is some debate about the earliest evidence of artificial embalming, but experts have pointed out that archaeologists, e.g., Quibell (1912) and Garstang (1907) failed to detect the minimal evidence of early attempts at mummification (Smith and Dawson, 1924). Emery (1961) notes that as early as the 2nd Dynasty there is some evidence of attempted mummification in the form of elaborate bandaging of the body using impregnated materials which could be moulded into an excellent semblance of the body during life. It is interesting to note that the breasts, nipples and external genitalia were so delineated. There is also some reason to believe that a corrosive substance, possibly natron, was applied to the body before wrapping.

It seems probable that such experiments had begun to be made in the 1st Dynasty ; nevertheless, few mummies from the Archaic and Old Kingdom periods are to be seen in museums since they are badly preserved and tend to crumble when removal from the tomb is attempted. Mummies discovered by Petrie at Meidum (1892) at Deshasheh (1898) and another by Reisner (1908-9) may be exceptions. There are some fine examples from the Middle Kingdom (Murray 1910, Naville 1907 and Quibell 1908) but the majority of museum specimens are from the New Empire, Ptolemaic and Roman periods.

(c) *Technique of Mummification.* We have no contemporary Egyptian accounts of techniques although there is a considerable bulk of information about liturgical practice. This is derived from papyri and from paintings ; it is interesting to note that Anubis, natural son of Osiris by his sister Nephthys, figures in these practices. Our written evidence is derived from Herodotus and to a lesser extent from Diodorus Siculus with tiny scraps of information from other authors, e.g., Plutarch

and some early Christian saints. The information given by Herodotus possibly reflects fairly accurately late dynastic practice and can be checked to some extent by actual examination of the mummies. Such study of actual mummies is the only reliable source of information on the techniques used at different periods in Egyptian history.

I shall describe very briefly the technique used during the 21st dynasty when embalming reached its highest level of sophistication. After preliminary ritual washing, an incision was made in the left flank ; the left side was always used but the actual site and size of the incision varied from one period to the next. All the abdominal viscera except the kidneys were then removed ; the diaphragm was then incised from the abdomen and the lungs, but not the heart, were then removed. This must have presented some difficulty. The viscera were treated and eventually after embalming of the body were wrapped up in parcels along with an appropriate custodial deity in wax model and returned to the body cavity, the remaining space being packed with mud or sawdust. Prior to this dynasty the viscera were placed in a set of four Canopic jars. The abdominal incision was usually covered by a wax or metal plate engraved with the eye of Horus. The brain was removed piecemeal by means of a metal hook through an opening forced from the nose through the ethmoid or sphenoid bone. That such removal is feasible was proved experimentally by Karl Sudhoff in Leipzig in 1908. During the 21st dynasty an important technical innovation was an attempt to restore the limb contours by stuffing with sawdust, mud or butter and soda through multiple incisions in the skin. Strangely enough, no attempts were made to pack the female breasts, which may be seen as flattened, wrinkled structures which contrast strangely with the rounded limbs. This stuffing of the limbs and other parts must have presented considerable difficulty and must have been carried out towards the end of the embalming process. In the New Kingdom, a more life-like appearance was sometimes simulated by the introduction of artificial eyes. The body was finally elaborately bandaged and placed in a fine anthropomorphic coffin, of which good examples may be seen in the British Museum.

It is generally accepted that spices, resins, etc., played a minor role in the physico-chemical process of mummification and that treatment by natron in some form was the essential process. Natron is a natural mixture of salts, readily obtainable in certain parts of Egypt, e.g., the Wadi Natrun. There has been much argument on the mode of use of natron ; many scholars assume that the body was immersed in a bath of natron in solution. The expression ταριχεύονδι (TARICHYU-OUSI)—used by Herodotus has tended to be translated as if a fluid bath had indeed been used, but the word is also used in Greek Literature to indicate the preservation of fish by dry-salting (Lucas 1948, Liddell and Scott 1940). To my mind, one major argument against the fluid bath is that no suitable horizontal baths have been discovered and very few vessels which could have contained the body suspended in an upright position. On the other hand, if preservation were carried out by a dry-salting method, a water tight container would be unnecessary and some kind of wooden box or even a large table on which the body could be placed and heaped over with natron would have sufficed. Suitable tables have been discovered in the remains of embalmers' workshops (Smith and Dawson 1924).

One of the main arguments for fluid baths is the fact that body hair is not seen on mummies and that threads, string or metal bands often surround the nails. It has been assumed that hair disappears in fluid natron and that the nails are tied on because they would otherwise be shed in natron solution. I have made some experiments using cadaver and amputation material and have shown that immersion for up to 40 days (the accepted period) in solutions of natron down to one-eighth saturation does not lead to loss of body or head hair from human skin nor to the loss of finger or toe-nails. These arguments are, therefore, not valid. My experiments have shown that with solid natron salts a good approximation

to the state seen in Egyptian mummies can be attained in 40 days at a temperature which nowhere approaches that in Egypt ; a warm climate would enhance the dehydrating effect of solid natron. By and large, it would seem to me that a fluid bath would be a somewhat irrational approach to attempted desiccation. The main difficulty with regard to the argument for dry-salting is that the limb-packing techniques of the 21st dynasty would have presented considerable difficulty. Whatever the methods used, the actual process of embalming took up 30-40 of the days of the total 70 days which elasped between death and entombment of the body.

(d) *Results Obtained by Mummification.* Contrary to the beliefs of certain mediaeval Arab authors and the writers of some modern novels and film-scripts, the mummified human body presents a sorry appearance and could never be mistaken for a living person. The limbs are much shrunken and in a previously obese person the skin shows great redundant folds where fat and muscle have been lost ; the packing techniques of the 21st dynasty overcome this to some extent only. Facial expression varies from the grotesque to the impressive. However, when we look at photographs of mummies of the dead Pharoahs and their families we do derive some impression of their appearance during life and of their probable character, e.g., the youth of Tut-ankh-amen, the nobility of Seti I, the arrogance of the elderly Rameses II and the vacuous facility of Thutmosis I. Women fared even less well : the Lady Rai and Princess Nes-ta-neb-asher being among the less repulsive (Smith 1912, Carter 1927).

When we come, however, to study the microscopic structure of mummy tissues we cannot but be impressed with the degree of preservation attained. The first microscopical investigations of mummy tissue were made as early as 1852 by the distinguished Viennese laryngologist Czermack ; Czermack teased out tissues and examined them in caustic solution. There was then little or no progress till Shattock (1909) and Ruffer (1910, 1911) examined sections of mummy tissues. Ruffer made many very important observations cut short by his untimely death by drowning in 1917. Since then several other studies of Egyptian and American Indian mummy tissues have been published. I have utilised modern technical methods and shown excellent preservation of certain tissues (Sandison 1955, 1957 a and b, 1959, 1962 a and b). Connective tissues of all types are well preserved and one may readily recognise collagen, elastica, smooth and striated muscle, nerve, cartilage, bone and adipose tissues. Epithelia of skin, scalp and their appendages, i.e., hair follicles, sweat and sebaceous glands, can also be demonstrated as can melanin in the eye and sudanophil lipid in frozen sections. (See Figs. 1-4). We also know that serologolists can demonstrate blood group antigens in mummified tissues.

(e) *The Importance of Mummification for the Historian*

In addressing the Society, I must place first emphasis on the interest of mummified bodies for the medical historian. It must be admitted, however, that for other scholars different aspects of the Egyptian Funerary cult are of infinitely greater importance; these I shall mention briefly in due course.

The medical historian is presented with an almost unique opportunity to examine not only larger amounts of skeletal remains than are available from other periods of history but, more important, soft tissues are also available. Such soft tissue remains are also available in small amounts from Peru, North America, Torres Straits, and the Canary Islands, but have yielded much less useful information. I think it is fair to say that, for this reason, we possess more non-literary evidence of disease in Egypt than in any other of the ancient civilisations. We are, of course, also fortunate in having much literary material also from the Egyptian medical papyri, especially the Kahun, Ebers and Edwin Smith Surgical Papyri.

With regard to skeletal material, there is the great yield from Nubia, some of

which is housed in the Royal College of Surgeons in London. This has been recently reviewed by Rowling (1961a). Apart from this and other sources, we have some information derived from the radiological examination of mummies. With regard to soft tissue studies, there are apart from small sources the important observations made by Smith (1912) on the Royal Mummies in the Cairo Museum.

Among the pathological changes recorded are congenital lesions such as hydrocephalus, spina bifida and talipes which has been seen in a 12th dynasty mummy as well as in the Pharaoh Siptah of the 19th dynasty. Another interesting anomaly is bilateral parietal thinning (a recently described radiological entity) noted in the New Kingdom mummies of Meritamen and Thutmosis III as well as in Khety of the 12th dynasty, first described by Budge (1924). It is probable that Rameses V had a hernia as his scrotum is grossly enlarged, but we cannot be certain since the abdominal viscera were removed during the embalming process.

Of inflammatory lesions we have probable cases of otitis media, mastoiditis, periodontitis and osteitis. Undoubted examples of Pott's disease are known (Smith and Ruffer 1910, Rowling 1961 a and b); one is illustrated by Guthrie (1945). Acid fast bacilli were not demonstrated although putrefactive organisms are often seen in sections of mummy tissue. Leprosy is noted in a body from the Coptic period as also has been gout, the diagnosis having been confirmed by chemical examination (Rowling 1961 a and b). Syphilis has never been conclusively demonstrated ; this we would expect since it is believed to be post-Columbian in the Old World. (Circumcision was the rule in Ancient Egypt). Because of the intense sunlight, rickets is never seen in Egyptian material.

