VOLUME XXXVI SUMMER 1967

THE ULSTER MEDICAL JOURNAL

PUBLISHED BY
THE ULSTER MEDICAL SOCIETY

The Ulster Medical Journal

VOL. XXVI

PUBLISHED BY
THE ULSTER MEDICAL SOCIETY
1967

CONTENTS

CONTENTS

Fellows and Members of the Ulster Medical Society receive the Journal Free. Details as to subscriptions on back page.

THE ULSTER MEDICAL JOURNAL

NOTICE TO CONTRIBUTORS

1. Authors are reminded that concise and clearly expressed papers are those most welcomed by readers and by the Editorial Board.

2. Manuscripts should be typewritten with double spacing and with wide margins. They should be fully corrected, and contributors will be responsible for the payment of any sum charged for alteration in printer's proof in excess of ten shillings per sheet (16 pages).

3. References should be given as in the publications of the British Medical Association and in most other modern British journals. If contributors are uncertain of the correct abbreviation for the title of any journal, as given in the World List of Scientific Periodicals, they should give the full title.

4. Tables and illustrations should be reduced to a minimum, and should be sent detached from the typescript of the paper. Line drawings should be used whenever possible. All illustrations must be in a finished form ready for reproduction. Authors will be charged for all blocks at cost price. Half-tone blocks require to be printed on special art paper. Authors will be responsible for the cost.

5. Order for reprints must be given when the author returns the printer's proof. The cost of these may be obtained from the printers in advance.

6. Editorial communications should be sent direct to the Editor, Dr. J. E. Morison, D.SC., M.D., The Laboratory, Belfast City Hospital. The Editor will be glad to advise authors on the preparation of their manuscripts.

ADVERTISEMENTS

First advertising forms go to press thirty days in advance of the date of issue. In forwarding copy, time must be allowed for setting up and submitting proof. All communications for space must be sent to:

H. A. CRICK, 6a Victoria Avenue, Whitehead, Co. Antrim.
Telephone: Belfast 24807.

Mr. Crick has been appointed the sole representative of The Ulster Medical Journal.

DATES OF PUBLICATION

It is hoped to issue a Winter and Summer number each year in February and September.

THE ULSTER MEDICAL SOCIETY

P.O. Box 222.
Belfast City Hospital,
Belfast, 9.

Dear Sir (or Madam),

If you are not a member of the Ulster Medical Society, we would appeal to you to give the question of joining your consideration. The Society has been in existence since 1862, and has always been active in keeping its members interested in the advances in medical science. Meetings are held at intervals of a fortnight during the winter months, and papers are contributed by members and distinguished guests. Facilities are provided for doctors to meet informally afterwards and have a cup of tea. *The Ulster Medical Journal, the official organ of the Society, is issued to all Fellows and Members free of charge.*

May we, therefore, appeal to you to join the Ulster Medical Society, and so enable us to widen its influence and sphere of usefulness still further? A proposal form is appended: your proposer and seconder must be Fellows of the Society.

If you do not wish to become a member of the Society, will you consider entering your name as a subscriber to THE ULSTER MEDICAL JOURNAL? The subscription is fifteen shillings per annum, payable in advance to the Honorary Treasurer.

We remain,
Yours faithfully,

J. A. PRICE, *President.*
J. A. WEAVER, *Hon. Secretary.*
W. BINGHAM, *Hon. Treasurer.*

MEMBERS **£1. 1s.** (A Member is one who is less than seven years qualified. He or she will automatically become a Fellow seven years after qualification and be liable to the higher subscription rate.)

FELLOWS.—1 (a) Annual subscription of Fellows resident, practising or holding an appointment within ten miles of Belfast, **£3. 3s.**; (b) husbands and wives in the above category who are both Fellows will be entitled to pay a combined subscription of **£4. 4s.**; 2 (a) annual subscription of Fellows resident, practising or holding an appointment outside the above area, **£2. 2s.**; (b) husbands and wives in the above category who are both Fellows will be entitled to pay a combined subscription of **£3. 3s.**; 3, annual subscription of retired Fellows, provided that any Fellow who, by reason of retirement either through age or illness, is no longer engaged either in private practice or in salaried employment, shall be entitled, *on application*, to pay an annual subscription of **£1. 1s.** only, and provided always that such Fellow has previously paid to the Society a subscription at the current rate for an uninterrupted period of at least ten years, or during such time has been in practice or service abroad.

LIFE MEMBERSHIP—Fellows and Members shall be eligible to become Life Members, **£31. 10s.**

To DR. W. BINGHAM,
7 STRANGFORD AVENUE,
BELFAST, 9.

.....19.....

Dear Sir,

We nominate for $\frac{\textit{Membership}}{\textit{Fellowship}}$ *of the Ulster Medical Society—*

Name of Candidate .....

Postal Address .....

.....

Year of Qualification and Degrees .....

.....

Signature of Proposer .....

Signature of Seconder .....

EXCHANGES: Exchange journals and all relevant correspondence should be addressed to:
QUEEN'S UNIVERSITY MEDICAL LIBRARY,
INSTITUTE OF CLINICAL SCIENCE,
GROSVENOR ROAD,
BELFAST, 12,
NORTHERN IRELAND.

BOOKSELLERS: All correspondence, orders and payments for institutional and private subscribers, through booksellers, should be sent to:
THE HONORARY TREASURER,
ULSTER MEDICAL JOURNAL,
c/o QUEEN'S UNIVERSITY MEDICAL LIBRARY,
INSTITUTE OF CLINICAL SCIENCE,
GROSVENOR ROAD,
BELFAST, 12,
NORTHERN IRELAND.

SUBSCRIPTIONS: Individuals who are not members of the Society wishing to take out a direct subscription should send a banker's order for fifteen shillings payable to the Ulster Medical Society (Northern Bank, Shaftesbury Square, Belfast), Ulster Medical Journal account, to Dr. W. Bingham, 7 Strangford Avenue, Belfast, 9. This covers one volume (two numbers) of the Journal.

CONTENTS

Fellows and Members of the Ulster Medical Society receive the Journal Free. Details as to subscriptions on back page.

THE
ULSTER MEDICAL JOURNAL

PUBLISHED ON BEHALF OF THE ULSTER MEDICAL SOCIETY

Vol. XXXVI SUMMER 1967 No. 2

THE HISTORY
of the
ULSTER MEDICAL SOCIETY

by

R. W. M. STRAIN
B.Sc., M.D., Ph.D., F.R.C.P.I.

ADDRESS
delivered to
THE ULSTER MEDICAL SOCIETY
9th FEBRUARY, 1967
Prepared at the request of the Council

Introduction

THIS is quite literally two papers. When the Council of the Ulster Medical Society invited the writer to bring R. H. Hunter's account of its history up to date, it was to cover a period entirely within his own membership of the Society, and he had at his disposal primary sources of information in the Minutes of the Society, of the Council and of the Trustees of the Whitla Medical Institute. As it was 30 years since Richard Hunter delivered his address to the Society, and outside the experience of many of the present Fellows and Members, the author was further asked to review the entire span of the Society's existence. For this latter purpose there was no need to go deeper than the secondary sources of information already available, and reference to these is made in the bibliographical note at the end of this communication.

Peace, it is said, is indivisible. So too, it is difficult to separate the history of the Society from that of the community it serves or from the activities and personalities of its individual members. Selection is both difficult and invidious. On this occasion it is nice to be able to say that if any one disagrees with the landmarks the writer has selected, he can lay the blame on the Council for inviting him to take on this task.

THE BELFAST MEDICAL SOCIETY

AT the beginning of the 19th Century Ireland was just recovering from a period of bitter political upheaval which had culminated in the rebellion of 1798.

Belfast was a parish of some 20,000 inhabitants. For a quarter of a century the Charitable Society's Poorhouse had given shelter to the aged and infirm, and to orphaned and abandoned children. It had created a small hospital for the sick and injured of the town, and had a scheme of medical and social outdoor relief. By 1792 the Belfast Dispensary had provided increased facilities for the medical care of the townsfolk, and had opened a small fever hospital in Factory Row, now Berry Street, in 1797, but it was not until 1815 that this was replaced by the General Hospital in Frederick Street. The ladies of Belfast had founded a small lying-in hospital in Donegall Street in 1793. Further, there were dispensaries in several parts of the town where the poor could be treated free, and it was an accepted policy that it was from those who had served this apprenticeship at the periphery that the staffs of the hospitals were elected.

The earliest professional association of medical men in the area of which there is any record is the Belfast Medical Society.

> The Physicians and Surgeons of Belfast in 1806, says Malcolm, though only nineteen in number, were actuated by the same spirit for mutual improvement in their common profession, which has ever distinguished the most celebrated seats of medical science. We are proud to think that, at so remote a period, the practitioners of Belfast aimed at something more than independent efforts for professional distinction. When men unite, as they did, for the purpose of affording to EACH an equal opportunity of obtaining professional information, so far as can be obtained from a reunion, by the contributions of ALL, the true spirit of professional advancement is theirs . . .
>
> The most respectable physicians, surgeons and apothecaries, not merely of the town, but of the vicinity likewise, soon became enrolled under the designation of the Belfast Medical Society . . . (and) among the members were included . . . several gentlemen not belonging to the profession, who were nevertheless desirous of expressing their approval of its objects.

A short account of two of the first presidents and the first secretary shows not only the type of man who founded organised medical society in Belfast, but gives some idea of the times in which they lived.

For many years no one was able to identify a portrait that hung first in the Boardroom and latterly in the Rest Room of the Royal Victoria Hospital. It shows a bald-headed ruddy faced gentleman of middle age with long mutton-chop whiskers and an ample chin resting in the opening of an extraordinarily high collar. It was only recently that John Logan noticed that the letter in his hands is addressed to Doctor S. S. Thompson. Samuel Smith Thompson (Fig. 1) was born in Coleraine in 1778, the son of a doctor, and was a medical graduate of Edinburgh. Doctor Robert Stewart, his biographer, recounts of him that

RULE 1st, "*The Belfast Medical Society,*" shall meet in the Hospital on the first Monday of every Month, at 11 o'clock, A. M. Five Members to constitute a quorum, and the fifth who enters the room shall act as Chairman, and shall have, in addition to his ordinary vote, a casting one, in case of an equality.

2d, The Society shall be open to the admission of all members of the Profession.

3d, Candidates for admission must be proposed and seconded at one regular monthly meeting, and balloted for at the next—*one black bean* in five to exclude.

4th, No person who has been rejected, shall be proposed again within six months.

5th, The Society may admit honorary members, on being proposed and seconded in the ordinary manner, one black excluding.

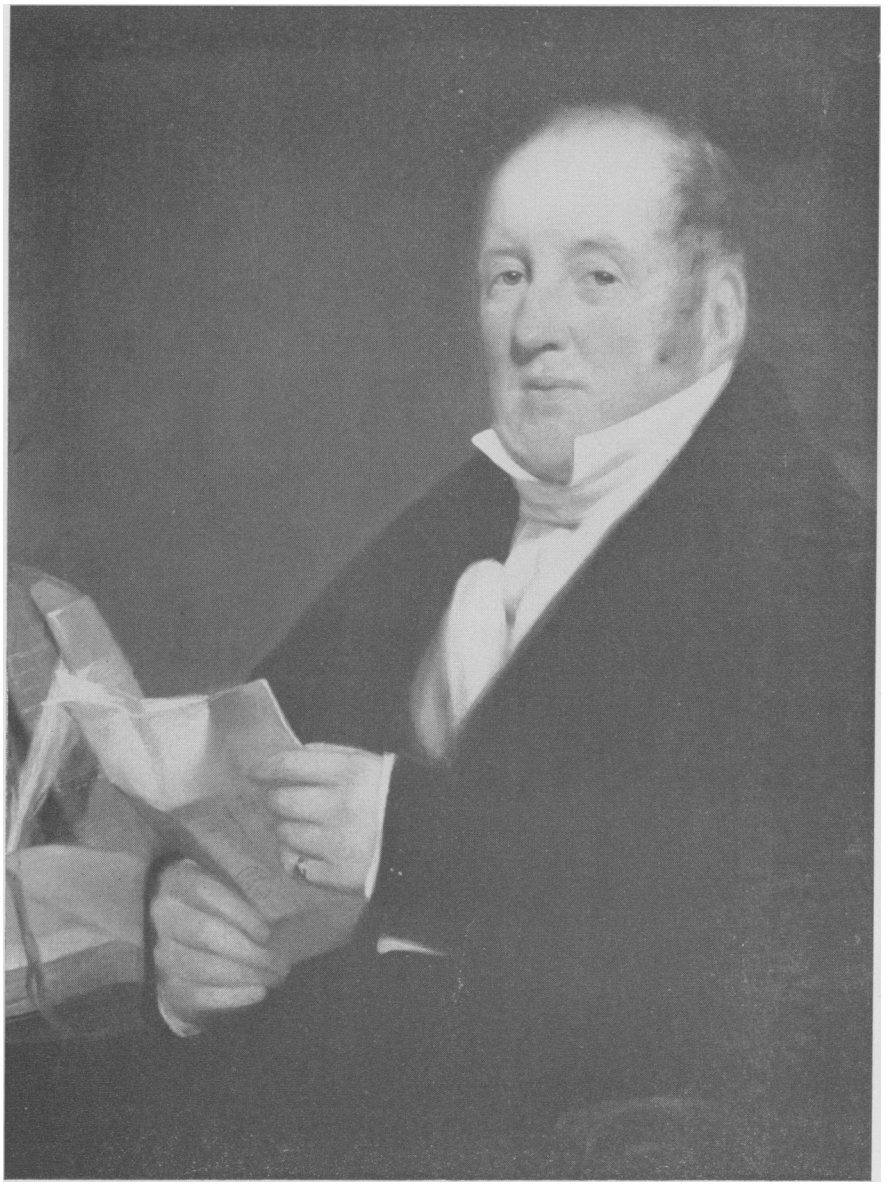
6th, Honorary Members shall enjoy all the privileges of the Society, except a share of the property, should a division of it take place, or a right of voting on the question of dissolution.

7th, The Society shall be specially summoned to meet, on the first Monday in May, in each year, to elect a Treasurer and Secretary for the ensuing year.

8th, The Subscription shall be one guinea annually, payable in advance.

9th, Members who withhold the subscription one month after the meeting in May, shall pay in addition, a penalty of one shilling a month while it remains due.

Some of the rules of the Belfast Medical Society



1. *Samuel Smith Thomson*

2. *The Thomson Snuffbox*

3. *Names engraved on the base of the Thomson Snuffbox*

> in 1817, when typhus fever broke out so malignantly and spread so fearfully and fatally, he was night and day in attendance on the suffering poor, not thinking at all of self or personal risks, but heroically combating with the dire pestilence which was decimating the land ; and this so successfully, with such unremitting, such superhuman efforts in fact, that when the epidemic had ceased, his fellow citizens presented him with a most complimentary address, accompanied by a splendid service of plate.

Later, in 1834, he was given what was described as a "massive and splendid" gold snuff box (Figs. 2 and 3) on which were engraved the names of the 36 doctors in the neighbourhood.

> (His) position among his professional brethren, says Malcolm, was ever so exalted and endearing, that we agreed, during the latter part of his active life, when his years also gave him a claim to the appellation, in designating him the father of the profession.

Such was the status of the first president of the Belfast Medical Society professionally. But he left his mark on the community in another way.

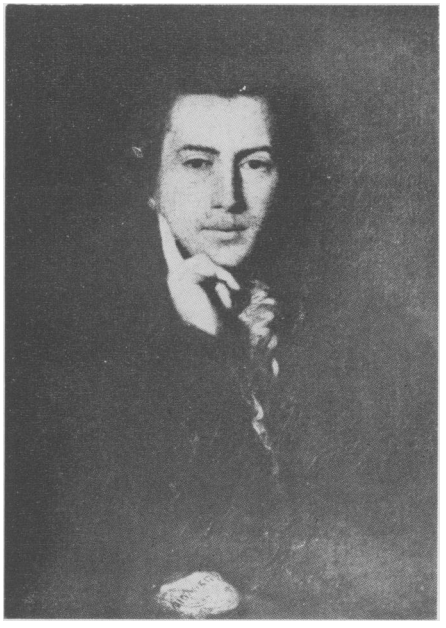
> He was, we are told, an enthusiastic lover of music, vocal and instrumental. He was an excellent performer on the violin having an admirable ear, and regularly enacted his part at the concerts of the Belfast Anacreontic Society, of which he was the founder and president.

This was the association which eventually became the Belfast Philharmonic Society.

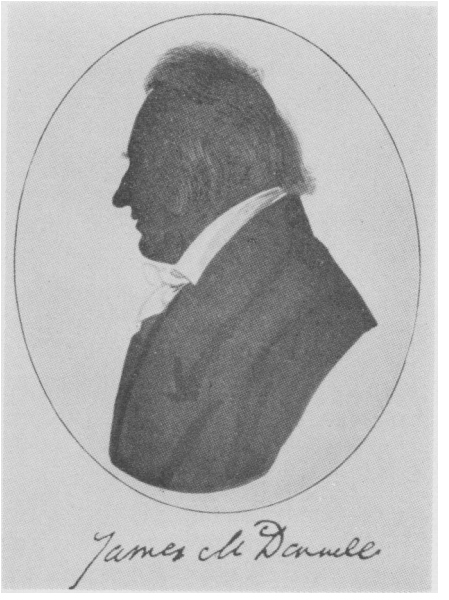
Another early president of the Belfast Medical Society was Doctor William Drennan (Fig. 5). His father was the minister of the First Presbyterian Church in Rosemary Street. William received his medical education at Edinburgh University, and it was from that city that he wrote home to his sister that

> a student of medicine is a term of contempt, but an IRISH student of medicine is the very highest complication of disgrace.

He practised for a time in both Newry and Dublin, but is better remembered for his political and literary activities. He was a founder and a prominent member of the Society of United Irishmen, but he did not approve of their later activities, and drifted away from the movement he had done so much to establish when he discovered that his colleagues were determined to embark on schemes of violence. His address to the Volunteers led to his being brought to trial for "a wicked and seditious libel" in 1794, but he was acquitted. "He was", wrote his granddaughter, "a reformer, but never a conspiration". Prior to the introduction of Jennerian vaccination, he had proposed a scheme of immunisation against smallpox for the children in the Belfast Charitable Society's Poorhouse, but otherwise his medical activities in Belfast were mainly journalistic. He was one of the founders of the Academical Institution in 1810, and when it was opened in 1815, it was he who delivered the inaugural address. His epitaph, written by his medical son, is worth quoting.



5. *William Drennan*



6. *James McDonnell*

7. *Andrew Marshall*

8. *James Lawson Drummond*

Pure, just, benign ; thus filial love would trace
The virtues hallowing this narrow place.
The Emerald Isle may grant a wider claim,
And link the Patriot with his Country's name.

for it was William Dunnan, the Poet, was first called Ireland "the Emerald Isle".

The first secretary and treasurer, and afterwards a president of the Society, was Doctor Andrew Marshall (Fig. 7). His portrait hangs in the Royal Victoria Hospital, for he was Surgeon to the Belfast General Hospital as well as to the Charitable Society. He was in practise in High Street with his brother-in-law Doctor James Drummond, but had begun his career as a Naval Surgeon, and had served in the Baltic under Admiral Gambier in the operations that made Heligoland a British possession.

The graves of all three of these founders are in the old Clifton Street Burying Ground.

But in spite of an auspicious beginning, the early efforts of the Belfast Medical Society failed. The exact reasons are not clear. "The demon of discord invaded its ranks," says Malcolm, and the records of the Society ceased in 1814.

There was a revival in 1822. Two men in particular were responsible for this. The first was James McDonnell (Fig. 6) from the Antrim Glens. He, too, was a graduate of Edinburgh, and was destined to become one of the founders of the Belfast Medical School. His bust, the gift of Robert Marshall, stands in the corridor of the Royal Victoria Hospital, and Malcolm was to say to him that

> no contemporary of any note in Britain was ignorant of his profound learning and distinguished name.

The other was Henry Forcade, who was not only the new treasurer, but the founder of the Annual Feast in commemoration of the revival of the association. He was a retired Army Surgeon who had served all through the Peninsular campaign with the Duke of Wellington, and, as Malcolm says

> so distinguished himself . . . as to receive the old General's particular commendation.

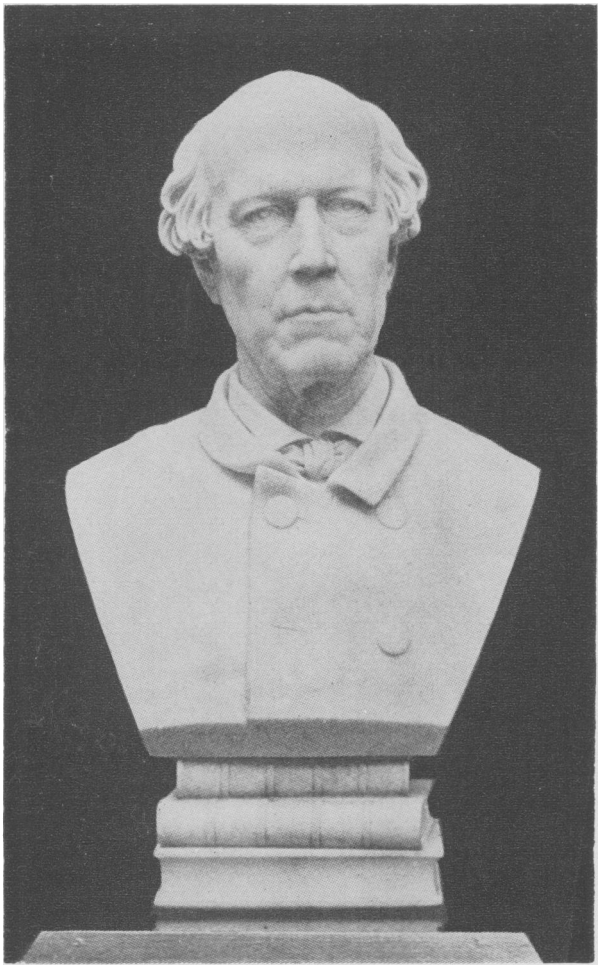
> The Minute Book of the Society, states Hunter, shows the wide range of medico-political matters discussed. In 1832, the subject of a Medical School for Belfast was raised, and it was through the activities of the Society that the formation of the school was realized in 1835, in connection with the General Hospital and the Royal Academical Institution, Belfast.

It is true that in 1836 professors of medicine, surgery, midwifery, chemistry and materia medica were appointed at the Academical Institution. But James Drummond (Fig. 8) had been teaching anatomy in Inst since 1818, as well as other basic sciences, so that his seniority determined that he was first Dean of the Faculty, while James McDonnell had given the first clinical lecture in the General Hospital in 1827.

McDonnell, Drummond, Andrews and McCormac (Fig. 13) are the giant names of the period. But while they played their parts in the activities of the Belfast Medical Society, their fame lies with their great professional acumen, and the early days of the Belfast Medical School.

9. *The General Hospital*

13. *Henry MacCormac*



The Medical Society had its own library, and it was meeting in a room provided in the General Hospital (Fig. 9). Malcolm, the medical historian of that Hospital, and whose work has been so often quoted already, was then an active and enthusiastic supporter.

> We have members and zeal enough, he wrote, but we are working under great disadvantages. Our library is but limited and our place of meeting can scarcely be called our own. This is not a state of things creditable to a large and learned body.

The Belfast Clinical and Pathological Society

In spite of what Malcolm wrote with obvious pride in 1851, he had sounded a note of discontent. It is not, perhaps, surprising that in 1853 the Belfast Clinical and Pathological Society was founded, and that he was the first secretary. There were 96 members by the end of the first year, and these now included doctors from the surrounding country. While the first president was one of the great Belfast medical dynasty of Purdons, as far as the medical societies and their histories is concerned Malcolm is the outstanding figure of the period.

Andrew George Malcolm (Fig. 10) was a native of Newry, received his early education at the Royal Belfast Academical Institution, and was later at Dublin and Glasgow, finally taking his M.D. at Edinburgh. He was physician to the General Hospital, was an authority on public health affairs, and was one of the first to advocate the medical examination of factory workers. Mention has already been

THE

HISTORY

OF THE

GENERAL HOSPITAL,

BELFAST,

and the other

Medical Institutions

OF THE TOWN:

With Chronological Notes & Biographical Reminiscences

Connected with its Rise & Progress.

by

A.G. MALCOLM, M.D.,

One of the Attending Physicians of the Hospital,

&

Vice President of the Medical Society.

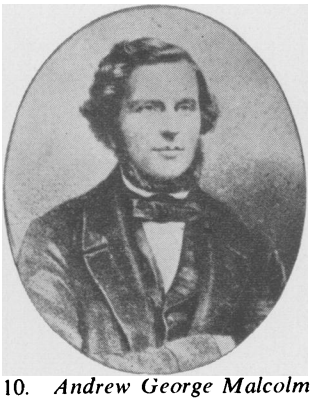
BELFAST:

W. & G. AGNEW, LITHOGRAPHERS AND PRINTERS,

ARTHUR-SQUARE AND CASTLE-LANE.

1851.

11. *Title page of Malcolm's History of the General Hospital*



10. *Andrew George Malcolm*

REPORT

OF THE

CONVERSAZIONE

OF

The Belfast Clinical and Pathological Society,

HELD

ON THE TERMINATION OF THE THIRD SESSION,

AT THE

CORN EXCHANGE HALL, APRIL 30, 1856,

WITH WHICH IS INCORPORATED

THE ADDRESS OF THE PRESIDENT.

Belfast:

PRINTED AT "THE BELFAST DAILY MERCURY" OFFICE.

1856.

12. *Report of the Concersazione of the Belfast Clinical and Pathological Society,* 1856

frequently made of his invaluable "History of the General Hospital" (Fig. 11) published in 1851.

> It was, says Robert Esler, written for a fete which took place on the Queen's Island, and with the object of giving a more general interest in the institutions of the town, especially the hospital.

He died in 1856 at the early age of 37, and is commemmorated by the Malcolm Exhibition at the Royal Victoria Hospital. Dr. J. S. Drennan wrote of him :

> In mid-course of a sublime career
> An active votary of virtue falls.
> Such Malcolm was – he scorned the level way,
> And followed duty up her heavenward hill ;
> Steadily working while it yet was day,
> The sudden night fell on him working still.

Meetings of the Society were held weekly on Saturdays at 3 p.m., and were well attended. What the attractions of such a programme would be today is a matter for conjecture. R. H. Hunter records that

> a conversazione (Fig. 12) was held in a public hall each year to which non-medical guests were invited. One of these was held in the Belfast Corn Exchange in 1856, the year in which Dr. Malcolm occupied the presidential chair,

and in fact the year he died. The Exchange is now the Head Office of the Belfast Banking Company in Waring Street. The Belfast News Letter reported that

> great interest was evinced during the evening in some of the microscopic demonstrations by members of the Society, such as the polarisation of light, the circulation of blood in the foot of the frog and in some experiments illustrating the physiological effects of strychnine by Dr. Hall's frog test. None of these could be viewed with indifference even by those accustomed to such spectacles, while to the uninitiated they were productive of surprise and amazement.

The Ulster Medical Society — Former Days

The local medical community was too small to support the interests of the competing societies. The first formal discussions about union took place in 1861, in March, 1862, the Medical Society approved the motion

> that a committee be appointed to make the necessary inquiries for a Central Room for the use of the new Society,

and a month later it was suggested

> that two rooms with water closet attached be taken in the house, No. 33 High Street, at the rental of £12 10s. per annum, taxes included.

Four days later, on 30th April, 1862, both Societies met and it was resolved

> that this Meeting approves of the proceedings already undertaken for the amalgamation of the Medical and Pathological Societies, and hereby declares the union of the respective bodies, under the title of the Ulster Medical Society.

The first meeting was held in the rented rooms in High Street on Saturday, 3rd May at 3 p.m., under the presidency of Professor Ferguson who held the chair of Medicine in the Queen's College.

The Society continued to occupy these premises for some years, but during the 1866-67 session it was reported to them that

> Doctors MacCormac, Pirrie, and Murney, joint trustees with Mr. Girdwood for the erection of the new wing to the hospital – the donation of Mr. Charters – were present, and concurred in stating that both rooms in the basement wing had been specially prepared, and were INTENDED FOR THE SOCIETY'S USE; all the expenses of preparation having been defrayed out of the supplementary grant of £500 from Mr. Charters.

So in that session the Society gave up its rooms in High Street, and settled in what was described as "the more congenial atmosphere of the General Hospital". The Ulster Medical Society was back to the home that Malcolm had so much disliked in the days of the Belfast Medical Society, but this time the actual rooms were different, and the Society was now there by right, and not, as it were, in lodgings.