Appendicitis is deduced to have been present in a Byzantine period body because of pelvic adhesions : pleural adhesions have also been noted. Pneumonia has been diagnosed histologically by Ruffer (1910) and Shaw (1938) and these cases may be acceptable although great care has to be taken by the palaeohistologist not to be misled by artefacts. Anthracosis has also been diagnosed, but if this is correct, the source of the carbon remains obscure.

Rameses V possibly died of small-pox with a papular eruption in characteristic distribution over the face, lower abdomen and thighs. Ruffer and Ferguson (1911) also described similar lesions in an 18th dynasty mummy and demonstrated histologically vertical septa in the skin vesicles, a feature characteristic of small-pox. I have confirmed the diagnosis of senile acne in skin sections from the face of an old male Egyptian mummy.

It is interesting to learn that bilharziasis, a scourge in modern times, also occurred in Ancient Egypt as proved by Ruffer (1910). He demonstrated ova of bilharzia haematobia in the kidneys of two 20th dynasty mummies. Shattock (1905) had earlier looked for bilharzia ova in the nucleus of a bladder calculus and failed to find them. Interestingly enough, I am not aware of published accounts of the discovery of the ova of intestinal worms. Rowling has, however, sent to me sections made from the colon of Granville's mummy which is dated to the Ptolemaic period. These sections contain structures which I take to be nematode ova and which deserve expert study. Ruffer tentatively diagnosed malaria in Coptic bodies because of splenomegaly but this is inadequate evidence in a warm country. Pediculosis has been observed. We have an excellent example of cholelithiasis from the 21st dynasty as well as descriptions of vesical and renal calculi some of which have been analysed and shown to contain phosphates and uric acid.

Neoplasms are rarely seen in mummies : this may be partly due to the short expectation of life (probably not more than 40 years), so that few persons survived to an age at which neoplasia is common. I think, however, that except for skeletal tumours evidence might well not remain in soft tissues in many instances. A very scirrhous breast cancer should be recognisable, but none has so far been described. I have seen a tiny squamous papilloma of skin. (See Fig. 5.) Among the few tumours described are a probably benign osteochondromatous lesion of

Fig. 1—Striated muscle from mummy sterno-mastoid. ×350.

Fig. 2—Small artery and vein showing elastica from mummy neck. ×250.

Fig. 3—Skin of hand of mummy showing surface keratin and epidermis. ×350.

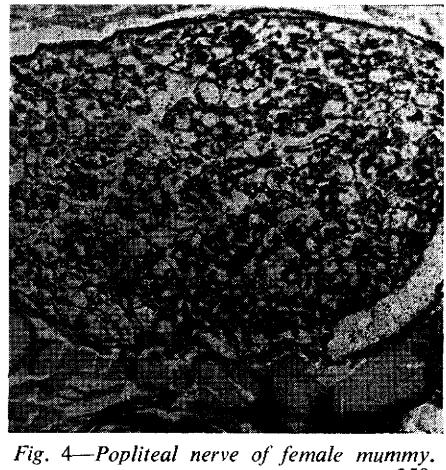

Fig. 4—Popliteal nerve of female mummy. ×250.

Fig. 5—Atheromatous popliteal artery : frozen section shows subintimal fat. ×250.

Fig. 6—Small squamous papilloma from mummy hand. ×100.

the lower femur in an Old Kingdom mummy (Smith and Dawson 1924). Ruffer and Willmore (1914) described a possible pelvic osteosarcoma in a 3rd century Roman skeleton from Egypt. Smith and Dawson (1924) make tentative diagnoses of carcinoma on the basis of erosions of skull base and sacrum in Byzantine bodies.

Akhenaten presents a curious appearance in statues and reliefs of acromegaloid facies and eunuchoid obesity, which I take to be an endocrinopathy. The skull and pelvis, which are believed on good grounds to be his, are also abnormal and I think he may have suffered from a pituitary adenoma (Aldred and Sandison, in press). Lambert Rogers (1949) described two skulls from Egypt which show hyperostosis consistent with underlying meningioma. Rowling (1961 a and b) suggests that Granville's mummy may have died as a result of bilateral ovarian cystadenocarcinoma.

Healed fractures are not rare and splints have been described. The mummy of the Pharaoh Seknenre of the 17th dynasty shows that he was attacked by at least two armed men with an axe and spear, possibly while asleep, and suffered severe wounds (Elliot Smith 1912).

Arthopathy is commonly seen in skeletal and mummy remains from Egypt and Nubia as well as from many other sites scattered over the world (Smith and Wood Jones 1908-1910, Ruffer 1912). These remains in Egypt cover all periods from predynastic times till the Roman occupation. The nature of this arthropathy is uncertain : some authors equate it with ankylosing spondylitis but Zorab (1961) showed in a pilot radiological study of mummies in the British Museum that osteo-arthritis is a more likely diagnosis. Zorab made the interesting diagnosis, by radiology of a 16 year old female mummy from the Roman period, of alkaptonuric arthropathy. This must surely be the earliest known case of an inborn error of metabolism. Radiology can also reveal calcification of the arteries in mummies.

Arterial disease is not rare in Egyptian mummies (Sandison 1962 a) and here we can derive direct histological evidence of its presence. Shattock (1909) made sections of the calcified aorta of the Pharoah Merneptah but even earlier in 1852 Czermack had noted aortic calcification. Elliot Smith (1912) and Ruffer (1910, 1911 a and b) also noted degenerative arterial changes. Long (1931) examined a 21st dynasty mummy and described degenerative changes in the aorta and coronary artery with myocardial fibrosis and nephrosclerosis. Of the lesions described atheroma is commonest, but arteriosclerosis and medial calcification have also been noted. (See Fig. 6). Such changes have been observed also in Peruvian mummies, more than one thousand years old. It is evident that the stresses of highly civilised life are not at any rate the sole causes of degenerative vascular disease.

Rowling (1961 a and b) has pointed out that one lesion of modern life—hallux valgus—is not seen in Egyptian mummies, presumably because of the type of open sandal worn.

Finally, with regard to the broader implications of the Egyptian funerary cult, we may say that had not this cult of embalming developed with the consequent provision of elaborate tombs and a wealth of grave goods, we should have known as little of their civilisation as we do of others where our only historical evidence is inscriptional or recorded on clay tablets. It is because of the tomb reliefs and paintings, the papyri deposited in the tombs, and the personal possessions preserved with the dead that the Egyptians seem more real to us than many ancient peoples. We are familiar with their physical appearance, their dress, adornments and cosmetics, their games and sports, their household furniture, their technical, military and nautical expertise, their folk-lore, poetry, philosophy and religion, their art and architecture largely because they mummified their dead. We should be glad to have had the good fortune to see such things as the diorite statue of Khephren, the golden coffin of Tut-ankh-amen, the limestone head of Neferteti

and the Graeco-Egyptian mummy portraits which show a high standard of artistic excellence and constitute important documents in the study of the history of art.

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The Forty-Second Ordinary Meeting

The Forty-Second Meeting was held on Saturday, May 26, at Dryburgh Abbey Hotel, where members and their guests met for an informal lunch before the meeting. After lunch there was a conducted tour made of the adjacent Abbey. Thereafter the Society was constituted for business in a private room of the Hotel. The President was in the chair. Intimation was received from Mr. T. B. Mouat, that, owing to ill-health, he wished to retire from the office of a Vice-President but it was noted with especial pleasure that he proposed to continue his membership of the Society. Congratulations were also conveyed to Professor Norman M. Dott on the unanimous decision of the Lord Provost, Magistrates

and Council of Edinburgh to confer on him the Freedom of the City at a ceremony to be held on July 6.

Dr. E. H. Duff was then called upon to deliver his paper on :

THE HEALTH AND CHARACTER OF SIR WALTER SCOTT

The fascination in the study of the history of medicine lies for me chiefly in two of its aspects, each of which frequently bears some relationship to the other. Firstly, the effect of disease on the general pageantry of history, and secondly how sickness and disability help to mould the characters and decisions of great men. Thus the Black Death hastened the change in the whole social structure of Western Europe in the 14th Century, Napoleon's haemorrhoids were no doubt a factor in his defeat at the Battle of Waterloo, and without his lameness, dyspepsia and epileptiform fits Byron might have been a benevolent English gentleman. Such considerations which seem to me to be of cardinal interest have been relatively neglected by biographers and historians, probably because the general historian has little knowledge of medicine, and the physician is seldom deeply acquainted with general history.

This somewhat irrelevant introduction is designed to offer some explanation for inflicting upon you these observations on " The Health and Character of Sir Walter Scott," who is probably the greatest man the Scottish Borders has produced.

Walter Scott was born on 15 August, 1771, at the head of the College Wynd in Edinburgh. His father was a solicitor, a Writer to the Signet, and his mother was the daughter of Dr. John Rutherford, Professor of Medicine at the University of Edinburgh. He was one of twelve children, only five of whom survived into adult life—a child mortality which was not uncommon at that time. On his father's side he came of a long line of Border farmers and lairds: his great-grandfather (who bore the soubriquet of " Beardie ") was a celebrated Jacobite, and the legends, nostalgia and romance associated with this lost cause still coloured the lives of his descendants at Sandyknowe Farm, and were absorbed by the young Walter when perforce he spent several years in that household.

Early in infancy he ran the risks of having a consumptive nurse : but her physician, Dr. Black, a Professor of Chemistry, had no hesitation in informing the parents and the woman was discharged forthwith—an incident which is interesting, inasmuch as it illustrates the versatility of the medical profession at the time, its standards of ethics, and its appreciation of the infectivity of consumption.

At the age of eighteen months the child had his first serious illness, and after three days of feverishness, he developed paralysis of the right leg. This was undoubtedly anterior poliomyelitis although the disease was not recognised as an entity until some fifty years later. Some of the most eminent doctors in Edinburgh (including Scott's grandfather, Dr. John Rutherford) were consulted and the usual blistering and topical applications were tried, but of course with no benefit : quacks and quackery were equally useless, and Dr. Rutherford at last advised that the child should be taken to Sandyknowe Farm, near Kelso (the home of his grandfather) where he would at least have the benefit of fresh air. Here he led the life of an " only child " for several years, no doubt spoiled by his grandparents and Aunt Janet, and by the various visitors to the farm. One of the many remedies tried for his lameness was wrapping him in the freshly flayed skin of a sheep, and one of his earliest recollections was lying on the carpet dressed in this " Tartar-like habiliment " being induced to crawl by a friend of the family, Sir George MacDougal of Mackerstoun, dragging his watch along the floor. His grandmother and Aunt Janet read and told him old romances and tales in the winter evenings, and in the fine weather he was carried out and laid among the rocks and crags in the shadow of Smailholm Tower, where he could let his childish fancy roam at will. Gradually his health improved and apart from the lameness in the right leg, he developed into a high-spirited sturdy child.

In his fourth year he was taken to Bath where accompanied by his Aunt Janet, he stayed for a year taking the waters and undergoing various treatments for his lameness, none of which, of course were of any avail. He did, however, attend a small school there, and learnt the rudiments of reading and was introduced to new scenery, varied company and to the plays of Shakespeare.

He returned first to Edinburgh and then for a time again to Sandyknowe, and in his eighth year he spent several weeks at Prestonpans as it was thought that sea bathing might help his lameness. Here he met an old retired veteran, Captain Dalgetty, who had an endless store of tales and anecdotes about his prowess in the German Wars, and the ill-assorted pair would discuss the various tactics and strategies of the American War which was then raging.

From Prestonpans he returned to his father's house (now in George Square) and in his own words "felt the change from being a single indulged brat to becoming a member of a large family ". His mother, no doubt instinctively sensing his unhappiness, indulged her lame son with more partiality than she showed to the others, and as she was a woman of imagination and some natural appreciation for good literature, she kindled in him a love of poetry and romance, which offset the strict, if benign, Calvanistic discipline largely imposed by his father. He would read aloud to his mother long passages from such works as Pope's translation of Homer, and the songs from Allan Ramsay's " Evergreen ", and, true boy that he was, his enthusiasm was chiefly aroused by the " wonderful and the terrible " and by descriptions of " battle and tumult ".

In 1778 he went to the High School in Edinburgh, where he displayed little more than average ability in class, and although his lameness was a great disadvantage to him in the customary activities of boys, he became very popular as a teller of tales when weather conditions did not permit the usual outdoor games. So on the whole he made a brighter figure in the " yards " than in the class. He also had a tutor at home, a Mr. James Mitchell, who was a fanatical Presbyterian and supporter of the Covenanters ; and as young Walter was an equally enthusiastic Cavalier he acquired a fund of historical lore of that period as a result of the long and wordy disputes between the two.

When about twelve there was again some slight anxiety about his health, and he spent six months or so with his Aunt Janet in Kelso, and attended school there. He soon got over this indisposition in the country air, and continued to read avidly and promiscuously ; history, poetry, travel, fairy tales and romances were all grist to his mill and the lameness which limited the natural physical activities of a boy encouraged and matured his mind and imagination.

On his return from Kelso he attended classes at Edinburgh University, but very sporadically, and in 1785-86 he entered into indentures with his father as an apprentice to a Writer to the Signet. Here he at least learnt to endure drudgery and to work at a desk for hours on end in spite of his romantic nature ; as he says himself " When actually at oar, no man could pull harder than I : and I remember writing 120 folio pages with no interval either for food or rest ". In later years the experience was to prove invaluable, but at the time the restraint of such work was irksome in the extreme and was only relieved by voracious reading of romances and adventures, and " everything which touched on Knight-errantry ".

About the second year of his apprenticeship he suffered from another illness of some severity which he describes himself only as the " breaking of a blood-vessel ", but Lockhart definitely states that this haemorrhage was from the lower bowel. The etiology of this illness, as Sir Robert Hutchison points out, presents an exasperating medical problem. " He was too old for polypus, too young for haemorrhoids, ulcerative colitis is almost unknown at that age, and the whole history does not suggest typhoid fever ". Whatever the cause of the condition it was viewed with gravity by Dr. Daniel Rutherford (Scott's uncle and the son of Dr. John Rutherford) who looked after him. He was put under a strict regimen (apparently a popular word with the profession at that time) which included con-

finement to bed with a single blanket, open windows, a very restricted diet, mainly of vegetables, and the usual bleeding and blistering until as he says " I scarcely had a pulse left ". He was also hardly allowed to speak and his only refuge was reading and playing at chess : but he had plenty of time to indulge his natural appetite for books, and in addition to the usual romances and poetry he read widely of military history, the conduct of battles and sieges, and the whole science of war. Once again the circumstances of his illness sowed the seeds of his future flowering.

His convalescence was prolonged both from the malady, and even more from the treatment, and he suffered from nervousness and apprehension associated with adolescence and a weakened constitution. However he made a complete, if slow, recovery and thereafter enjoyed excellent health for the next thirty years or so, developing into robust and vigorous manhood. He was tall and muscular, and as he says himself, rather disfigured than disabled by his lameness : he delighted in all forms of outdoor exercise, rode on horseback a great deal, and could walk 30 miles in a day without undue fatigue. Without his lameness he would almost certainly have sought a Commission in the Army as he retained throughout his whole life a glamorous and romantic idea of war which was never dispelled by the actual experience of the horrors of battle : and because the delusion was preserved the world was heir to the great fruits of his genius. Unlike Byron, he never allowed his disability to embitter him, but in the character of " The Black Dwarf " we are perhaps allowed to see what bitterness, cynicism and self-pity he had experienced and over which he had triumphed : he had had his Garden of Gethsemane.

When he had completed his apprenticeship with his father, he decided to read for the Bar and was admitted to the Faculty of Advocates in 1792. He was now " a young man about Town " and took his full part in the social life of Edinburgh, as well as joining various literary societies and labouring hard at more regulated studies to make up for the interruptions in his more formal education at school and college. He was also an enthusiastic member of the Edinburgh Light-Horse—a corps of mounted volunteers who drilled and exercised on Portobello sands and needless to say Scott was one of the most zealous recruits, rising to the rank of Quartermaster and earning quite a reputation as an intrepid and daring horseman, in spite of his disability. About this time he fell in love with a young lady Margaret Stuart Belches, the daughter of Sir John Stuart Belches of Invermay and entertained a deep romantic passion for her over many years. The young lady, however, did not return his affection sufficiently to marry him, and in the end became the wife of Sir William Forbes of Pitsligo. Although Scott was not a man to wear his heart on his sleeve there is reason to believe that he was heart-broken over the failure of this, his first real love, and never quite forgot her. He certainly idolised her, and perhaps this romantic dream was responsible for the remarkable purity of his bachelorhood in an age which was no less licentious than most.

During these thirty years of uninterrupted good health he established himself in his profession, not as an advocate at the Bar, but as Sheriff of Selkirkshire and Clerk to the Court of Session. He married Charlotte Carpenter, the daughter of a French emigré, and retained great affection and respect for her throughout their whole married life. His reputation, first as a poet, and then as a novelist, was enormous, not only in this country but also in Europe, and he was lionised to an extent never before experienced by a literary genius. He earned enormous sums of money, but with all the riches, honours and fame that were showered upon him he remained quite unspoilt, preserving a remarkable modesty regarding his achievements and genius, and continuing to be amazed at his own popularity. In a letter to John Richardson (January, 1818) he writes " I am glad you liked the volumes (Rob Roy) I sent you—it is odd these things continue to have attraction, and very odd how I should have been led into such a stream of composition. But

e'en be it so, for I might have laboured long at anything intrinsically useful before I had extended my domains at Abbotsford in the fashion I have done ". And there, I think, you have a key to his real inspiration and ambition, which was to be a landed gentleman and founder of a family, to be the Chief and patriarch of his clan in the old tradition, ruling with a benevolent despotism his estates and retainers. And although he had a profound appreciation and love for good literature, in his own case it was to be a means to an end—an end which, however material and worldly it may appear to our modern views, was no mere desire to amass wealth and power, but held a deeply romantic and even spiritual significance for him. And it was this ideal which, together with his sense of duty, integrity and natural courtliness, created the almost paradoxical character of a poetic and romantic visionary who was yet supremely orthodox in his conduct, and apparently entirely satisfied with the established order of contemporary society. There was never anything of the rebel in Scott—nothing of the heretic, or the tilter at windmills—nothing of the reformer ; and yet he was capable of high flights of poetic imagery, and in his novels showed a profound understanding of the emotional conflicts which beset the human mind and of the injustices which are too often the lot of human existence. He had no desire to set the heather on fire himself, but no man could relish the spectacle more intensely than he—provided only that time offered an adequate protection from the heat of the conflagration.