John Charters was a successful Belfast flax spinner

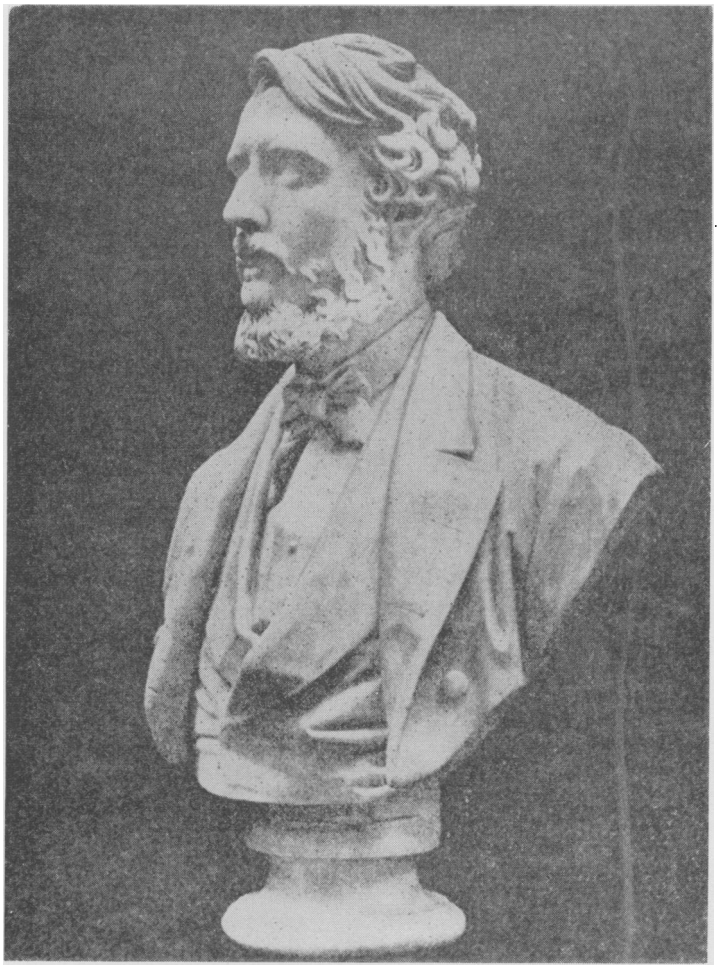
> whose sagacity in business, said the News Letter, helped to create and establish the commercial fame of Belfast.

In his lifetime he presented a new wing to the General Hospital, the name of which has been carried over to Ward 11 in the Royal Victoria Hospital. He also built a new wing for the Belfast Charitable Institution. His name is further recalled by the Charters Prizes in the Royal Belfast Academical Institution. It is unfortunate that his kindness to the Ulster Medical Society has been forgotten.

In 1873 the Transactions of the Society were published for the first time, and were included in the Dublin Quarterly Journal of Medical Science, but by the 1884-85 Session these were being published separately in Belfast.

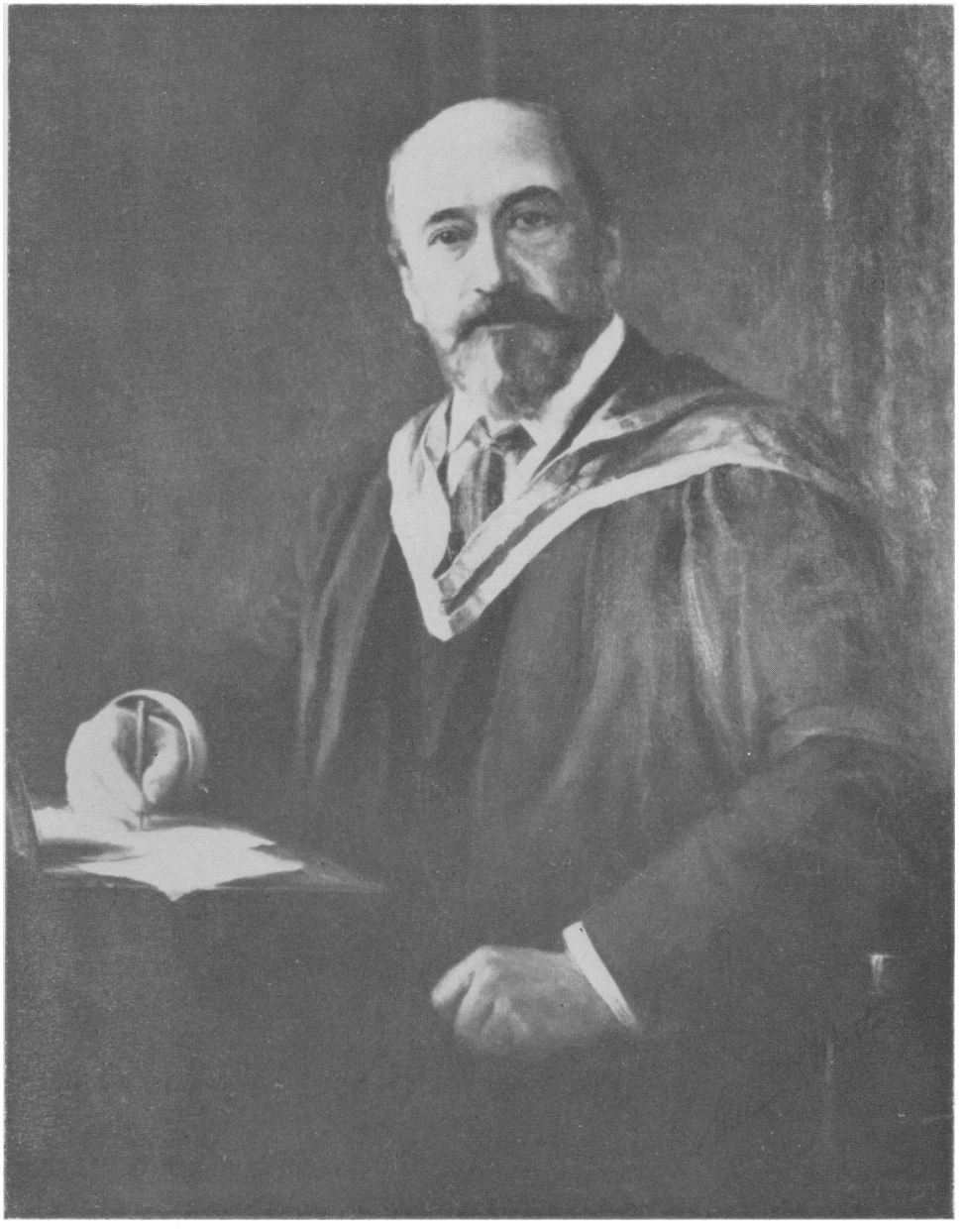
The years that followed this more settled life for the Society are characterised by a succession of brilliant presidents, whose contributions to medicine were clinical and scientific, and who in that sense rather than any other added to the stature of the Society. It is possible to mention only a few of them but they included James Seaton Reid, Professor of Materia Medica in the Queen's College; James Cuming, Professor of Medicine; William MacCormac (Fig. 14), afterwards a Baronet and President of the Royal College of Surgeons of England; Robert F. Dill, Professor of Midwifery; Sir John Walton Brown and William McKeown, both pioneers of Ophthalmic Surgery in Belfast, and Sir John Fagan, a distinguished surgeon and one of the founders of the Belfast Hospital for Sick Children.

It was during Fagan's presidency in the 1884-85 session that the Society changed its meeting place from the General Hospital in Frederick Street to the Museum of



14. *Sir William MacCormac, Bart.*

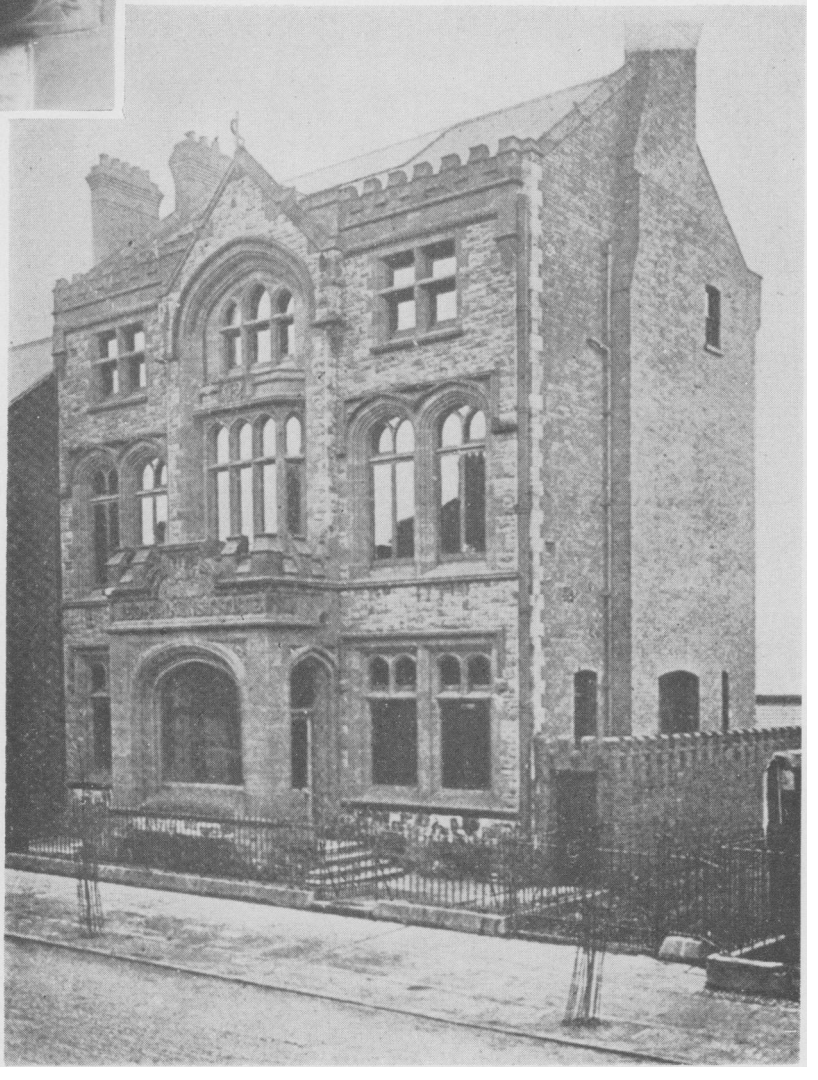
15. *The Old Museum*

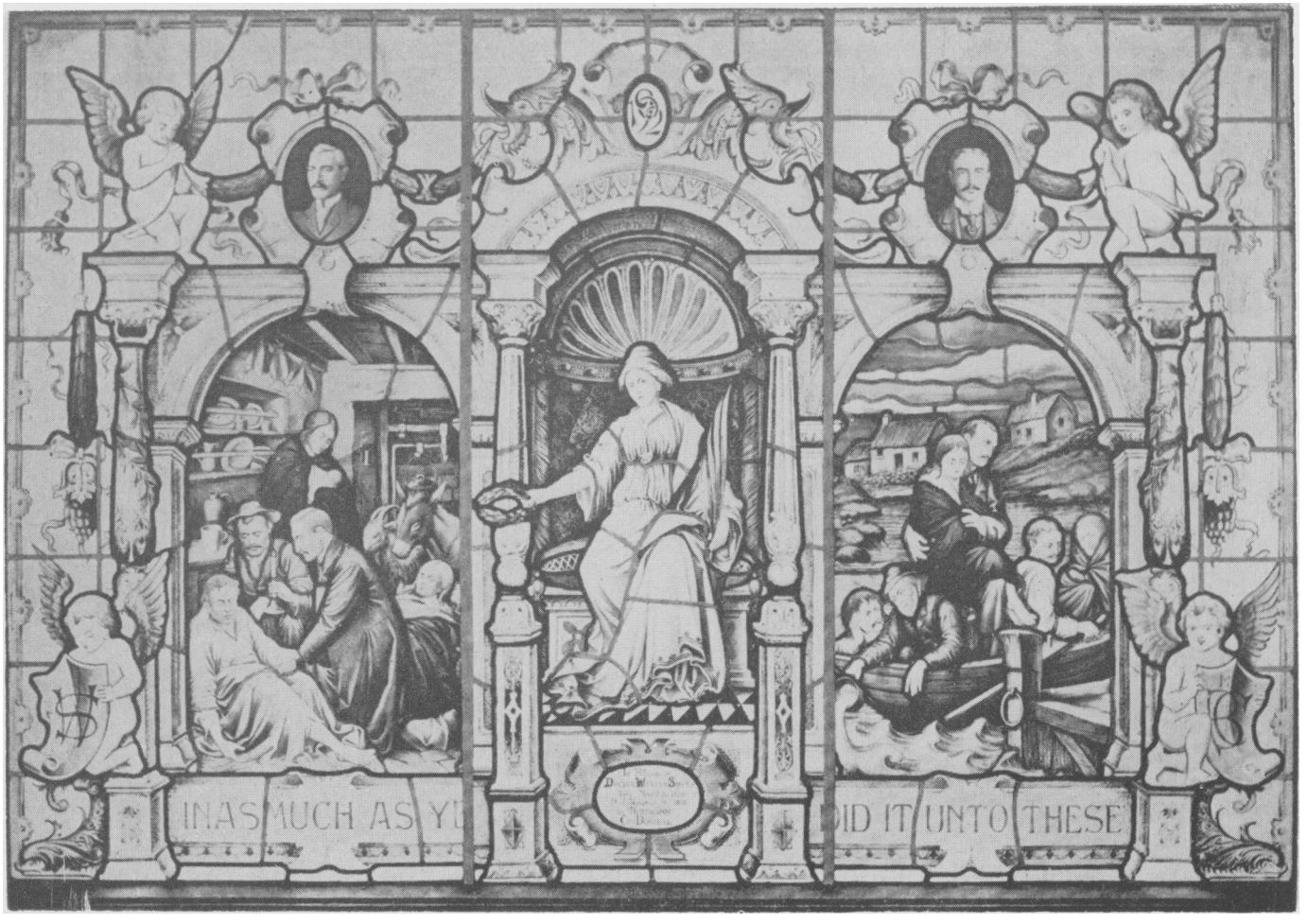


16. *Sir William Whitla*

18. *Stone Head of Thomas Andrews*

17. *The Whitla Medical Institute*





19. *The Smyth Memorial Window*

the Belfast Natural History and Philosophical Society in College Square North (Fig. 15), and that meetings were held on Thursdays instead of Saturdays.

Presidential names, destined to be well-remembered, continued to appear, including William Whitla ; Robert Esler, an important Belfast medical historian, whose papers on the subject appeared in the early Transactions of the Society, and one of the founders of the Ulster Hospital for Children and Women ; Alexander Dempsey, Gynaecologist to the Mater Infirmorum Hospital, afterwards knighted for his services ; Henry O'Neill, nick-named "Health" for his interest in public hygiene, and the founder and first President in his student days of the Belfast Medical Students' Association ; Sir John Byers, Professor of Midwifery and Gynaecology, and an authority on local dialects and folk-lore ; Thomas Sinclair, Professor of Surgery, Member of Parliament for the University at Westminster, and donor of the Society's handsome Loving Cup ; Johnson Symington, Professor of Anatomy and a Fellow of the Royal Society ; James Alexander Lindsay, Professor of Medicine ; Sir William Thompson, Professor of Physiology. The list is still far from complete.

From the Society's point of view, the greatest of these was Whitla (Fig 16). A native of Monaghan, he started life as a pharmaceutical chemist, attended the Queen's College, qualified in medicine, and became a distinguished consultant physician in Belfast, living in Wellington Place and later in Lennoxvale House. He was Physician in the old Royal Hospital and then the Royal Victoria Hospital. He was Professor of Materia Medica and Therapeutics in Queen's College, afterwards Queen's University, for many years, and was President of the Ulster Medical Society in 1886-87 and again in 1901-02. His great contribution to medicine was his gift for popularising what was then known of the action of drugs and the medical treatment of disease, and two books, his Dictionary of Treatment and his Pharmacy, Materia Medica and Therapeutics, made not only the author, but the Belfast school, known the World over. They were indeed best sellers, and brought the writer his just rewards. He became famous, he became rich, and it was his generous acts in his lifetime that moved the Ulster Medical Society from rented rooms in the Old Museum to its own new home on the other side of College Square North. He procured a site from the Governors of the Royal Belfast Academical Institution, and on it built the Medical Institute, afterwards known as the Whitla Medical Institute (Fig. 17). The building was planned in great detail. Into the front were placed portraits in stone of the four men considered by him to be "the immortals of the society" – Andrews (Fig. 18), Gordon, Henry MacCormac and Redfern. On 20th November, 1902, the Institute was declared open by His Excellency the Earl of Dudley, the Lord Lieutenant of Ireland. It must have been a supreme moment both for Whitla and for the Society.

The fireplace in the library on the ground floor had been so designed that the space above the mantlepiece contained a large stained glass window (Fig. 19). The previous winter there had been a serious outbreak of typhus fever on the island of Arranmore off the west coast of Donegal. So great was the terror among the local fishermen that none of them would help the doctor from Burtonport to attend the victims. So Doctor William Smyth rowed himself to the island in a leaking boat with food and medical supplies as often as was necessary, until he was joined by Doctor Brendan McCarthy. Eventually, together, they conveyed the patients to the

mainland, but Doctor Smyth had contracted a fatal attack of the disease. The stained glass window is a memorial of this event, and of Doctor Smyth's death. When it was unveiled by the Countess of Dudley on the day the Institute was declared open, Doctor McCarthy was among those present. As Professer Frederick Boas wrote :

A lonely islet in the western wave
  Lashed by Atlantic surge and winter storm,
  Through it came stalking fever's spectral form,
Gathering her tribute for the yawning grave.

And while the billows break on Arranmore,
  Men still shall wond'ring tell, and wond'ring hear,
  How in a wave-worn barque of yester-year
They piloted the sick from shore to shore.

Sir William had the window so placed that it formed a focus of attention ; as he said, "Something that a weary brother seeing may take heart again".

The distinguished Presidential names continue in the records of the Society : Sir John Campbell, the gynaecologist ; Lorrian-Smith, the pathologist, who afterwards held the Chair in Edinburgh ; Robert Campbell, a pioneer in paediatric surgery and whose name is commemmorated in the Society's Campbell Oration ; Andrew Fullerton, Professor of Surgery, a President of the Royal College of Surgeons in Ireland, and a urologist with an international reputation ; St. Clair Symmers, Professor of Pathology, and for many years Dean ; T. H. Milroy, Professor of Physiology and a world authority on the biochemistry of muscular contraction.

No attempt has been made to make the list complete. Year after year saw a long line of changing Presidents as University Professors, Hospital Consultants and beloved family doctors followed each other. It was difficult to believe that the Ulster Medical Society had not reached a state of happy equilibrium. Safe in its new and beautiful home, with its library and its assembly hall, not even the frightful toll of the 1914-18 War seemed to affect its stability.

But it was not to be.

Latter Days

"Stasis" is a word with unpleasant medical significance. Nowadays even the physicists and the mathematicians have doubts whether anything stands still. Certainly in the last thirty years or so Western civilisation has been on the move. Though there are still areas of the world where people exist at starvation level, in most places the standard of living has risen enormously, largely due to scientific advances of all kinds. These advances have made possible the concept and the arrival of the welfare state. But society is still unsettled, and perhaps the very outburst of scientific knowledge has resulted in the inability of peoples to adapt themselves to it fast enough for harmony. Medicine has shared in these discoveries. The history of a professional association such as the Ulster Medical Society reflects these changes. Scientific medicine has demanded a new and extra type of doctor, the specialist in an ever narrowing field, and the researcher in the narrowest field

of all. The ordinary doctor, bag in hand, stands between the patient with his stomach ache on the one hand, and, on the other, not just the physician or surgeon, but the nuclear physicist, the organic chemist, the medical statistician. The exhibition of an elegant pharmaceutical preparation has given way to the exact prescribing of antibiotics and chemotherapeutic agents. In pathological terms, small round celled infiltration has yielded to the vistas provided by the electron microscope.

Within the membership of an association such as the Ulster Medical Society this has meant a disturbed population distribution. The super-specialist has come to stay, and his animadversions are not always to the apparent help, still less to the comprehension of his colleagues, whether general practitioners or other performers in the higher realms. There is the rising danger of the splinter group. The very specialised society has its own part to play, but the audience with a wider view can demand in presentation and discussion a sense of proportion, and, given the chance, leaven the undigestible lump. Scientific medicine has therefore provided medical societies with a new challenge : to introduce a sense of scale into professional audiences and to keep medical outlook on a broad basis. Medical societies have another obvious function : to break down situations in which doctors find themselves isolated, and to provide an opportunity for them to foregather socially as is possible at the beginning and end of every meeting. And surely there is room in the annual programmes of these associations for more evenings devoted purely to non-medical subjects, and the positive objective of simple relaxation?

The Ulster Medical Society has never stood higher than at present in the quality of its scientific communications. Local research papers are of an excellent standard, and the Society can command the most distinguished medical lecturers as guests.

If the Society is in good health scientifically, it has received trauma in other ways. It survived serious deterioration in its old home, the Whitla Medical Institute, but rising costs and taxation have dealt it a blow from which it will recover only as it makes the effort. In dealing with the Society's history over the last thirty years, it is to these aspects that the most attention must be directed, even at the cost of enumerating the success of its individual Fellows and Members.

It's history is certainly not just the record of the people, distinguished and otherwise, who have occupied the Presidential chair. In this particular case, some of the greatest Fellows never achieved or never accepted the office, and the most brilliant presidents individually have not always been those who contributed most to the stature or usefulness of the Society. As each new president is invested by his predecessor with the truly mighty chain of office that weighs him down on such occasions, or even when he wears the smaller one appointed for use at less auspicious moments, he must be aware of this. It may subdue pride in the great, and remind them that the presidential task is one which will test hitherto untried qualities and may well find them wanting, while it will remind less important souls that it is sometimes such as they who have done the greatest things for the Society.

The presidential chain and badge were the gift of Sir William Whitla. It is indeed an example of bread cast on the waters, for it had been the gift to him from his local professional brethren when he was President of the British Medical Association at its meeting in Belfast in 1909. The President of the Ulster Medical Society is thus clearly labelled British Medical Association for all to see, but a small

pendant has been added to clarify this point.There can be no doubt that Sir William Whitla was one of the most successful Fellows ever to fill the office. He was the fashionable local consultant and worthily so. His medical books brought him not only financial rewards, but an international reputation, and one which enhanced the name of the Belfast School. It was not inappropriate that on the bronze plate that records his name in his old wards in the Royal Victoria Hospital Robert Marshall should have chosen to describe him in the words of his favourite prophet Daniel as "skilful in all wisdom, and cunning in knowledge, and understanding science". Honorary degrees and a knighthood came his way, he represented his university at Westminster and became one of its Pro-Chancellors. Yet in making this very generous gift of the Medical Institute to the Ulster Medical Society it could not be said that he sacrificed his personal comfort for his fellow doctors. His magnificent home at Lennoxvale, which he left on his death to be a Lodge for the Vice-Chancellor of the University, testifies to the style in which he lived, though it is perhaps an interesting sidelight on his life that, as Cecil Kidd reminds us, the highly evangelical Lady Whitla was apt to support him on some of his official occasions wearing the full uniform of the Salvation Army.

None the less, thanks to his generosity the Society acquired its own home, known in his lifetime as the Medical Institute and after his death in 1933 as the Whitla Medical Institute, a place where it could house its possessions, its pictures and its library, and where Fellows and Members could meet socially as well as for their scientific business. And the site was well chosen for those days, for College Square North was then the fashionable medical area of the city. It was, too, his intention that the Institute should provide a venue for the annual dinner of the Society, as was afterwards often happily proved, though in those days it was always a stag party.

So it came about that the Ulster Medical Society became for several generations of medical men identified with the building. It is now important that this identity must be seen as spurious and that, though circumstances have forced the Society to abandon the premises formerly regarded as its professional home, the Society itself lives on. It is important that it should still play its part in bringing all members of the profession together medically and socially, and in providing that cohesion that is so necessary if family doctors, consultants, and specialists in fields that are getting narrower and narrower are to retain any sense of proportion, or singleness of purpose and ideals. This seems to be, indeed, what is happening already.

On 5th March, 1936, Dr. R. H. Hunter read his paper on the history of the Society in an abbreviated form to a large audience of the Fellows and Members. The minutes record that "the whole paper is a very valuable piece of research work which will be of great value to the Society". It subsequently appeared in two parts in the Ulster Medical Journals of April and July, 1936, and finally as a single reprint. Almost the last words in it state that for the previous five years the Society had published its own journal instead of the former somewhat irregular Transactions. What it did not state was that he himself had been its Editor over that period, and its virtual founder.

Richard Henry Hunter has for years buried himself in the depths of the country, and his old haunts see him seldom, but if only for his work in founding and remaining editor of the journal over its most formative years, he must be regarded

as one of the great names in the list of Fellows. To the younger generation he is perhaps only remembered as the energetic, bustling little man in the top hat and evening coat of hunting pink who for years organised and acted as ringmaster in the Belfast Christmas Circus. This sort of thing he loves, and, in the summer to join a travelling circus and go round the country with it was his ideal holiday. He had a way with wild animals, as those who saw him in the tiger's cage at the reception given to the British Medical Association at Bellevue in 1937 will remember. From being an interpreter with the French Army in the 1914-18 War, and then a foundation member of that famous Queen's University Concert Party, the Jesters, he became Lecturer in Embryology, and, if it was a loss to Anatomy that he never attained the Professorial Chair for which his friends considered that his inspiring and enthusiastic teaching entitled him, it was the University's gain when he left his old department to become Secretary. It must also go on record that he was one of the moving spirits in founding both the Queen's University Association and the University Staff Club. "SI MONUMENTUM REQUIRIS CIRCUMSPICE".

The closing years of the period covered by Richard Hunter's history of the Society were marked at home by a fair measure of peace and economic stability. Hitler was making himself heard in Germany, but was hardly taken seriously by the world at large. The Ulster Medical Society's affairs could fairly be described as staidly prosperous. It was possible to buy a good six-cylinder car with a sunshine roof for under £300, and it was possible to park it in front of the Institute, or if not in front, certainly within a hundred yards, though such an inconvenience was regarded as bordering on the intolerable. But the pattern of life was in many ways changing. People no longer foregathered in the Institute for a four of bridge or a game of billiards. The library was still used for reference purposes, but as a social centre the annual dinner was becoming the sole attraction. Yet the sense of companionship remained. Those who arrived early for the usual fortnightly meeting could be sure of a chat with friends before a cheerful open fire in the front hall. The leather of deep arm chairs gleamed and gave an air of luxury. The floors and the walls shone, and smelt of polish. Most people knew each other, and "Who on earth is that chap?" was still a question for the far future. Wilson, the Steward, presided on these occasions in his little telephone office, and, after the meeting was over, his wife's fairy cakes were of a lightness such as encouraged gluttony.

The Northern Ireland Branch of the British Medical Association invited the Association to hold its 105th Annual Meeting in Belfast in 1937, and it was inevitable that the Ulster Medical Society would be involved. For the two years preceeding the meeting the Society's library was used as an office, and the whole meeting was organised from it. Under the Presidency of Professor P. T. Crymble, the Ulster Medical Society held a reception and dance for the Representative Body of the B.M.A. at Belfast Castle on Saturday, 17th July, and the following evening there was a concert in the Whitla Medical Institute. The President of the British Medical Association was Robert James Johnstone, Professor of Gynaecology in Queen's University, and one of its representatives in the House of Commons at Stormont. He was subsequenly knighted for his services to medicine, but did not live long to enjoy the honour, for he died in 1938. He was a former President of the Ulster Medical Society, and his name is commemorated in Johnstone House in the Royal Maternity Hospital.

Professor W. W. D. Thomson, afterwards Sir William, who held the Chair of Medicine in the University, was President during the 1937-38 Session. His inaugural address was entitled "Some Aspects of the Life and Times of Sir Hans Sloane". Sloane was born in Killyleagh in Co. Down in 1660. He studied medicine at Montpelier, but, as a Protestant, took his M.D. at the neighbouring University of Orange. He became a fashionable London physician and was the friend of Ray, Boyle and Sydenham. He travelled to Jamaica as physician to the Duke of Albermarle, and here he had the opportunity of making a considerable sum of money from the purchase of Peruvian bark as well as becoming a fine botanist. Later, his charity to poor patients who came to see him at his own house in London did not prevent him from making a large professional fortune, and Hans Crescent and Sloan Street commemorate his wise speculation in land in Chelsea. Above all, his wealth enabled him to amass an enormous number of curiosities ; botanical, geological and archaeological. This collection forms his greatest claim to fame, for, though he was the only person ever to become President of the Royal Society and of the Royal College of Physicians of London, yet, as Professor Thomson said in the concluding works of a remarkable address, "the vision of a young Ulsterman and the dreams of his old age gave England the British Museum".

At the annual dinner that session Professor Thomson presented to the Society two of its finest canvasses : a magnificent copy of the picture of Sloane, the original of which is in the National Portrait Gallery in London, and the painting of Sir William Whitla, so often called the second founder of the Society. This was also the occasion of the conferment of the honorary Fellowship of the Society on Sir Humphrey Rolleston and Mr. A. B. Mitchell, F.R.C.S.I., and at a meeting soon afterwards on Sir Robert Johnstone.