The halcyon years of good health came to an end in the winter of 1816-17 when he suffered the first severe attacks of abdominal pain which were diagnosed as "cramps in the stomach " but which were undoubtedly due to gall-bladder colic. He writes to Joanna Baillie on 1 March, 1817 " . . . I have been assailed three or four times this season with the greatest possible violence. Last night in particular, the agony was so great that I fainted which was quite a novelty to me . . . " And again to his friend Morritt on 18 March. " I have been plagued all through the winter with cramps in the stomach, which I endured as a man of mould might, and endeavoured to control them by drinking scalding water and so forth. As they grew rather frequent, I had reluctant recourse to Baillie. But before his answer arrived on the 5th, I had a most violent attack which broke up a small party at my house, and sent me to bed roaring like a bull-calf. All sorts of remedies were applied as in the case of Gil Blas' pretended colic, but such was the pain of the real disorder that it out-deviled the doctors hollow. Even heated salt which was applied in such a state that it burned my shirt to rags, I hardly felt when applied to my stomach. At length the symptoms became inflammatory and dangerously so, the seat being the diaphragm : they gave way only to very profuse bleeding and blistering which under higher assistance saved my life. My recovery was slow and tedious, and from the state of exhaustion I could neither stir for weakness and giddiness, nor read for dazzling in my eyes, nor listen for a whizzing sound in my ears, nor even think for the lack of power of arranging my ideas. So I had a comfortless time of it for about a week."

These attacks continued with varying severity and frequency until 1819, and were treated much along the lines he described in the letter quoted. In addition strict dieting and temperance were advised, and when the pain was very severe he was given opium at a dosage, on occasions, of 6 grains of opium and 200 drops of laudanum (as well as 3 grains of hyoscyamus) taken over a period of 6 to 7 hours. But these opiates were only given in extremity as they never agreed with him, and he dreaded the after effects of mental sluggishness, nausea and constipation.

The years of this illness took their toll of Scott's strength and aged him prematurely in many ways. Lockhart describes him in these words, " He had lost a great deal of flesh—his clothes hung loose about him—his countenance was meagre, haggard, and of the deadliest yellow of the jaundice—and his hair, which a few weeks before had been but slightly sprinkled with grey, was now almost literally snow-white. His eye, however, retained its fire unquenched : indeed it seemed to have gained in brilliancy from the new languor of the other features——"

It is a measure of the courage of the man that during this time he produced " Rob Roy ", " The Bride of Lammermoor ", " The Legend of Montrose " and almost all of " Ivanhoe ", often dictating for long periods during the actual paroxyms of pain and interspersing some of the finest passages with the groans. of his agony. It has been told by James Ballantyne that when " The Bride of Lammermoor " was first put into his hands in a complete form he could not recollect one single incident, character or conversation, and yet these volumes probably marked the height of his popularity and fame as a novelist.

The acute attacks of pain gradually lessened and as this happy circumstance coincided with his starting to take calomel he had implicit faith in it thereafter as a sovereign cure for the condition, recommending it for his daughter, Sophia, when she was similarly afflicted in after years ; which only goes to show that, in medical matters, even a man of Scott's sound common-sense and discrimination could confuse " Propter Hoc " with " Post Hoc ". Certainly after 1819 he had no further definite attacks of gall-stone colic and indeed apart from some symptoms of indigestion the disease of the gall-bladder apparently remained quiescent ; Sir Robert Hutchison found this remarkable, but I have known several cases of a similar nature, where for some reason or other, operation was not advisable, and yet in the goodness of time the paroxysms ceased, and the patient remained free of symptoms for many years.

In September, 1819, Scott, in a letter to Wordsworth, rejoices in his restoration to health as a result of the calomel treatment which had been initiated by a Dr. Dick, " An old East Indian Physician particularly skilful in such disorders." In passing, one can readily imagine that a doctor from the East Indies might have found calomel a very useful remedy in some of the digestive disorders and liver complaints prevalent among a white population in the Far East at that time ; hence his advice to Scott, some of whose symptoms no doubt bore a superficial resemblance to these dyspeptic complaints and infections of which he would have considerable experience. The coincidence of Scott's recovery at the same time as the therapy commenced no doubt appreciably enhanced his reputation, but after all, the reputation of drugs and doctors have rested on similar shaky foundations throughout the ages.

At any rate Scott seems to have regained his health slowly and enjoyed for some years a return of something like his old vigour of mind and strength of body. His output of novels continued to be phenomenal, but it is noteworthy that after " Ivanhoe " the immediate sale of his works began to decline, although of course they were still far more popular than those of any other novelist ; yet his publishers, possibly from the kindliest of motives, did not keep him informed of this falling-off in sales and he continued to commit himself to the expenditure of vast sums of money in adding to the buildings and lands of Abbotsford on the strength of future novels which he still believed to be as potentially lucrative as the previous ones. And it was this, that was, at least partially, the cause of his financial ruin in later years.

With his recovery from this illness Scott gradually resumed the very active public and social life from which he had been excluded. He also entertained large numbers and varieties of guests at Abbotsford, offering them his hospitality with unaffected kindliness and showing no discrimination for mere wealth or rank. He continued to take part in the various outdoor activities of the countryside which he loved, but perhaps with less agility and endurance now, although his enthusiasm and enjoyment of them were apparently undiminished. In 1820 he was created a baronet at the special request of the new King, George IV, and in the autumn of 1822 that Monarch visited Edinburgh when Scott spent a hectic period as prime instigator and stage-manager of the festivities laid on to welcome the first Hanoverian King to visit Scotland ; perhaps his nostalgic Jacobite sentiments had expired with the recent death of the Cardinal of York, the last direct descendant of the House of Stuart.

The fatigue and nervous exhaustion resulting from these labours were, according to himself, the cause of a severe skin eruption which was diagnosed as " prickly heat ". It is impossible to be sure what this condition actually was, but it seems likely enough to have been either a form of urticaria or a neurodermatitis, and was severe enough to prevent him riding a horse for some two months. In addition we find him writing to Terry on 10 November, 1822, " I have not been very well —a whoreson thickness of blood, and a depression of spirits arising from the loss of friends—have annoyed me much; and 'Peveril' will, I fear, smell of the apoplexy." From then on Scott dreaded this malady, not so much because of the fatal outcome, but because of the loss of his mental faculties which he feared might precede the inevitable end by many years : he had good cause for his anxiety for he had seen both his father and elder brother die in this manner and would, himself have preferred to " compound for a little pain " before his end rather than suffer the humiliations of bodily impotence and mental confusion.

By 1825 Scott was definitely experiencing the restrictions and disabilities of advancing years ; his eyesight was giving him trouble, and he had to wear glasses almost continuously; he had some weakness of the bladder which was probably caused by enlargment of the prostate but which he feared might be the herald of a more fatal disorder ; and he suffered occasionally from attacks of dyspepsia. On Christmas night (1825) he was " seized with a most violent pain in the right kidney and parts adjacent which joined to deadly sickness—forced me instantly to go to bed and send for Clarkson." (This " Clarkson " was a medical practitioner in Selkirk ; there were really two of them, father and son, practising at the same time in partnership). The complaint was diagnosed as " gravel aggravated by bile ", and Sir Robert Hutchison accepts it as renal colic, but from the resulting weakness and malaise which lasted well into January, I think it might possibly have been another attack of gall-bladder colic ; it was certainly treated with calomel for some time afterwards although, there was no return of the pain.

During his convalescence on 5 January, he writes in his Journal, " Much alarmed, I had walked till twelve with Skene and Col. Russell, and then sat down to my work. To my horror and surprise I could neither write nor spell, but put down one word for another, and wrote nonsense. I was much overpowered at the same time and could not conceive the reason. I fell asleep however in my chair and slept for two hours. On waking my head was clearer——" He ascribes these symptoms to an anodyne which he had taken the night before, but they seem to me, in view of the subsequent history, to be very suggestive of cerebral arterial spasm.

He describes also in his Journal (which he commenced in November, 1825) how he had suffered since his youth from occasional attacks of nervous agitation and depression of spirits associated with a "fluttering" of the heart and an acute awareness of its action. The symptoms are rather like those of paroxysmal tachycardia, but the bouts seem to have lasted too long without causing serious physical distress, and the condition was probably a purely psychological one, especially as he found that the best way to combat it was by active physical exercise.

In January, 1826, came financial ruin. The causes of this were complex and outwith the scope of this essay, but as far as Scott was concerned it was precipitated by the failure of the printing firm, James Ballantyne & Co., of Edinburgh, and Scott for many years had secretly been one of the two remaining partners. As James Ballantyne himself had no assets worth speaking of, Scott became liable for the whole burden of debt which amounted to upwards of £130,000. Instead of allowing himself to become a declared bankrupt, an agreement was reached with the creditors by which Scott undertook to pay off the debt by his future literary earnings and henceforth work in their interests, in return he was allowed to stay on at Abbotsford and retain its furnishings including the library. No man honoured an agreement more conscientiously than he did during the

remainder of his life, and at his death there remained only some £54,000 of debt which, with his life insurance and the posthumous sale of his works, was soon entirely discharged.