1937 marked the beginning of a period of great world uneasiness. Adolf Hitler had ranted his way from the Munich beer cellars to the Chancellory in Berlin. "Liebensbraum" was the password. Mussolini was baring his teeth to the rest of the world from the balcony of the Palazzo Venezia. The horrors of the civil war in Spain and the Italian invasion of Ethiopia seem in retrospect but trials of strength. Chamberlain and his piece of paper marked a temporary pause only, a period when the nations were taking a deep breath before the plunge into six years of conflict such as the world had never seen before. One by one the smaller nations were taken over by Germany. Finally Hitler announced that his patience was exhausted. For a year there waged what came to be known as the phoney war. Then came the blitzkrieg in North West Europe, the retreat of the allies at Dunkirk, and the dreadful time when Britain and her Empire stood alone. Against such a background the affairs of the Ulster Medical Society fall into insignificance, yet it is not without pride that the facts can be stated.

On the outbreak of hostilities, and with the unknown risks of air raids, it was decided to curtail the activities of the Society, and to offer the premises to the Government for war purposes if they were required. It was also agreed to reduce the publication of the Ulster Medical Journal to two copies in the year. Temporary membership was offered to Service Medical Officers stationed in Northern Ireland, and the wartime programmes of the Society included many joint meetings with the British Medical Association, as well as clinical meetings at Campbell College under the auspices of the 24th General Hospital, R.A.M.C., and at the Musgrave Park

premises which had been taken over and opened as the 31st General Hospital. In December, 1942, Captain Swank of the United States Medical Corps became the first American officer to address the Society, and on another occasion one of those taking part in a discussion was Major General Sir Henry Tidy, Consultant Physician to the Army, for long a close personal friend of Professor Thomson, and Extern Examiner in Medicine at Queen's University.

Into these martial affairs there obtruded a political impasse. In 1942 the Society refused Dr. Samuel Simms the use of the premises for a meeting of the Medical Practitioners' Union, and again after the council had been specially convened there was a further rejection of the request. The argument brooked of no denial. The minutes record the simple rhetorical question: "Was not this a branch of the T.U.C.?"

By the late summer of 1945 the Allies had brought both Germany and Japan to the armistice tables. Atomic energy had been liberated. A terrible source of destructive power and disease had been discovered, the full force of which was not at first generally realised. The physical destruction of air raids on Britain had been immense. Belfast had not escaped and had been the victim of one of the heaviest raids. If Musgrave Park Hospital had been created The Ulster Hospital for Children and Women in Templemore Avenue as it had been known was destroyed. The fabric of the Ulster Medical Society's premises was intact, but not so its roll of Fellows and Members.

In 1948 a Roll of Honour was prepared. It was agreed that it should include not only the names of those who belonged to the Ulster Medical Society when they joined the forces, but also those who had served and who had joined the Society by 1st May, 1948. It was obvious that any other course would have excluded many who had never been afforded the chance of joining the Society in the ordinary way at the usual time. Finally a wooden panel was constructed similar to that presented by Dr. H. L. McKisack commemorating those who had served in the 1914-18 War, and was given to the Society by Robert Marshall, a past President of the Society and a former Editor of the Journal. It records the names of 126 Fellows and Members who served with the armed forces, including the following who lost their lives:

R. McF. Kirkpatrick, D.S.C., Surgeon Lieutenant, R.N.V.R.
Robert W. S. Marshall, Squadron-Leader, R.A.F.
Humphrey B. Thomson, Captain, R.A.M.C.

The war period was characterised by one immediate objective – to win. The purpose of the post-war period was less clear. For many the main point was to get back to things as they were. It was never to be. All sorts of commodities were scarce. "In short supply" became, and remains, the jargon. Food, petrol, cars were still rationed or on a system of priorities. Six years of war had created a social upheaval on which there was no going back. The Beveridge Report pointed the way to the Welfare State. The return of a Labour Government in Britain demanded it. Medicine was deeply involved. The pattern of general practice seemed in the melting pot. In Northern Ireland the province could not absorb many more family doctors without imperilling the economic status of them all. The voluntary hospital system as it had existed for generations could not provide a livelihood for the extra

consultants that the expansion of scientific medicine demanded. Very experienced ex-service doctors were demobilised without jobs and without higher qualifications. Ex-service housemen and ex-service registrars became the order of the day, and medicine made its contribution to the growing ranks of angry young men. These aspects of the immediate post war period, fortunately, did little to upset the peace and concord of the Ulster Medical Society, but economic considerations did not encourage immediate recruitment to its ranks. The medico-political battles were largely fought out in the Ex-Service and Registrar Groups of the British Medical Association, but there can be few Fellows or Members of the Society who at that time escaped the complications of the period. Whether under the auspices of the British Medical Association or not, it was usually in the Whitla Medical Institute that these group meetings took place, though on occasion they were held on the premises of the Pharmaceutical Society of Northern Ireland. There was always something about the Medical Institute that made it feel like a home even if there was a bitter argument in progress. It was comfortable. It belonged to you and you belonged to it. No other allegiance was involved. It engendered an undivided loyalty and an independent attitude to professional alignments of other kinds.

Gradually the post-war years slipped into the early days of the Health Act of 1948, with the appearance of the General Health Services Board, the Northern Ireland Hospitals Authority and the Tuberculosis Authority. But, while the restrictions of war gradually disappeared, social patterns on the whole were still changing. The days were long since past for the bridge room or the billiard table. Except for the invaluable social periods just before and after scientific meetings the place was no longer a club, yet was being maintained almost on that footing throughout the year. With the abolition of petrol rationing and the greater availability of cars, congestion in the city streets was becoming heavier week by week, and it was increasingly difficult to get near the Institute in the evenings.

It was only after several years of firmer and firmer prompting from the Council, and especially from those who held the premises on Trust for the Society, that two special considerations finally dominated the thoughts of the Fellows and Members generally. The first was the deterioration in the fabric of the building itself, and which dated from the time when the British Sailors' Society purchased and enlarged the old Police Barrack on the east side of the Institute to make a Merchant Seaman's Club. The other was the introduction of legislation involving the Society in the payment of heavy rates from which they had been hitherto exempt on the simple assumption that the society was scientific and educational.

Early in 1946 cracks had appeared in the wall beside the musicians' gallery in the lecture room and in the old billiard room above it. Then it was found that some of the doors in the Institute had become very tight, and could be opened and shut only with difficulty. It was the opinion of the Society's architect that these faults were due to subsidence in the new walls erected by the British Sailors' Society next door during the conversions for the purpose of the Merchant Seamen's Club. Strips of gummed paper were put over the cracks to see if there would be any further widening. The architects representing the British Sailors' Society were consulted and they admitted that Society's liability for the damage. Unfortunately they did not commit this opinion to paper. In the meantime doors became tighter still, and dry rot was discovered in the downstairs bathroom. Further, the ceiling in the

main assembly hall was reported to be dangerous, and the architect advised the Society that the room was no longer safe for use.

The brunt of the responsibility for advising the Fellows and Members and for making decisions of policy fell even more heavily on the trustees than on the council. The chairman of the trustees at that time was Sir Thomas Houston, and it was during the early period of these troubles, in 1949, that he died at an advanced age. He was one of the Society's most distinguished Fellows and a past President, a pioneer of clinical pathology and haematology in the province, and a man who commanded widespread affection. He was simple and humble to the point of eccentricity, and all who remember him do so with nothing but happy recollections. Other important names among the trustees at that time were Mr. S. T. Irwin, Dr. George Lyttle and Dr. Hilton Stewart.

It is extraordinary how protracted the proceedings were. Consultation was, of course, extremely complex. The general membership of the Ulster Medical Society, its council, its architect, the trustees for the building, the solicitor and eventually senior counsel on the one hand, and on the other the British Sailors' Society, their architects both in Belfast and London and their local and central solicitors had all to be consulted in turn. In 1952 one of the architects for the British Sailors' Society contended that the subsidence in the Whitla Medical Institute would not have taken place had its piling been sound, and advised an inspection. The arguments started all over again about who should be responsible for paying for this. By the end of 1953 the Ulster Medical Society was becoming impatient about all the delays, and blame was cast in many directions. It was now becoming evident that sums, perhaps in the region of £12,000, would be necessary if the building was to be saved. The question of its sale became more than just an awful thought that few cared to mention even in confidential conversation.

By March, 1954, the Council, finding that it was impossible to insure anyone but the steward against the risks of damage from falling plaster, decided to close the premises temporarily. It was only late in 1956 that the trustees reported to the society that they had at last been advised that they could and should repair the foundations and renew the ceilings and plaster work so that the premises could be used again. Even the exploration of the foundations had not been accomplished without trouble, for the builders had broken a drain in filling in the excavation, and had to uncover this and repair it, fortunatenly at their own expense. At the same time, the opportunity was taken to overhaul the heating, ventilation, plumbing and decoration, and to reconstruct the steward's premises.

How was the bill to be met? All sorts of expedients were considered by the council. To raise the subscription to the Society might seriously affect recruiting and even encourage resignations. It was hoped that it might be possible to pay subscriptions by Covenant, but this too fell through because the objects of the Society had never been clearly defined, a stumbling block which was also to prejudice seriously the Society's position in connection with exemption from rating. It was the legally-minded Reginald Hall who pointed this out, with the result that later a formal declaration of purposes was prepared. The case against the British Sailors' Society had been fully investigated by the Society's solicitor and Senior Counsel, and, finally, though the matter did not go to the courts, the Ulster Medical Society received an agreed sum of £5,000. This still left almost £2,000 to

be found, and it was not until 1959 that this debt was cleared off. largely through direct appeals to the Fellows and Members.

The premises were not the only source of financial worry. The Ulster Medical Journal was costing more and more to produce. It had never returned to its pre-war output of quarterly copies, and remained at two issues annually, but it was the only local medical publication and was filling an increasingly valuable role not only in providing an outlet for papers of medical interest written locally, but in publishing such material as the Annual Opening Address at the Royal Victoria Hospital. It had become one of the Society's most important contributions to local medical affairs, if not its most important. It formed, too, the basis of a wide exchange service with other centres, as it had been from its inception. Fortunately its value was appreciated outside the Society, and support was forthcoming from the University, the Hospitals Authority and the Belfast Hospitals Management Committee.

More recently, fresh arrangements have been made for the publication of the Journal, so that the cost of production may be to some extent be met by the income from advertising.

> "The Journal," said the Council as far back as 1957, "is the Journal of the Medical School and dependent on it, and it must remain a general journal in an age of specialisation. Good articles in it are noticed in the literature, and all are indexed and abstracted . . . Perhaps the supplements have done most to interest those outside the School."

While the reconstruction and repairs to the Whitla Medical Institute were being carried out, the Ulster Medical Society held its meetings for the most part in the then new Institute of Clinical Science at the Royal Victoria Hospital site. The Society must for ever remain grateful to the University for the facilities thus granted, but Fellows and Members had a feeling that they were not meeting under their own roof tree, and particularly that no part of the surroundings belonged to them. The familiar portraits, the War Memorial Boards, the stained glass windows ; none of these things were there to give any sense of specific identity or of the continuity of the life of the Society. There was no environmental proof that the meetings were indeed of the Ulster Medical Society.

So it was with the genuine feeling of a house warming and a homecoming that the 1957-58 Session began with the re-opening of the Whitla Medical Institute. A ladies' committee had helped with the choice of the interior decorations, and the place glowed in tones of warm orange light and soft greys and greens. There was the old sensation of physical and emotional warmth, and the evening was an especially happy one. Olive Anderson was the incoming President. She was the first woman to fill the office, and her colleagues welcomed her with special affection for she was just recovering from a serious operation. It was perhaps not unnatural that she chose as her subject "Elizabeth Garrett Anderson and her Contemporaries".

In spite of the joy of the occasion, there were some who realised that for the Whitla Medical Institute it marked the beginning of an Indian summer. Costs of all sorts were still rising. Even the heating of the building to a degree necessary for its proper maintenance was becoming a serious item of expenditure. Little use was made of the Institute except for the nights of the Society's own fortnightly meet-

ings. The British Medical Association, after the failure of several attempts to plan a secretarial addition for themselves at the back of the Institute, at last purchased their own premises on the Ormeau Road. This meant another and serious loss of regular income. Finally, the Council had to report that the Society was no longer regarded in Law as a charity, and would in future be faced with annual rates of some £300.

Among the trustees, who had borne so many responsibilities during the previous years, there were sad things to record. The Chairman, Sir Samuel Irwin, who had received a knighthood for public services, died in 1961, and the Secretary, Doctor Hilton Stewart had to resign that same year on grounds of ill health, being destined to survive only for another year. Continuity was retained in the person of George Lyttle, who became Chairman, while Reginald Hall was appointed Honorary Secretary.

An attempt to raise income by letting some of the rooms during the day to the Royal Belfast Academical Institution and to the Belfast School of Art meant an increase in the cost of heating, and part of the expected revenue disappeared, but it was clear to the Trustees, and to many of the Council, that the payment of rates was the final blow that was to bring the Society to bankruptcy unless something was done about it. Should the Society run into serious debt on this account, there was no sign of any new source of income to meet it. The Society as a whole turned both a blind eye and a deaf ear on the warnings of those in closest touch with the rapidly deteriorating situation.

1962 was the Centenary year of the Society's foundation. Cecil W. Kidd was the President, and he chose for his address "Sir William Whitla, Profile of a Benefactor." Instead of the usual Annual Dinner there was a reception in the main hall of the Houses of Parliament at Stormont. The occasion was made one for full academic dress and decorations, and the party was attended by many distinguished guests.

But the hair by which the sword of Damocles was suspended was becoming ever more tenuous. It was in 1964, when Kathleen Cathcart became the Society's second woman President, that the nettle was really grasped. Ever decreasing use was being made of the premises, the cost of its upkeep was becoming greater month by month, the parking of cars was becoming next to impossible, and the final burden was the imposition of the municipal rates. The Society was loathe to sell the premises. With the prospect of being no longer able to meet in the familiar surroundings, sentimental attachment to the Whitla Medical Institute had grown, and there were indeed heart searchings.

There was a good business reason for disquiet too. The trust deed was so framed that if the Society defaulted the proceeds must go to the Royal Victoria Hospital to endow a ward, though the trustees could reserve such portion as they saw fit to establish a fund for the endowment or further endowment of a Chair of Original Research in Pharmacology at the University. Already in his own lifetime Sir William Whitla had seen the hardship that this might one day place on the Society, but, as the trust had been established, he had no power to alter it. The Society would not benefit one halfpenny from the sale of the Institute, and would be homeless. The decision to sell was a terrible one to have to take, but it had to be taken, and better sooner than later. It was at an unusually solemn meeting of the

Society that a formal motion was proposed by Robert Marshall, and to few people can such a duty have been more painful. On 2nd June, 1965, the Council informed the Trustees officially that they defaulted and were vacating the building forthwith. The Whitla Medical Institute was sold to the Governors of the Royal Belfast Academical Institution, the ground landlords, for £13,500. With a sum of £417 15s. 6d. to be reserved for certain expenses approved by the Trustees, this left a disposable sum of £13,082 4s. 6d.

£13,000 is not a large sum in terms of bargaining power with Universities or Hospitals in modern times and the Society had to find a new home. Fortunately it possessed a far more powerful ally than mere money – an immense volume of good will. The Royal Victoria Hospital was not really free to give any hard and fast undertaking about how it would spend such a sum, so the Trustees decided that it would give the Hospital £500 to name a Whitla bed. The University, on the other hand, offered permanent accommodation on the Lisburn Road site, part of which would be for the exclusive use of the Ulster Medical Society, and which would be free of charge so long as the Society carried out its newly declared purposes. In the meantime the Society could have the use of premises in the Keir Building. The balance of the money paid to the University would go to further the study of Pharmacology as envisaged in the original trust deed.

The Society had no longer any place to keep its LARES and PENATES. There were the stained glass windows, the silver cups, the portraits, the Presidential Boards, the War Memorials, and the handsome grandfather clock that for so many years had kept watch and ward in the library. All were found temporary homes or were put in store. The key was turned in the door of the Whitla Medical Institute, and an epoch was over.

Already, even in temporary quarters for which it must once again thank the University, the Society is showing every evidence of spontaneous resuscitation. There have been excellent attendances at all the recent meetings, and Fellows and Members themselves have been commenting on this. There could be no better physical sign on which to base a favourable prognosis. Future historians will without doubt be able to record that the Society continued to grow in stature and importance, not merely for the purpose of spreading medical knowledge through its meetings and its Journal, but for the promotion of friendship and a true professional fellowship.

Perhaps too, in days to come, at some focal spot dedicated to the purposes of the Ulster Medical Society, the stone faces of Gordon, Andrews, Redfern and MacCormac, with the portrait of Sir William himself, may look down on new generations of their professional colleagues, and not be left to stare in vain into the traffic turmoil of College Square North, where the Hippocratic tradition no longer prevails.

Part 6 — Appendix

Societies such as the Ulster Medical Society do not run simply by their own corporate momentum, but by the exertions of individuals. Especially are they indepted to honorary secretaries, who, in a mist of anonymity, record in the minutes the work they do. It has not been possible in this brief communication to mention a fraction of the persons who have contributed to the welfare of this Society, and so there are enumerated here those who have held the chief offices over the years.

Presidents

PROFESSOR FERGUSON, M.D.	1862 63
JAMES PATTERSON, M.D.	1863-64
ROBERT STEWART, M.D.	1864-65
JAMES MOORE, M.D.	1865-66
JOHN S. DRENNAN, M.D.	1866-67
PROFESSOR J. SEATON REID, M.D.	1867-68
JAMES CUMING, M.A., M.D.	1868-69
JAMES W. T. SMITH, M.D.	1869-70
SIR WILLIAM MacCORMAC	1870-71
HENRY MURNEY, M.D.	1871-72
HENRY M. JOHNSTON, L.R.C.S.I.	1872-73
JOHN MOORE, M.D.	1873-74
CHARLES D. PURDON, M.D.	1874-75
THOMAS KENNEDY WHEELER, M.D.	1875-76
RICHARD ROSS, M.D.	1876-77
GEORGE F. WALES, M.D.	1877-78
ALEXANDER HARKIN, M.D.	1878-79
PROFESSOR ROBERT F. DILL, M.D.	1879-80
J. WALTON BROWNE, B.A., M.D.	1880-81
PROFESSOR CUMING, M.A., M.D.	1881-82
WILLIAM A. McKEOWN, M.D.	1882-83
PROFESSOR ROBERT F. DILL, M.D.	1883-84
JOHN FAGAN, F.R.C.S.I.	1884-85
JOHN FAGAN, F.R.C.S.I.	1885-86
WILLIAM WHITLA, M.D.	1886-87
ROBERT ESLER, M.D.	1887-88
HENRY BURDEN, M.A., M.D.	1888-89
ANDREW McCONNELL, L.R.C.P. & S.Edin.	1889-90
ALEXANDER DEMPSEY, M.D.	1890-91
HENRY O'NEILL, M.D.	1891-92
HENRY WHITAKER, M.D., M.R.C.S.Eng.	1892-93
PROF. J. W. BYERS, M.A., M.D., M.R.C.S.Eng.	1893-94
F. E. McFARLAND, L.R.C.P. & S.I.	1894-95
PROFESSOR T. SINCLAIR, M.D., F.R.C.S.Eng.	1895-96
PROF. JOHNSON SYMINGTON, M.D., F.R.C.S.Edin.	1896-97
JAMES A. LINDSAY, M.A., M.D., M.R.C.P.Lond.	1897-98
JOSEPH NELSON, M.D., L.R.C.S.I.	1898-99
ALDERMAN JAMES GRAHAM, M.D.	1899-1900
PROFESSOR W. H. THOMPSON, M.D., F.R.C.S.Eng.	1900-1901
PROFESSOR WILLIAM WHITLA, M.A., M.D.	1901-02
JOHN CAMPBELL, M.A., M.D., F.R.C.S.Eng.	1902-03

PRESIDENTS *continued*

JOHN CAMPBELL, M.A., M.D., F.R.C.S.Eng.	1903-04
WILLIAM CALWELL, M.A., M.D.	1904-05
WILLIAM CALWELL, M.A., M.D.	1905-06
D. P. GAUSSEN, M.D., M.R.C.S.	1906-07
JOHN McCAW, M.D.	1907-08
THOMAS S. KIRK, B.A., M.B.	1908-09
J. J. AUSTIN, M.D.	1909-10
J. J. AUSTIN, M.D.	1910-11
HENRY L. McKISACK, M.D., M.R.C.P.Lond.	1911-12
R. W. LESLIE, M.D., LLD.	1912-13
ARTHUR. B. MITCHELL, M.B., F.R.C.S.I.	1913-14
JOHN S. MORROW, B.A., M.D.	1914-15
A. GARDNER ROBB, M.B., D.P.H.	1915-16
ROBERT CAMPBELL, B.A., M.B., F.R.C.S.Eng.	1916-17
WILLIAM D. DONNAN, B.A., M.D.	1917-18
JAMES COLVILLE, B.A., M.D.	1918-19
ANDREW FULLERTON, C.B., C.M.G., M.D., M.Ch., F.R.C.S.I.	1919-20
THOMAS HOUSTON, O.B.E., B.A., M.D.	1920-21
ROBERT HALL, L.R.C.P. & S.Edin.	1921-22
R. J. JOHNSTONE, B.A., M.B., F.R.C.S.Eng.	1922-23
PROF. W. ST. CLAIR SYMMERS, M.B., C.M.	1923-24
J. SINGLETON DARLING, B.A., M.D., M.Ch., L.M.	1924-25
JAMES A. CRAIG, M.B., F.R.C.S.Eng.	1925-26
M. J. NOLAN, L.R.C.S., L.M.K.Q.C.P.	1926-27
J. C. RANKIN, M.D.	1927-28
PROF. T. H. MILROY, M.D., LL.D., F.R.S.Edin.	1928-29
HOWARD STEVENSON, M.B., F.R.C.S.I.	1929-30
HENRY HANNA, M.A., B.Sc., M.B.	1930-31
S T. IRWIN, B.A., M.B., M.Ch., F.R.C.S.Edin.	1931-32
C. G. LOWRY, M.D., F.R.C.S.Edin.	1932-33
PROF. W. J. WILSON, B.A., M.D., D.Sc., D.P.H.	1933-34
S R. HUNTER, B.A., M.D	1934-35
FOSTER COATES, B.A., M.D., D.P.H.	1935-36
PROF. P. T. CRYMBLE, M.B., F.R.C.S.Eng.	1936-37
PROF. W. W. D. THOMSON, B.A., M.D., B.Sc., F.R.C.P.Lond., D.P.H.	1937-38
JOHN M. McCLOY, M.D., D.P.H.	1938-39
T. S. S. HOLMES, M.B., M.Ch., F.R.C.S.Eng.	1939-40
T. S. S. HOLMES, M.B., M.Ch., F.R.C.S.Eng.	1940-41
GEORGE G. LYTTLE, M.B., B.S., F.R.C.S.Eng.	1941-42
ROBERT MARSHALL, M.D., F.R.C.P.I., M.R.C P.Lond.	1942-43
WILLIAM DICKEY, M.B.	1943-44
WILLIAM A. ANDERSON, M.A., M.D., D.L.	1944-45
H. P. HALL, M.D., M.Ch.	1945-46
JAMES GILLESPIE, M.B.	1946-47
G. R. B. PURCE, M.C., M.Ch., F.R.C.S.Edin.	1947-48
SAMUEL BARRON, M.D., M.R.C.P.I., D.P.H.	1948-49
ALEXANDER DEMPSEY, M.B., F.R.C.O.G.	1949-50
ROBIN HALL, M.B., V.R.D.	1950-51

PRESIDENTS *continued*

J. G. JOHNSTON, M.D.	1951-52
J. C. ROBB, O.B.E., M.D., M.Ch., D.L.	1952-53
W. G. FRACKELTON, M.D.	1953-54
J. C. SMYTH, L.R.C.P., L.R.C.S., L.D.S., F.F.D.	1954-55
PROFESSOR F. M. B. ALLEN, M.D., F.R.C.P.	1955-56
G. D. F. McFADDEN, M.B., M.Ch., F.R.C.S.	1956-57
OLIVE M. ANDERSON, M.D., D.A.	1957-58
PROFESSOR C. H. G. MACAFEE, C.B.E., M.D., F.R.C.S., F.R.C.O.G.	1958-59
JOHN A. SMYTH, M.D., B.Sc.	1959-60
J. A. L. JOHNSTON, O.B.E., M.D.	1960-61
F. A. MacLAUGHLIN, V.R D., M.B., F.R.C.S.	1961-62
CECIL W. KIDD, O.B.E., M.D., F.R.C.P.Edin.	1962-63
JAMES R. WHEELER, M.B., F.R.C.S.Edin., D.L.O., D.O.M.S.	1963-64
KATHLEEN M. CATHCART, M.B., D.P.H.	1964-65
JAMES S. LOUGHRIDGE, M.D., B.Sc., F.R.C.S.	1965-66
JAMES A. PRICE, M.B., F.R.C.S.Edin.	1966-67

HONORARY SECRETARIES

DR. WHITTAKER and DR. MOORE	1863-64
DR. WHITTAKER and DR. CROSKERRY	1864-65
DR. McCREA	1865-66
DR. JOHN MOORE and DR. NEWELL	1866-67
DR. JOHN MOORE	1867-68
DR. MOORE and DR. HILL	1868-69
DR. HILL and DR. A. M. PORTER	1869-70
DR. J. WALTON BROWN	1870-72
DR. HILL	1872-73
DR. HILL and DR. JOHN MOORE	1873-74
DR. J. J. CHARLES	1874-75
DR. J. WALTON BROWNE	1875-76
DR. W. WHITLA	1876-83
DR. McKENZIE	1883-85
DR. LINDSAY	1885-87
DR. McCAW	1887-93
H. L. McKISACK, M.D.	1893-97
JAMES COLVILLE, B.A., M.D.	1897-1900
ROBERT CAMPBELL, B.A., M.B., F.R.C.S.	1900-02
THOMAS HOUSTON, M.A., M.D.	1902-06
HOWARD STEVENSON, M.B., F.R.C.S.I.	1906-11
JOHN C. RANKIN, M.D.	1911-13
SAMUEL T. IRWIN, M.B., M.Ch., F.R.C.S.Edin.	1913-18
CHARLES G. LOWRY, M.D., F.R.C.S.Edin.	1918-20
W. W. D. THOMSON, M.D., M.R.C.P.	1920-22
ROBERT MARSHALL, M.D., F.R.C.P.I.	1922-25
R. MAITLAND BEATH, B.A., M.B., B.S.	1925-30
J. A. SMYTH, M.D., B.Sc.	1930-34
F. P. MONTGOMERY, M.B., D.M.R.E.Cantab.	1934-38

HONORARY SECRETARIES *continued*

H. HILTON STEWART, M.D., F.R.C.P.	1938-43
KENNEDY HUNTER, M.B., F.R.C.S.Edin.	1943-47
J. A. PRICE, M.B., F.R.C.S.Edin.	1947-52
J. W. S. IRWIN, M.B., F.R.C.S.Edin.	1952-54
D. A. D. MONTGOMERY, M.B.E., M.D., F.R.C.P.	1954-58
JOHN MEGAW, M.B., F.R.C.S.Edin.	1958-59
CLAUDE M. B. FIELD, M.D., M.R.C.P.Edin., D.C.H.	1959-61
D. MILLAR BELL, M.B., M.S.ILL., F.R.C.S.Edin., F.R.C.S.	1961-67
J. A. WEAVER, M.D., M.R.C.P.	1967-

HONARARY TREASURERS

J. W. T. SMYTH, M.D.	1861-64
DR. J. CUMING	1864-68
DR. WILLIAM MacCORMAC	1868-70
DR. J. M. PIRRIE	1870-71
DR. FAGAN	1871-79
DR. ESLER	1879-86
DR. COATES	1886-88
DR. O'NEILL	1888-91
CHARLES KEVIN, M.D.	1891-96
JOHN McCAW, M.D.	1896-1902
W. B. McQUITTY, M.A., M.D.	1902-05
V. G. L. FIELDEN, M.B.	1905-10
JOHN RUSK, B.A., M.B.	1910-14
SAMUEL I. TURKINGTON, M.D., D.P.H.	1914-24
J. T. LEWIS, M.D., B.Sc.	1924-29
F. M. B. ALLEN, M.D., M.R.C.P.	1929-34
CECIL A. CALVERT, M.B., F.R.C.S.I.	1934-39
JAMES S. LOUGHRIDGE, M.D., F.R.C.S.	1939-42
WILLIAM G. FRACKELTON, M.D.	1942-47
J. C. C. CRAWFORD, M.D.	1947-52
WILSON JOHNSTON, M.D	1952-57
M. G. NELSON, M.D., F.R.C.P.I., F.R.C.P., D.T.M.	1957-63
WILLIAM BINGHAM, M.D., F.F.A.R.C.S.	1963-