When one remembers that in his time it was considered not quite reputable for a member of the Bar to take a share in commercial enterprises, the whole clandestine affair of Scott's partnership in the Ballantyne firm throws an interesting sidelight on his character. He was in essence a most generous man and a model of magnanimity towards his colleagues both in the profession of law and that of literature, but yet he had what may be called a bourgeois streak of calculating shrewdness in respect of financial gain and professional reputation, which was no doubt the result of the relatively straitened circumstances of his young manhood. That the enterprise was a failure, and that he had shown an almost blameworthy carelessness in regard to the fortunes of the firm does not affect the argument, and the same " canniness " is evident in the anonymity with which he chose to publish his first novels. Novel writing at that time was considered to be something of a frivolous line in literature, and hardly fitting for a respectable Sheriff and Clerk to the Court of Session ; moreover he had earned a resounding reputation as a poet, and he was not at all sure how his novels would be received. In the result, of course his novels became much more famous even than his poetry, and the anonymity ceased to be an expedient and was continued rather as a joke, which deceived no one of consequence. But I do not wish to exaggerate this opportunism—at the worst it was a very small facet in the character of a man who had a true greatness of soul, and he paid dearly for the weakness, if weakness it was, as there is no doubt that he shortened his life by the labours which he undertook in expiation and in the re-establishment of his honour.

During these years of adversity Scott was plagued with rheumatism—doubtless osteo-arthritis of the weight bearing joints which was the inevitable sequel of his abnormal gait throughout life. Moreover, the burden of his sorrows was increased by the death of his wife, the loss of many old friends, and by the prolonged and ultimately fatal illness of his young grandchild, whom he loved dearly and for whom he wrote " Tales of a Grandfather ". His solace was his writing and although his vintage years were over, he was still capable of producing great romances such as " Woodstock " and " The Fair Maid of Perth " ; nor did he shrink from the vast amount of research work involved in his " Life of Napoleon". On the whole he showed a remarkable resilience of spirits in the face of " the slings and arrows of outrageous fortune " and fully conscious as he was, that his strength of body and mind were on the wane, he nevertheless could enjoy the pleasures of the moment and the company of his more intimate friends with something like his old fervour.

On 2 June, 1829, he had haematuria which lasted a couple of days or so, and was attended by no other local symptoms ; it was probably due to the rupture of a blood vessel in the bladder, but it caused him a little anxiety, and he writes to his son, Walter, " I do not intend to die a moment sooner than I can help it for all this, but when a man makes blood instead of water he is tempted to think on the possibility of his soon making earth." Dr. Ross, his physician in Edinburgh at the time, ordered him to be cupped, "—— an operation," he records in his Journal, " which I only knew from its being practised by that eminent medical practitioner, the Barber of Bagdad. It is not painful ; and I think, resembles a giant twisting about your flesh between his finger and thumb ". Although he remained listless and headachy, for a few days afterwards the haematuria cleared up completely. It is true that Lockhart makes a passing reference to his suffering from " gravel " some two years later, but it is difficult to assess the full significance of this ; the probability is, however, that all that was implied was that he had a tendency at that time to cystitis of varying acuteness associated with a degree of enlargement of the prostate or enervation of the bladder, or both.

The fifteenth of January, 1830, heralded the beginning of the dreaded end. He had returned from the Parliament House in Edinburgh in the early afternoon and sat down to examine some manuscripts ; on attempting to rise he sank back again with a slight convulsion but managed in a few moments to stagger into the next room, where he fell down in a speechless condition. He suffered the usual cupping and bleeding and gradually regained his power of speech and the use of his limbs ; and as he apparently made a fairly complete recovery from the attack we may presume that it was the result more of spasm of the cerebral arteries than of thrombosis. As I have hinted in earlier paragraphs, some of his previous symptoms were probably due to similar causes, and it is likely that for several years the arteries, and especially the cerebral arteries, had been progressively degenerating : henceforth the tempo of the disease was to be increased.

In July of this year he ceased to be a Clerk to the Court of Session and became permanently resident in Abbotsford. He adhered fairly conscientiously to the strict diet imposed upon him and although Lockhart found him looking " jaded and wan before evening set in " he would brighten up for the benefit of any company, and found especial pleasure in walking through the woods with his immediate family. A slight nervous twitching of the face muscles had been evident since his attack in February, and this was more obvious if he were tired or worried ; but in spite of the obvious harmful effect he could not be persuaded to lessen his literary efforts and, in the interests of his creditors, kept to the daily task with undiminished fortitude. The family were naturally worried that he might at any time have another " stroke " and as a country doctor could not always be available at a minute's notice, Mr. James Clarkson, the practitioner at Selkirk, instructed one of the chief domestic servants at Abbotsford, John Nicholson, in the use of the lancet for venesection in an emergency : such was the unquestioned faith in the efficacy of this treatment at that time.

He had frequent periods now when his mind was clouded and he would be seen to make a conscious effort of will to rouse himself ; his hand-writing deteriorated, his composition became more careless, his judgment less sound, his memory frequently unreliable, and his imagination a shattered remnant of its former self. Scott was declining " into the lean and slippered pantaloon ".

In November, 1830, he had another cerebral incident when he fell to the ground in a stupor which lasted a few minutes, but he managed to get up and retire to bed without his family knowing. He consulted his physicians in Edinburgh, Drs. Abercromby and Ross, later about this and his diet was further restricted. The entries in the Diary are now very scrappy, with words and letters frequently missing, and as he records on 21 January, " I myself am sensible that my fingers begin to stammer—that is to write one word instead of another very often." Moreover he felt afraid that he would be unable to control his words in speaking, and since the attack in February he had been conscious of some impediment to his speech. In general the whole tenor of the Diary is that of a man fully aware of his inevitable end, yet facing it with a philosophical, and at times even cheerful resignation, and only occasionally do we note a querulousness and frustration especially with regard to the limitations imposed upon him by the osteo-arthritis in the joints of his crippled leg. With his usual pertinacity he kept plodding away at his current novel " Count Robert of Paris " but he was making very heavy weather of it, as one can imagine.

In April 1831 (about the 18th) he had his worst stroke to date, " —— a distinct stroke of paralysis affecting both my nerves and speech—— " for which he was bled and blistered by " young Clarkson ". He had rallied somewhat by the time Lockhart saw him on 10 May but even then he was shocked by the change. " Sir Walter had had his head shaved and wore a black silk night-cap under his blue bonnet. All his garments hung loose about him ; his countenance was thin and haggard and there was an obvious distortion in the muscles of one cheek ——but he smiled with the same affectionate gentleness, and though at first it was

not easy to understand everything he said, he spoke cheerfully and manfully." He made a surprisingly good, if only partial recovery from this attack, and in July was able to make a journey into Lanarkshire, accompanied by Lockhart, in order to get some local colour for his new novel " Castle Dangerous," and thereafter he spent the remainder of the summer in fairly tranquil happiness at Abbotsford.

It was considered advisable that he should winter abroad, and he left home on 23 September, spending a few weeks in London, where he saw three physicians in consultation, Dr. Robert Fergusson, Sir Harry Halford, and Dr. Henry Holland, who all agreed that there was " incipient disease of the brain ", but they were hopeful that the disease might be arrested if he desisted from his writing.

About this time he had resumed his Journal after an interval of more than four months and records. " I have been very ill, and if not quite unable to write I have been unfit to do (so) —— A total prostration of bodily strength is my chief complaint. I cannot walk half a mile. There is besides some mental confusion, with the extent of which I am not perhaps fully acquainted. I am perhaps setting. I am myself inclined to think so, and, like a day that has been admired as a fine one, the light of it sets down amid mists and storms. I neither regret nor fear the approach of death if it is coming. I would compound for a little pain instead of this heartless muddiness of mind which renders me incapable of anything rational. ——— I have not warm hopes of being myself again ".

On 29 October, he sailed from Portsmouth in the frigate " Barham " which had been put at his convenience by the Government as a mark of esteem, arriving in Malta a month later, and thence to Naples, where he stayed until the middle of April, mingling to some extent in society, visiting the places of interest and dabbling in the antiquarian lore of the district. His moods now ranged from false optimism to deep depression, and he harboured the delusion that his last two novels (actually not yet published) had been resounding successes and that all his debts had finally been discharged.

He quite suddenly became fretfully impatient to get home and his companions soon ceasing to oppose him, the party set out overland, staying a few weeks in Rome and arriving at Nimeguen where he had another severe stroke and was bled by his servant John Nicolson. He arrived in London in a stuporose condition, and had to remain in a hotel in Jermyn Street for some three weeks attended by Dr. Fergusson who records that during this time he was " in general either in absolute stupor or in a waking dream ", never quite sure of his whereabouts and sometimes thinking himself still in the steamer, sometimes back in Jedburgh, or in other well remembered haunts of his homeland.

At last he sailed for Newhaven and finally arrived back to his beloved Abbotsford on 11 July rousing from his torpor to a state of great elation at the sight of Gala Water, Torwoodlee, the Eildons, and home. He rallied for short intervals during the next few days but on the 17th he collapsed in a fit of tearful emotion and thereafter never left his room. During the next two months he had only occasional lucid periods lying for the most part in a dream-like stupor from which he would rouse himself only to express gratitude for attentions paid to him, or to salute his friends with his old courtesy. In the afternoon of 21 September he died peacefully ; it was one of those lovely summer days when the soft breeze from Ettrick rustled gently through the trees, and the waters of Tweed could be clearly heard through the open windows of his room.

A post-mortem examination of the head was carried out and the report was as follows :— " Abbotsford, 23rd September, 1832—This forenoon, in presence of Dr. Adolphus Ross of Edinburgh and my father, I proceeded to examine the head of Sir Walter Scott.

" On removing the upper part of the cranium, the vessels on the surface of the brain appeared slightly turgid, and on cutting into the brain the cineritious substance was found of a darker hue than natural and a greater than usual quantity of serum in the ventricles. Excepting these appearances, the right hemisphere

seemed in a healthy state, but in the left, in the choroid plexus, three distinct though small hydatids were found : and on reaching the corpus striatum it was discovered diseased—a considerable portion of it being in a state of ramollissement. The blood vessels were in a healthy state. The brain was not large—and the cranium thinner than it is usually found to be. (Sgd.) J. B. Clarkson."

I have attempted in this essay to depict the character of Scott with the state of his health and its attendant circumstances in the foreground. The task has been a more complex one than I had bargained for, and in the end I am more conscious of failure than success. But it will be sufficient if I have given you a glimpse, in whatever small measure, of the essential nobility of the man, of his courage in the face of infirmity and adversity, of his unfailing kindliness to his fellows, and of the greatness and staunchness of his spirit in good or bad fortune.

It has been said of him that the man was greater than his works, and this, I think is eminently true, for my lasting impression of Scott is that, more than any other genius of his calibre, he had a profundity of sentiment and an acuteness of sensibility which a natural reserve—an ultimate shyness if you like—never permitted him to unveil either in his writings or even to his most intimate friends. He had secret places in his soul which he had fostered in the loneliness of his early invalidism, which had matured in the romantic idealism of his manhood, which supported him in the travail of his later years, and which were known in their fullness only to himself and his God.

Through the courtesy of Mr. Dickson Wright, F.R.C.S., photographs were shown to the Society of entries in an apothecary's book relating to quantities of tincture of opium and laudanum delivered to Lady Scott both at Abbotsford and Castle Street, Edinburgh, for the use of Sir Walter. The quantities of these and other drugs ordered were quite extraordinary.

Dr. W. P. D. Wightman's paper which was delivered before the Society at its meeting in Aberdeen in June, 1961, and which could not be printed in last year's Report, is printed below, together with an Appendix showing the sixteenth century books shown in the exhibition arranged by Dr. Wightman on the occasion of the Society's visit to King's College. These exhibits all relate to the times of Dr. Duncan Liddel.

THE LIFE AND TIMES OF DR. DUNCAN LIDDEL (1561-1613)

The earliest extant record we have of the career of Duncan Liddel is the matriculation roll of the University of Rostock recording his graduation in " philosophy " in 1585. But there is no reasonable doubt that he was born in Aberdeen and educated there at the schools and college. For the greater part of Liddel's life there was of course only one University of Aberdeen—King's College; but no matriculation rolls survive from so early a date.

Let me remind you briefly of the times into which young Duncan was born. In Scotland it was an ominous year, for Principal Anderson was summoned with his regents to appear before Knox. In England it was the beginning of the Elizabethan Age ; and John Caius, recently returned from Padua had just raised Gonville Hall to the rank of a college. Copernicus had been dead eighteen years, and people were talking about his system as an interesting academic exercise but as a " physical absurdity ". Aristotle's physics was to rule supreme in the universities for another fifty years ; but the anatomy schools were well established at Paris, Montpellier, and pre-eminently at Padua and Bologna. Twenty years previously Vesalius had crossed the Alps to supervise the printing of his immortal *Fabrica* by Oporinus at Basel, where, to fill in time, he prepared the skeleton still to be seen in the old university building on the Rhine bank. And the name of Oporinus should remind us that within a few years of the appearance of the *Fabrica* began the flood of *printed* versions of the majority of the works of the

great medical mountebank and genius to whom we shall return at the conclusion of our story.

Liddel's academic life after he left Aberdeen is as well attested as his private life is ill. For the former we have only to turn to the *Sketch* written in 1790 by John Stewart, Professor of Greek at Marischal College and University ; this is an exemplary piece of scholarship, in which every statement is documented from printed sources for the most part dating from before Liddel's death in 1613 and which are still extant in our Library : these include dedications written by Liddel himself and by his friend, the great scholar Ioannes Caselius, who was his senior colleague at Rostock.

Since it will be in his medical studies (in which he became eminent only after he had gained a considerable reputation as teacher of mathematics and astronomy) that you will be chiefly interested I shall pass lightly over his peregrinations back and forth between Frankfurt-on-Oder, Breslau, and Rostock and confine my remarks mainly to his sojourn at the University of Helmstadt then recently created under the patronage of Heinrich Julius, Duke of Brunswick (1576). Caselius was called by the Duke to the Chair of Philosophy and later welcomed young Liddel, then about thirty-years old. Here for some years he occupied first the *extra-ordinarius* and later the *ordinarius* Chair of Mathematics : the presence of freely glossed copies of the first and second editions of Copernicus's immortal work and of a remarkable set of the works of Tycho Brahe—one at least from the privately circulated Uraniborg edition—give substance to Caselius's claim that Liddel was " the first person in Germany to teach all three competing theories of the motions of the heavenly bodies ".

Though Liddel graduated as Doctor of Medicine only in 1595 there are indications that he had paid a good deal of attention to medical studies from the early years of his long sojourn in Germany. Of these early years and of his attitude to medicine we may learn from the dedication of his first work to John Craig, Physician to James VI :— " As often as I consider its origin, progress, and the knowledge of such diverse fields in which medicine indisputably surpasses all other disciplines, there comes to my mind the saying of Porphyry that it is the Art to which all wisdom is equally beholden. For since the art of medicine, which cares for and restores health among mankind, is not concerned solely with the human body but also with the contemplation of the whole of nature, in addition to the manifold use of things it demands an unusual knowledge of the whole of philosophy. . . . When as a youth I came to Germany and was on the point of giving up hope of applying myself to the pursuit of learning you called me back into the way, gave me material help and counsel, and discovered to me the true source of philosophy. . . . " In receiving help from an older fellow-countryman abroad Liddel was, of course, typical of many young Scots at that time.

You will note the remark that Medicine " is not concerned solely with the human body, but also with the contemplation of the whole of nature . . . it demands a more than usual knowledge of the whole of philosophy." This attitude, derived rather from Galen than from Hippocrates, was later to be echoed by Descartes when he claimed that if anything could improve the quality of human life it was to a reformed Medicine that we must look. The acceptance of this attitude implied a thorough grounding in the Faculty of Arts before passing on to the higher Faculty of Medicine.

In 1531 there appeared what seems to have been the first version of a text book of medicine by Leonhard Fuchs whose popularity may be attested by the succession of revised and enlarged editions that appeared during the remainder of the century. Comparison of these successive editions suggests that in the earlier part of the century the curriculum was based on the Galenic fivefold division of φυσιολογικη, δεμειωτικη, αἰτιολογικη, δεμειωτικη , ὑγιεινη.

As the century wore on φυσιολογικη became *Institutiones Medicinae* (still alive in the *Institutes of Medicine* of Cullen and John Gregory two centuries later) ;

αἰτιολογικη became more commonly known as *Pathologia* or the " causes of states of *praeter naturam* " ; and ὑγιεινη more often appears as *De Sanitate Tuenda*. The subordinate parts of θεραπεμτικη are further developed ; and—perhaps most important of all—κειρουργικη became more and more respectable ; so much so that even an ultra-humanist physician like Fuchs devoted an increasingly large part of his steadily expanding book to surgery—this especially after the appearance of the *Fabrica* of his " best and dearest friend, Andreas Vesalius ", who, you will recall, was Professor of *Surgery* as well as of Anatomy at Padua.

The greatest systematic teacher and writer of the age was probably Jean Fernel, whose system runs on similar but not identical lines to those of Fuchs. It is significant that in Liddel's library two editions of Fuch's work occur and three of the purely medical works of Fernel, one of them containing several pages of MS in Liddel's hand. When to this evidence we add that of the presence of the magnificent Froben edition of the " *omnia quae extant* " of Galen we might be inclined to regard Liddel as a conservative, determined to play safe. His own works, which include an *Ars Medica* (divided on the traditional lines of *Physiologia, Pathologia, Signorum doctrina*, and *Therapeutica*), a book on Fevers based on the theses defended under his presidency, and an *Ars Conservandi Sanitatem*—certainly bear this out. Indeed if this were all it would hardly have been worth the dust and heat—or more frequently the cold—on the top floor of the stack-room that have been my lot on and off, but mostly on, for ten years. He would hardly have been distinguishable from a hundred other equally conscientious, erudite, and, to the modern student of medical history since Harvey, hopelessly unenterprising physicians.