SECRETARIES FOR PATHOLOGY

DR. SINCLAIR	1885-90
DR. BURDEN	1890-91
JOHN CAMPBELL, M.A., M.D., F.R.C.S.Eng.	1893-95
WILLIAM B. McQUITTY, M.A., M.D.	
J. LORRAIN SMITH, M.A., M.D.	1895-99
JAMES LYNASS, M.B.	
J. LORRAIN SMITH, M.A., M.D.	1899-1902
THOMAS HOUSTON, M.B.	
PROF. LORRAIN SMITH, M.A., M.D.	1902-04

Honorary Librarians

DR. R. SMITH	1885-86
DR. ESLER	1886-87
DR. R. S. SMITH	1887-90
DR. CALWELL	1890-91
CECIL SHAW, M.A., M.D.	1891-1900
T. S. KIRK, M.B.	1900-01
R. R. LEATHEM, B.A., M.B.	1901-05
W. L. STOREY, M.D.	1905-10
R. J. JOHNSTONE, B.A., M.B., F.R.C.S.	1910-11
W. L. STOREY, M.D.	1911-29
SAMUEL SIMMS, M.D., B.Sc.	1929-31
H. HILTON STEWART, M.D., M.R.C.P.	1931-34
T. A. KEAN, M.D	1934-38
JAMES BOYD, M.Sc., M.D., F.R.C.P.I.	1938-43
PROFESSOR C. H. G. MACAFEE, C.B.E., M.D., F.R.C.S., F.R.C.O.G.	1942-48
R. P. SMYTH, O.B.E., M.B., F.R.C.S.I.	1948-56
T. T. FULTON, M.D., M.R.C.P.	1956-61
M. W. J. BOYD, M.D., M.R.C.P.	1961-

Editorial Secretaries

HOWARD STEVENSON, M.B., F.R.C.S.L.	1905-06
J. C. RANKIN, M.D.	1906-11
S. T. IRWIN, B.A., M.B., M.Ch., F.R.C.S.Edin.	1911-13
C. G. LOWRY, M.D., F.R.C.S.Edin	1913-18
W. W. D THOMPSON, B.A., M.D., B.Sc., M.R.C.P.Lond.	1918-20
ROBERT MARSHALL, M.D., M.R.C.P.I., D.P.H.	1920-22
G. R. B. PURCE, M.C., M.Ch., F.R.C.S.Edin., D.P.H.	1922-25
J. A. SMYTH, M.D., B.Sc., D.P.H.	1925-30
F. P. MONTGOMERY, M.C., M.B., D.M.R.E.Cantab.	1930-34
H. H. STEWART, M.D., M.R C.P.Lond.	1934-38
R. S. ALLISON, M.D., F.R.C.P.Lond.	1938-42

Honorary Editors of The Ulster Medical Journal

RICHARD H. HUNTER, M.D., Ph.D., M.Ch., M.R.I.A.	1932-43
ROBERT MARSHALL, M.D., F.R.C.P.I., F.R.C.P.Lond., F.R.C.P.Glas.	1943-52
R. W. M. STRAIN, B.Sc., M.D., M.R.C.P.I.	1949-51
J. E. MORISON, M.D., D.Sc., F.C.Path.	1951-

Biographical Note

The following sources of information have been found specially useful in the preparation of this paper :

Articles :

1. Transactions of the Ulster Medical Society—
   Robert Esler : Early History of Medicine in Belfast, 1884-85 ; Sketch of the Ulster Medical Society and its Presidents, 1885-86.
2. Ulster Medical Journal—
   R. H. Hunter : History of the Ulster Medical Society, April and July, 1936 ; The Belfast Medical School, July 1937.
   Robert Marshall : Opening Address,Royal Victoria Hospital, January 1936.
   S. I. Turkington : Students of Medicine, January 1937.
   Cecil W. Kidd : Sir Willian Whitla : Profile of a Benefactor, December 1962.
   W. W. D. Thomson : Some Aspects of the Life and Times of Sir Hans Sloane, January 1938.

Books :

1. A. G. Malcolm, 1851. *The History of the General Hospital, Belfast, and other Medical Institutions of the Town.* This book is now rare, but it is a delightful account of medical affairs in Belfast from early days, and particularly of the foundation that was to become the Royal Victoria Hospital.
2. George Benn, 1877. *The History of Belfast.* This is a standard text. It is now fairly difficult to procure, but is a mine of information about the growth of Belfast in general.
3. D. A. Chart, 1931. *The Drennan Letters.* A witty correspondence between William Drennan, an Irish Physician who was also a politician, a poet and an acute observer of events, and his sister, Mrs. Samuel McTier. This book comes to the better second-hand bookshops fairly often.
4. Robert Marshall, 1937. *The Book of Belfast.* Fairly difficult to get. A handbook written for the 105th Annual Meeting of the British Medical Association.
5. Robert Marshall, 1953. *The Royal Victoria Hospital, Belfast,* 1903-1953. This was published by the Hospital on the occasion of the 50th Anniversary on the Grosvenor Road site. It contains many sidelights on world and local affairs.
6. R. W. M. Strain, 1961. *Belfast and its Charitable Society.* While this account is mainly of the Charitable Society. it includes much of the history of the social development of the town from the middle of the 18th to the middle of the 19th Centuries.

Acknowledgement

The Author acknowledges with thanks the sources of the following illustrations : Nos. 1 and 7, the Royal Victoria Hospital ; Nos. 2 and 3, Major Henry McCance ; Nos. 4 and 12, the Queen's University of Belfast ; No. 5, the Misses Duffin ; No. 8, the Belfast Natural History and Philosophical Society ; Nos. 13 and 14, the Ulster Museum.

THE LAW AND THERAPEUTIC ABORTION

By H. IAN McCLURE, B.Sc., M.B., F.R.C.O.G., F.R.C.S.(Ed.), M.P.
Royal Victoria Hospital, Royal Maternity Hospital, and Musgrave Park Hospital, Belfast

THE LAW in relation to therapeutic abortion and termination of pregnancy is based on statute and case law. It is true that case law stems from statute law. The relevant legislation at present is contained in sections 58 and 59 of The Offences against the Person Act, 1861[1], and in section 1 of The Infant Life (Preservation) Act 1929[2].

The appropriate sections of the Offences Against the Person Act, 1861 are as follows :

SECTION 58—
Every woman, being with child, who with intent to procure her own miscarriage, shall unlawfully administer to herself any poison or other noxious thing or shall unlawfully use any instrument or other means whatsoever, with the like intent and whosoever with intent to procure the miscarriage of any woman whether she be or be not with child, shall unlawfully administer to her or cause to be taken by her any poison or other noxious thing or shall unlawfully use any instrument or other means whatsoever with the like intent shall be guilty of felony and being convicted thereof shall be liable . . . to be kept in penal servitude for life.

SECTION 59—
Whosoever shall unlawfully supply or procure any poison or other noxious thing or any instrument or thing whatsoever, knowing that the same is intended to be unlawfully used or employed with intent to procure the miscarriage of any woman, whether she be or be not with child, shall be guilty of a misdemeanour and being convicted thereof shall be liable . . . to be kept in penal servitude.

The relevant sections of The Infant Life (Preservation) Act 1929 read as follows :

SECTION 1—
(1) Subject as hereinafter in this sub-section provided, any person who, with intent to destroy the life of a child capable of being born alive, by any wilful act cause a child to die before it has an existence independent of its mother, shall be guilty of felony, to wit of child destruction and shall be liable on conviction thereof on indictment to penal servitude for life.
Provided that no person shall be found guilty of an offence under this section unless it is proved that the act which caused the death of the child was not done in good faith for the purpose only of preserving the life of the mother.
(2) For the purposes of this act, evidence that a woman had at any material time been pregnant for a period of 28 weeks or more shall be prima facie proof that she was at that time pregnant of a child capable of being born alive.

Case law consists of several judgments over the last 30 years, the best known of which is R. v. Bourne[3] where Mr. Bourne, a well known gynaecological surgeon was charged with unlawfully terminating a pregnancy. The meaning of the word "unlawfully" in section 58 of the Act quoted is an important feature of these cases. In the Bourne case, the direction to the jury emphasised that the prosecution had the duty of proving beyond reasonable doubt that the operation of terminating the pregnancy was not performed in good faith for the purpose only of preserving the life of the patient.

It is reasonable for the lay mind to assume from various judgments in the Courts

that this question of good faith is of paramount importance. In some respects, it is unusual that none of the cases of criminal abortion with the ensuing judgments dealing with the aspect of good faith has found its way to the court of appeal. In one judgment, it was ruled by the judge that as far as the termination of pregnancy in good faith on medical grounds was concerned, the range of the danger to the life of the mother would not be examined too closely (R. v. Bergmann and Ferguson[4]). This question of good faith was dealt with in R. v. Newton and Stungo[5] by the judge, who held that a termination of pregnancy was unlawful unless carried out "in good faith for the purposes of preserving the life or health of the woman, and when I say health I mean not only her physical health but also her mental health".

Statute law has no reference to this aspect of good faith. An interesting commentary in this connection is included in the Report of the Inter-departmental Committee on Abortion 1939[6]. One of the recommendations was that "the law should be amended to make it unmistakably clear that a medical practitioner is acting legally when, in good faith, he procures the abortion of a pregnant woman in circumstances which satisfy him that continuance of the pregnancy is likely to endanger her life or seriously to impair her health". In fact this recommendation has not found its way into any statute.

The question of "good faith" was mentioned by the judge in the Bourne case. His ipsissima verba in his direction to the jury were "the question you have got to determine is whether the Crown has proved to your satisfaction beyond reasonable doubt that the act which Mr. Bourne admittedly did was not done in good faith for the purpose only of preserving the life of the girl. If the Crown has failed to satisfy you of that, Mr. Bourne is entitled, by the law of the land, to a verdict of acquittal. On the other hand, if you are satisfied beyond all real doubt that Mr. Bourne did not do it in good faith for the purpose only of preserving the life of the girl, your verdict should be a verdict of guilty". Several comments of the judge in the same case are pertinent and of value in relation to the law as it stands. For example, the point is made "where the doctor expects, basing his opinion upon the experience and knowledge of the profession, that the child cannot be delivered without the death of the mother." In these circumstances, the doctor is entitled —and indeed it is his duty—to perform the operation with a view to saving the life of the mother.

In view of what has been stated frequently in discussions on The Medical Termination of Pregnancy Bill[7], presently under consideration in the House of Commons, another observation of the learned judge is relevant, "some there may be, for all I know, who hold the view that the fact that the woman desires the operation to be performed is a sufficient justification for it. That is not the law". He clarifies another point which is obviously one that is pertinent to the discussions on this new Bill, "on the other hand, no doubt there are people who, from what are said to be religious reasons object to the operation being performed at all, in any circumstances. That is not the law either".

At this point, it may help to state the views of the Roman Catholic Church. The equality of mother and foetus is an authoritative dogma of the Church, "the life of each is equally sacred", said Pope Pius XI in his encyclical Casti Connubii, "and no one has the power, not even the public authority, to destroy it".

Apart from these particular observations on the law, the judge in the case of R. v. Bourne gave a general outline in his judgment, "the law of this land has always held human life to be sacred, and the protection that the law gives to human life it extends also to the unborn child in the womb. The unborn child in the womb must not be destroyed unless the destruction of that child is for the purpose of preserving the yet more precious life of the mother". The observations of the learned judge clarify the existing law on the termination of pregnancy. It is evident that the law does allow for the termination of pregnancy in certain circumstances.

Danger to life represents a clear indication. But over and above this point, it is clear also that danger to health or impairment of health whether physical or mental through the evolution of case law, have come to be regarded as lawful indications for the termination of pregnancy. The surgeon is not compelled to wait until the patient is obviously about to die before he performs the operation, but it is clear that if he foresees impairment or danger to physical or mental health, he is entitled legally, acting in good faith, to perform the operation. Having regard to all these considerations, the question emerges as to whether any need arises to amend existing legislation in relation to the termination of pregnancy.

There would appear to be a weakness in existing legislation which apparently permits the operation of termination of pregnancy to be performed relatively frequently in one city in the United Kingdom, whereas, in another city in the same country, this operation is but rarely performed, and this would seem to be an aspect of the law which requires particular clarification. It is appreciated that factors other than the interpretation of the law may be involved, but it is obvious that these do not afford a complete explanation. It is felt that amending legislation, if such be passed, should allow at least for the conscientious beliefs and the good faith of the members of the medical profession. There are many gynaecological surgeons who, for a lifetime, have found that the present terms of the law have given them all the freedom necessary to pursue their professional activities according to the moral and ethical standards of the code of practice of their profession and who do not see any pressing need to reform the existing law.

In the city of Belfast during the year 1966, 25,000 patients were admitted to obstetric and gynaecological units and 12 cases of therapeutic abortion were performed. A report of the Royal College of Obstetricians and Gynaecologists states that "in National Health Service Hospitals, there were approximately 1,600 recorded therapeutic abortions performed in 1958, and 2,800 in 1962"[8]. The Minister of Health gave the following figures on therapeutic abortion in the N.H.S. hospitals in England and Wales as follows: —1961–2,300; 1962–2,800; 1963–2,600; 1964–3,300[9].

It has been stated that one of the reasons "to amend and clarify the law relating to termination of pregnancy by registered medical practitioners" is to reduce the number of criminal, illegal or "back-street" abortions performed in Britain. Between 30,000 and 250,000 cases of this type are said to be performed in Britain annually (Pearson M[10]). The very nature of this type of crime indicates that it is impossible to determine the number of such cases. Those surgeons who control gynaecological units, to which are admitted large numbers of patients suffering from all clinical types of abortion, find very few cases exhibiting evidence sufficient to justify a diagnosis of criminal interference.

In any proposed new legislation, the definition of indications for the legal termination of pregnancy must surely be drafted with extreme care. There is the obvious danger on the one hand of opening the legal door too widely and so increasing present abuses, and on the other of framing the law too closely on the question of indications for such must be sufficiently flexible to keep in line with advancements in medical science. This view is shared by the British Medical Association[11], the Royal College of Obstetricians and Gynaecologists[8] and the Joint Committee of the Law Society and the British Academy of Forensic Sciences[12].

The original clause 1 of the new Bill, in general, proposed to legalise termination of pregnancy in cases of physical or mental risk, abnormalities in the child, severe over-straining of the pregnant woman's capacity as a mother, pregnancy as a result of rape, and where the mother was defective or became pregnant under the age of 16 years.