But it is not all. For although his library contained the four huge volumes of Galen, my long vigils in the *penetralia* of the libraries—for the somewhat warmer but far dustier " attic " at Marischal College was later included—were rewarded by the discovery of four volumes of comparable size, widely separated on the shelves. These contained no autograph (which was at that time my only clue to the ownership of Liddel) so my concern was at first solely with the contents. And what contents ! For they turned out to be the ten " Tomi " of the famous second edition by Io. Huser (1603) of the whole of the medical and philosophical works then available of the heresiarch Philip Bombast, *Paracelsus genannt*. Later, having meanwhile discovered that many volumes bearing no autograph could nevertheless be inferred to have belonged to Liddel by the presence of glosses in a characteristic hand, I was astonished to discover that almost every page of the four volumes until near the end of the last volume was covered with glosses in that hand. So the cautious orthodox old Galenist of a dying school of medical thought had in fact *saturated* himself in the works of the monster who had boasted that he had thrown the books of Galen into the students' bonfire on *Johannisnacht !*

Within a few years of the appearance of that famous edition Liddel had returned to his native land ; and a few years later he was dead. So what was his considered opinion of the new approach to the healing art we shall probably never know.

Adam Patrick, *President.*

H. P. Tait, *Hon. Secretary.*

APPENDIX

LIST OF SIXTEENTH CENTURY BOOKS SHOWN BY DR. WIGHTMAN

This list of sixteenth century books from Aberdeen University Library, nearly all owned by Dr. Duncan Liddel, shows the richness of the collection of scientific works. The selection was made by Dr. Wightman for the meeting of the Society in Aberdeen on 3 June, 1961.

ACOSTA, Cristobal (*syn.* Costa, Christopher à) . . . Aromatum & Medicamentorum in Orientali India nascentium liber. Plurimum lucis adferens iis quae a Doctore Garcia de Orta in hoc genere scripta sunt. Caroli Clusii opera ex Hispanico sermone Latinus factus in epitomen contractus & quibusdam notis illustratus.
(Prov. Liddel.) Off. Chris. Plantin, Antwerp, 1582.

Articella nuperrime impressa cum quam plurimis tractatibus pristine impressioni superadditis . . . Petri Pomarii Valentini Hispani ad lectores Hexastychon.
(Prov. Liddel.) Iacobus Myt for Constant. Fradin, Lyon, 1519.
(This is the earliest printed " medical encyclopaedia ".)

AUGENIUS, H. De ratione curandi per sanguinis missionem libri xvii in duos tomos divisi. In quibus extirpatis erroneis opinionibus passim hodie apud novatores medicos vigentibus, omnia ad hoc argumentum pertinentia, secundum Galeni doctrinam explanantur. Hac editione quinta ab . . . erroribus. . . . expurgati & nunc primum in Germania correctiore typo decorati.
(Prov. Liddel.) Heirs of Andr. Wechel, Frankfurt, 1598.
(There is a figure showing various types of venesection.)

BAUHINUS, Caspar. De Corporis Humani Fabrica li. iiii. Methodo anatomica in praelectionibus pub. proposita : ad And. Vesalii tabulas instituta : sectionibus publicis & privatis comprobata. Multis denique, novis inventis & opinionibus aucta.
(Prov. Liddel.) Seb. Henricpetrus, Basel (Col. 1590).

BOMBAST, Philip (*syn.* Theophrastus Paracelsus). Ander Theil der Bücher und Schrifften des edlen hochgelehrten und bewehrten Philosophi unnd Medici Philippi Theophrasti Bombast von Hohenheim Paracelsi genannt. Jetzt auffs new auss den originalien und Theophrasti eigner Handschrifft soviel derselben zubekommen gewesen auffs trewlichst und fleissigst an Tag geben. Durch Ionnem Huserum Brisgoium Churfurstlichen Colnischen Rhat unnd medicum.

Dieser Theil begreifft fürnemlich die Schrifften inn denen die Fundamenta angezeigt werden auff welchen Kunst der rechten Artzney stehe und ausz was Büchern dieselbe gelehrnet werde. . . .

C. Waldkirch, Basel, 1589.

(This is the only part of the *editio princeps* in the possession of the Library but there is a complete set of the 1603 edition.)

BRAHE, Tycho. De Mundi aetherei recentioribus phaenomenis liber secundus. Qui est de illustri stella caudata ab elapso fere triente Novembris Anni 1577 usque in finem Januarii sequentis conspecta. Uraniburgi cum privilegio. Col: Uraniburge. In insula Hellesponti Danici Hvenna impremebat authoris typographus Christophorus Uveida. Anno Domini MDLXXXVIII.

(There is no evidence that this edition was ever " published " but it is known that several copies were distributed to learned correspondents. As the title page of the *Epistolarum Astronomicarum* . . . (with which it is bound) and its own colophon-page bear Liddel's autograph, it is reasonable to suppose that he was one of the recipients.)

BRUELE, Gualtherus. Praxis Medicinae Theorica et Empirica . . . in quae. . . . morborum internorum cognitio, corundemque curatio traditur. Thesaurus Innocentia.
Chris. Plantin, Antwerp, 1579.

CASTRO, Rodericus À. Tractatus brevis de natura et causis Pestis, quae hoc anno MDXCVI Hamburgensem civitatem affligit.
Jac. Lucius Junior, Hamburg, 1596.
(Dedicated to the Senate of Hamburg, it sets forth an account of the plague with a reasoned statement of the precautions necessary for preventing its spread and ridding the city of its present infestation.)

COPERNICUS, N. De Revolutionibus Orbium Coelestium libri vi. Habes in hoc opere iam recens nato & aedito, studiose lector, motus stellarum, tam fixarum quam erraticarum, cum ex veteribus tum etiam ex recentibus observationibus restitutos & novis insuper ac admirabilibus hypothesibus ex quibus eosdem ad quodvis tempus quam facillime calculare poteris. Igitur eme, lege, fruere.
(Prov. Liddel.) Io. Petreius, Nurnberg, 1543.

DODOENS, R. Florum, et Coronariarum odoratarumque nonnullarum herbarum historia.
(Prov. Liddel.) Off Chris. Plantin, Antwerp, 1568.

FERNELIUS, Io. Universa Medicina tribus et viginti libris absoluta ab ipso quidem authore ante obitum diligenter recognita, & quatuor libris nunquam ante editis ad praxim (*sic*) tamen perquam necessariis aucta. Postea autem studio . . .
(Prov. Liddel.) Andr. Wechel, Frankfurt, 1581.

FUCHS, L. Methodus seu ratio compendiaria cognoscendi veram solidamque medicinam ad Hippocratis & Galeni scripta recte intelligenda. . . . emendata et quasi de novo. . . . edita. Accesserunt huic de usitata huius temporis componendorum miscendorumque medicamentorum ratione libri tres . . . auctiores . . . eodem auctore.
(Prov. Liddel.) Iac. Dupuys, Paris, 1550.

—— De sanandis totius humani corporis eiusdemque partium tam internis quam externis malis libri quinque nunc primum. . . . editi. . . . Obiter etiam in nuncupatoria epistola impudentissimum plagium Gualtheri Riffi Argentoracensis detegitur.
(Prov. Liddel.) Io. Frellonius, Lyon, 1547.

GABUCINIUS, Hieronymus. De lumbricis alvum occupantibus, ac de ratione curandi eos qui ab illis infestantur, commentarius. . . .
(Prov. Liddel.) Gul. Rovillius, Lyon, 1549.
(A letter from Gentilis Arnulphus to the author contains the significant remark : " What I chiefly admire is that you have not rated the authority of any one so high as to believe that you must agree with him without testing the facts ".)

GALEN, Claudius. Omnia quae extant in Latinum sermonem conversa. Hic accedunt nunc primum Con. Gesneri praefatio & prolegomena tripartita de vita Galeni eiusque libris & interpretibus.
(Prov. Liddel.) H. Froben & N. Episcopius, Basel, 1561-62.
(A magnificent edition, bound in four volumes.)

GALLUS, Paschalis. Bibliotheca medica sive catalogus illorum qui ex professo artem medicam in hunc usque annum scriptis illustrarunt. Nempe quid scripserint, ubi, qua forma quove tempore scripta excusa, aut manuscripta habeantur. . . .
(Prov. Liddel.) C. Waldkirch, Basel, 1590.
(Probably the earliest systematic bibliography of purely medical works arranged in tables under various headings.)

GIACCHINI, Leonardo (*syn.* Jacchini, Leonardo). Opuscula . . . nempe : Praecognoscendi methodus. De rationale curandi arte. De acutorum morborum curatione. Quaestiones naturales.
(Prov. Liddel.) No imprint but device of P. Perna, Basel, 1563.

GRATAROLUS, G. (Ed.) Ioannis de Rupescissa qui vixit ante cccxx annos de consideratione quintae essentiae rerum omnium . . . Accessere Arnaldi de Villanova, Epistola de Sanguine humano destillato. Raymundi Lullii, Ars operativa, & alia quaedam. Michaelis Savanarolae libellus. . . . de Aqua Vitae, nunc valde correctior quam ante annos LXX editus.
(Prov. Liddel.) C. Waldkirch, Basel, 1597.

HAJEK, Th. Apodixis physica et mathematica de cometis tum in genere tum in primis de eo qui proxime elapso anno LXXX in comfinio fere Mercurii & Veneris effulsit & plus minus LXXVI dies duravit. . . .
(Prov. Liddel.) Col. A. Fritsch, Gorlitz, 1581.

LIDDEL, Duncan. Themata de Malancholia . . . praeside Francisco Parcovio.
(Prov. Liddel.) Ia. Lucius, Helmstadt, 1596.
(Liddel's own thesis on account of which he was granted the MD degree. There are in the Aberdeen University Library several bound volumes of theses delivered at Helmstadt under Liddel's presidency.)

MAESTLIN, Michaeles. Consideratio & observatio cometae aetheri astronomica qui anno MDLXXX mensibus octobri, novembri et decembri in alto aethere apparuit. Item descriptio terribilium aliquot & portensorum (*sic*) chasmatum quae his annis MDLXXX & MDLXXXI confecta sunt.
(Prov. Liddel.) Iac. Mylius, Heidelberg, 1581.

MELA, Pomponius. De orbis situ libri iii.
(Prov. Liddel) Basel (Col. Off. Henricpetrana, 1576.)

MERCURIALIS, H. De puerorum morbis tractatus locupletissimi varia doctrina referti. . . . Ex ore . . . H . . . M . . . atque in libros tres digesti, opera Iohannis Groscesii. Addita Alexandri Tralliani . . . de Lumbricis epistola cum eiusdem Mercurialis versione. Eiusdem De venenis & morbis venenosis libri ii seorsim editi.
(Prov. Liddel.) Andr. Wechel, Frankfurt, 1584.

MONARDES, Nicolaus. Simplicium medicamentorum ex Novo Orbe delatorum quorum in medicina usus est, historiae liber tertius. Hispanico sermone nuper descriptus a D. N. . . . M . . . Nunc vero primum Latio (*sic*) donatus & notis illustratus a Carolo Clusio.
(Prov. Liddel). Off. C. Plantin, Antwerp, 1582.

MONTANUS, Ioannes Baptista. Consultationes medicae. Antea quidem Ioannis Cratonis Vratislavensis . . . opera atque studio correctae emendatae adauctae. Nunc vero . . . locupletatae.
(Prov. Liddel.) Binding stamped 1577. Henricus Petrus & P. Perna, 1572.

PALMARIUS, Julianus (*syn.* Le Paulmier, Jules). De morbis contagiosis libri septem.
(Prov. Liddel.) Cl. Marnius & heirs of Io. Aubrius, Frankfurt, 1601.

PAULUS AEGINETA. Opera a Ioanne Guinterio . . . conversa & illustrata commentariis. Adiectae sunt annotationes Jacobi Goupyli.
(Prov. Liddel.) Gul. Rovillius, Lyon, 1551.

(PLANTIN, Christophe Ed.) Icones stirpium seu plantarum tam exoticarum quam indigenarum in gratiam herbariae studiosorum in duas partes digestae. Cum septem linguarum indicibus, ad diversarum nationum usum.
(Prov. Liddel.) Off. Plantiniana—Vidua et Io. Moretus, Antwerp, 1591.

PONS, Jacobus. De nimis licentiosa ac liberaliore intempestivaque sanguinis missione, qua hodie plerique abutuntur, brevis tractatio.
(Prov. Liddel ?) Paulus Frellon et Abraham Cloquemin, Lyon, 1596.

RUBEUS, Hieronymus. De destillatione. . . . Liber in quo stillatitiorum liquorum, qui ad medicinam faciunt, methodus acvires explicantur. Et chemicae artis veritas, ratione & experimento comprobatur. Iampridem ab innumeris mendis repurgatus.
(Prov. Liddel.) Seb. Henricpetrus, Basel (Col. 1585).
(Contains a full historical account of the subject, with numerous references to Jerome Cardan's *De Subtilitate*, also to Cardan's account of the making of Scotch whisky.)

SCALIGER, Julius Caesar. Exotericarum exercitationum liber quintus decimus de Subtilitate ad Hieronymum Cardanum.
(Prov. Liddel.) Andr. Wechel, Frankfurt, 1582.

SCHEGKIUS, Jacobus. Disputationum physicarum et medicarum libri viii.
(Prov. Liddel.) Io. Wechel, Frankfurt, 1590.

SEVERINUS, Petrus. (*syn.* Sorensen). Idea Medicinae Philosophicae, fundamenta continens totius doctrinae Paracelsicae Hippocraticae & Galenicae.
(Prov. Liddel.) Sixtus Henricpetrus, Basel, 1571.

SIMONIUS, Simon. Artificiosa curandae pestis methodus. Libellus duobus comprehensa.
(Prov. Liddel.) (Col. Io. Steinmann, 1576), Leipzig.
(The author seems especially concerned with exposing the pretensions of quacks and the avarice of physicians. Text also refers to Fracastoro and Fernel as well as to classical authors.)

SOLENANDER, Reinerus. Consiliorum medicinalium . . . sectiones quinque, quarum prima ante annos triginta octo a Ioanne Francisco de Gabiano Lugduni edita, & cum consiliis celeberrimi medici Ioannis Montani in 16 excusa. Reliquae quatuor ab auctore iam recens additae.
(Prov. Liddel) Heirs of Andr. Wechel, Frankfurt, 1596.

THEODORUS, Jacobus. Ein new Arzney Buch darim fast alle eusserliche unnd innerliche Glieder dess mensschlichen Leibs sampt ihren Kranckheiten und Gebrechen von dem Haupt an biss zu den Füssen, und wie man dieselbigen durch Gotteshülf und seine dazu geschaffene Mittel auff mancherley weiss wenden und curieren soll. Durch. . . . Christophorum Wirsung aus den berhumbtesten Artzten . . . ersten in Druck verfertigt. Folgends aber . . . und auffen newes mit einem lesslichern Buchstaben in Druck uebergehen durch J . . . Th. . . . Tabernaemontanum.
(Prov. Liddel.) Matth. Harrnisch, Neustadt, 1582.
(This copy bears the marks of severe burning, probably in the 16th century, since many pages of text have been replaced by MS in Liddel's and possibly another hand.)

VESALIUS, Andreas. Paraphrasis in Nonum Librum Rhazae medici Arabis clariss. ad Regem Almansorem de Affectuum singularum corporis partium curatione ; Andrea Vesalio Bruxellense auctore.
(Prov. Liddel, scored and glossed in his hand). Zacharia Lehmann, Wittenberg, 1592.

—— Anatomes totius aere insculpta delineatio, cui addita est epitome innumeris mendis repurgata, quam de Corporis Humani Fabrica conscripsit clariss. And. Vesalius. Eique accessit partium corporis tum simplicium tum compositarum brevis elucidatio, per Iacobum Grevinum . . . medicum Paris.
(" Liber Accademie Marischallane Ex Dono Mgtri Duncani Liddelii Medicine Doctoris Neaberdonensis." but not in Liddel's hand. Liddel's autograph on the title page. This is the only volume in Liddel's library, so far discovered, which bears any mark of " donation " to the Library.)

FROM A COLLECTION OF WORKS MADE BY PRINTERS

CAMERARIUS, Ioachimus (the younger). Synopsis Commentariorum de Peste.
(Prov. Liddel.) Col. Off. Cath. Gerlach & heirs of Io. Montanus, Nurnberg, 1583.
(Contains plague tracts by Hiero. Donzellini ; Io. Phil. Ingrassia (from Italian—plague in Palermo, 1575-76) ; Cesare Rincio (on the plague in Milan, 1577) ; Camerararius (De Bolo Armenia et Terra Lemnia ; De . . . ratione praeservandi a pestis contagio. . . .) ; Regulations in the Venetian plague of 1576-77 from Italian ; Ratio expurgandarum rerum infectarum . . . ; List of works on plague by Italian writers.)

MEDICAL FACULTY OF HELMSTADT—PLAGUE REGULATIONS.
(Prov. Liddel ?) Iac. Lucius, Helmstadt, 1597.

COLLECTION OF THESES. Bound in rubricated MS parchment, many glossed in Liddel's hand, some inscribed by authors. One shown was Cargillus, Iacobus, Scotus. De intestinorum lumbricis. C. Waldkirch, Basel, 1594.
(This thesis was dedicated to Caspar Bauhin " patrono et praeceptori ", and inscribed " Viro magno D. Duncano Riddelio (*sic*) Mathematum in Helmstadiensi Academia Professori publico popul(ar) i meo, Basilea mittebam—Iacobus Cargillus ".)

The Scottish Society of the History of Medicine.

CONSTITUTION.

1. The Society shall be called "THE SCOTTISH SOCIETY OF THE HISTORY OF MEDICINE," and shall consist of those who desire to promote the study of the History of Medicine.

2. A General Meeting of Members shall be held once a year to receive a report and to elect Office-Bearers.

3. The management of the affairs of the Society shall be vested in the Office-Bearers, who shall include a President, one or more Vice-Presidents, a Secretary, a Treasurer, and not more than ten other Members to form a Council. The Council shall have power to co-opt other Members who, in their opinion, are fitted to render special service to the Society.

4. All Office-Bearers shall be elected annually. The President shall not hold office for more than three successive years, but shall be eligible to serve again after one year. Not more than eight Members of Council, or two-thirds of the total number, shall be eligible for immediate re-election.

5. The Annual Subscription shall be fixed from time to time by the Council and reported to members of the Society.

6. The Secretary shall keep brief Minutes of the proceedings shall prepare Agenda, and shall conduct the correspondence of the Society.

7. Meetings shall be held at least twice yearly, and the place of meeting shall be in any of the four University centres, or elsewhere, as the Council may decide.

8. This Constitution may be amended at any General Meeting of the Society on twenty-one days' notice of the proposed amendment being given by the Secretary, such amendment to be included in the Agenda circulated for the Meeting.

Printed by GORDON WILSON, 47-49 THISTLE STREET EDINBURGH, 2