Amendments during the Committee stage resulted in the following alterations :

1. (1) Subject to the provisions of this section, a person shall not be guilty of an offence under the law relating to abortion when a pregnancy is terminated by a registered medical practitioner if that practitioner and another registered practitioner are of the opinion formed in good faith.
   (i) That the continuance of the pregnancy would involve risk to the life or injury to the physical or mental health of the pregnant woman or the future well being of herself and or the child or her other children.
   (ii) In determining whether or not there is such injury to health or well being an account may be taken of the patients total environment actual or reasonably foreseeable.

This clause, if approved by Parliament, must be adequate, surely certainly and without doubt for almost any contingency in which therapeutic abortion is likely to be considered. It is obvious, however, that interpretation of certain words and phrases may give rise to difficulty. The amended clause retains that flexibility necessary for the medical practitioner to come to a correct conclusion, having regard to all factors involved and the ethos and good faith of the profession. Further amendments to this clause are likely to be made before the Bill goes to the House of Lords.

An important consideration in applying the law to the realities of the situation must be the risks of termination, whatever method be employed. Every gynaecological surgeon knows of the trauma and infection which accompany operations of this type. Not only is a foetus destroyed but trauma is inflicted on the genital tract, and trauma plus infection may render the patient sterile. Reliable figures are difficult to obtain. Danish figures[13]. for complications of therapeutic abortions vary from 5 per cent. in the earliest stages of pregnancy when the risk is lowest, to 50 per cent. in cases of hysterotomy and sterilisation. Other figures[14] from the same country show a lethality risk of 0·5 per 1,000 for vaginal methods and of 1·3 per 1,000 for abdominal operations. A review of the Japanese experience in hundreds of thousands of termination of pregnancy makes disquieting reading on every aspect of the complications of this procedure. For example, two reports include 336 cases of uterine rupture, while another points to 161 deaths as the result of induced abortion. Figures[15] from many countries make disturbing reading.

Even cursory examination of figures quoted should discourage those who wish to see the practice of therapeutic abortion extended.

The suggestion in the original Bill that termination of pregnancy should include as a legal indication "a substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped" is one which should be resisted to the full. It may have been born out of the dreadful thalidomide tragedies, but while every sympathy must be felt for those children who have survived and for their parents, the reality of the situation is that the diagnosis of foetal abnormality is well-nigh impossible in early pregnancy and indeed some forms of mental disorder do not manifest themselves till the child is some months old. Is there any difference in principle between the suggested procedure and killing the child at birth because of its abnormality? Is there any real difference between this killing of a child and euthanasia, to which the Church and the medical profession continue to offer rightful and legitimate resistance? Any action which was immoral and illegal prior to the passing of a Parliamentary Bill, becomes legal after the Royal Assent, but surely it does not become moral with the passing of an Act.

There has been support for the termination of pregnancy in those cases where a mother has contracted rubella at an early stage of pregnancy. Hill[16] and other writers have shown a high incidence of the rubella syndrome in the foetus, the highest being a figure of 50 per cent.[17]. But a patient having suffered from rubella in early pregnancy might well consider that a 50 per cent. incidence of abnormality insufficient to provide her with grounds for termination of her pregnancy and many gynaecological surgeons would agree with her views.

Much has been written about the psychiatric indications for abortion. While there may be psychiatric reasons for this procedure, assessed on complete honesty, yet much less prominence has been given to the psychic sequelae which may follow termination of pregnancy. The summary given by Martin Ekblad[18] is interesting. "The psychically abnormal find it more difficult than the psychically normal to stand the stress implied in a legal abortion. This means that the greater the psychiatric indications for legal abortion are, the greater will be the risk of unfavourable psychic sequelae after the operation".

Another view is expressed by Robert White[19]. "An abortion induced under these circumstances, i.e. circumstances of a properly arranged abortion after adequate consideration, in an emotionally supportive setting and followed by enough adequate psychotherapeutic sessions to work through the resultant doubts and potential guilt probably does not cause serious psychological damage." He instances the opinions of writers in Denmark and America to support his view.

The decline in population in those countries where legalised abortion is practised seems to be due more to this than to the practice of contraception. Figures show that while the number of illegal abortions remains at the same level as formerly, yet the figure for full-time births has now fallen below that of legally procured abortion.

There can be no objection to incorporating in the new Bill a clause to demand the agreement of two or even more registered medical practitioners.

There is danger in a suggestion that legalised abortion should be carried out only by those surgeons employed in the National Health Service. This may not present

itself favourably to the medical profession or to the General Medical Council which controls the admission of medical practitioners to the Medical Register. What is important is to ensure that there is a proviso in the Bill to the effect that the operation will be carried out by those with experience and skill.

If control of legalised abortion be required, the notification of each abortion and of the hospital or other institution where the operation was performed will meet the case. Difficulty may arise as to the confidentiality in the case of notification, but this aspect can be covered by a "doctor to doctor" procedure.

One additional danger implicit in the new Bill is the legal risk to the surgeon who refuses to perform the operation. There is a possibility, probably not in the near future, but nevertheless a distinct possibility, that he may by his refusal become legally culpable and, at least, may find himself in the position of having to defend his actions in the Courts. The Bill now incorporates a clause allowing for the conscientious views of those, who hold that therapeutic abortion is wrong, from either a moral or religious point of view, yet it is possible that a medical practitioner may be debarred for this reason, from obtaining or holding a consultant post in the National Health Service. It is to be hoped sincerely that discrimination of this sort will never be permitted.

Must we not hold to the ethos of medicine, in simple language to save life and certainly not to destroy it? The sanctity of life is paramount.

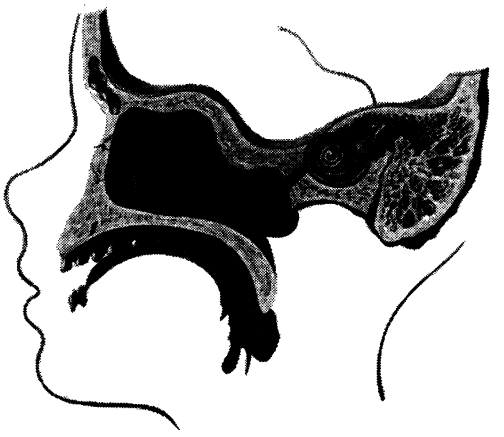
It is pertinent to recall the views of Doctor F. M. R. Walshe[20] on A.I.D. and these are "when techniques come into the irresponsible hands of the ethically rootless, they are a constant threat to both intellectual and ethical values, as we may see when we gaze around us upon a world in which man is torn and tormented by the fruits of techniques he has neither the wisdom nor the sense of values to control. Medicine now is being invaded by this evil, and every thoughtful doctor, who holds dear the traditions of medicine as a humane and learned profession must feel called upon to protest in unequivocal language".

These comments should receive the most careful and searching consideration in the drafting and the examination of the final approval of any Bill relating to the therapeutic termination of pregnancy.

References

1. The Offences Against the Person Act, 1861.
2. The Infant Life (Preservation) Act 1929.
3. R. v. Bourne 1939. 1. K.B. 687.
4. R. v. Bergmann and Ferguson as cited in Glanville William's *"Sanctity of Life and the Criminal Law"*.
5. R. v. Newton and Stungo as cited at 1958 Crim. L.R. 469 *Brit. med. J.* (1958) **1**, 1242.
6. Report of the Inter-departmental Committee on Abortion 1939.
7. Medical Termination of Pregnancy. (Bill 29) 44/1.
8. Council of the Royal College of Obstetricians and Gynaecologists (1961). *Brit. med. J.*, **1**, 850.
9. House of Commons Official Report, written answer, February 27, 1967. Vol. 742, No. 151, col. 27.
10. Rearson M (quoting Eustace Chesser) (1966). *Sunday Telegraph* 30.1.1966. Page 25.
11. British Medical Association (1966). *Brit. med. J.*, **2**, 40.
12. Joint Committee of the Law Society and the British Academy of Forensic Sciences (1967).
13. Berthelsen, H. G. and Ostergaard, E. (1959). *Danish med. Bull.*, **6**, 105.

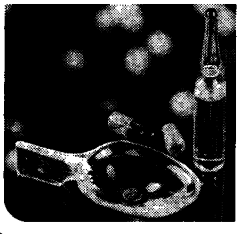
14. IBID, **6**, 110.
15. GEBHARD, P. H., POMEROY, W. B., MARTIN, C. E. and CHRISTENSON CORNELIA V. (1959). *Pregnancy, Birth and Abortion.* Heinemann, London.
16. HILL et al (1958). *British J., prev. Soc. Med.*, **12**, 1.
17. HILL et al (1966). *Adolescent Gynaecology Teratology.*
18. EKBLAD, MARTIN (1955). *Acta psychiat Scand.*, 218.
19. WHITE, ROBERT (1966). *Texas Reports Biol. Med.*, **24**, 4.
20. WALSHE, F. M. R. (1945). *Brit. med. J.*, **1**, 277.



Lincocin penetrates/Lincocin works

efficacy through depth of
penetration in
tonsillitis/otitis media

and the difficult-to-reach infections–
sinusitis/mastoiditis



available as:

Lincocin Syrup 250 Each 5 ml. contains 250 mg. lincomycin (as lincomycin hydrochloride monohydrate) in bottles of 60 ml. (this replaces the 125 mg./5 ml. strength).

Lincocin Capsules Each capsule contains 500 mg. lincomycin (as lincomycin hydrochloride monohydrate) in bottles of 12 and 100.

Lincocin Sterile Solution Ampoules (2 ml.) 600 mg. Each 2 ml. ampoule contains 600 mg. lincomycin (as lincomycin hydrochloride monohydrate).

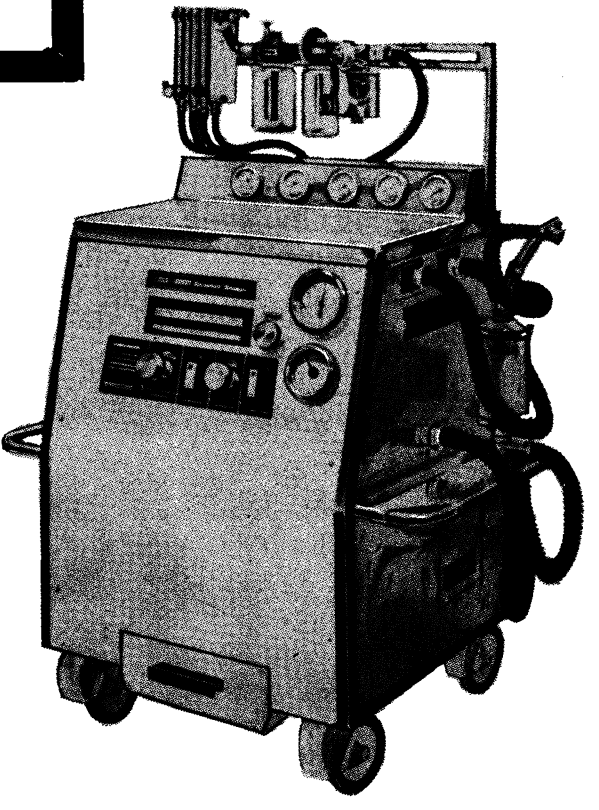
UPJOHN LIMITED · CRAWLEY · SUSSEX Upjohn

The Mk II

CAPE-WAINE ANAESTHETIC VENTILATOR

maintains all the virtues of it's predecessor - plus

For the most precise and sustained control of respiratory volumes during and after anaesthesia



Unobstructed stainless steel working top
Larger manometer with wider range
-40 + 100 cms. water
Contents gauges for O_2, N_2O and CO_2
Adjustable flowmeter position
Accommodation for any size of absorber
Built-in provision for spirometry
Accommodation for any vapourizer
Enclosed reducing valves
Adjustable positive pressure relief valve in addition to fixed maximum (70 cms. water)
Provision for humidifier
Internal mechanism can be removed intact for servicing
Large sprung castors
Built to British Standard specification

Northern Ireland Sole Distributors

HOSPITAL SERVICES LTD

169 UNIVERSITY STREET, BELFAST 7 Phones 20345, 29977

ALLEN
Diagnostic Instruments

THE ALLEN STETHOSCOPE :

Accurate diagnosis is the basis of effective therapy—and a comparative demonstration will quickly convince most physicians that Allen instruments out-perform all others for sensitivity, workmanship and efficient design.

The Chestpiece
* Exceptionally large diaphragm * Very simple switching from diaphragm to small bell on reverse side * Rubber ring provided for fitting to small bell as insulation against cold metal.

The Binaurals
* Two pairs of carefully designed ear pieces and individual adjustment ensure perfect fit for comfort and highest efficiency.

The Tubing
* Black "Tygon" plastic tubing gives better frequency conduction and lower hysteresis loss than conventional rubber.

RAPPAPORT & SPRAGUE 1951 Am. Heart J. 21 : 605 – 609

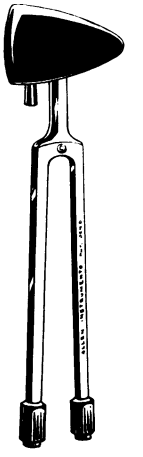
SOLE N. IRELAND DISTRIBUTORS :

Clarkes OF DONEGALL SQUARE
BELFAST 1. TEL. 27257

THE ALLEN MULTI-PURPOSE NEUROLOGICAL INSTRUMENT

This specialised diagnostic aid combines five instruments generally required by most physicians.

1. A Tuning Fork, with 2 separate and distinct frequencies of approximately 130 and 260 cycles per second.
2. A Pinwheel, securely held by a ball-bearing catch, may be easily removed when required.
3. A Sensory Brush, which fits neatly into the underside of the assembly.
4. A Hammer, made of black rubber and attractively styled.
5. Removable Weights – when removed they cause a change in frequency of the tuning fork from 130 to 260 c.p.s.



SOLE N.I. DISTRIBUTORS FOR KEELER E.E.N.T. INSTRUMENTS

Clarkes OF DONEGALL SQUARE
BELFAST 1. TEL. 27257

Are you an Anaesthetist ?

IF SO, MAY WE INTRODUCE YOU TO MR. FRED PICKING

. . . . an experienced engineer in the maintenance of anaesthetic apparatus, has been appointed senior engineer for Ulster Anaesthetics Limited, whose aim is to provide a prompt and efficient maintenance service on the complete range of anaesthetic apparatus in Northern Ireland.

CAN WE QUOTE YOU FOR A MAINTENANCE CONTRACT ?

Any enquiries, whether for maintenance, or sales information on our complete range of anaesthetic apparatus, will be attended to on ringing BELFAST 22031.

ULSTER ANAESTHETICS LTD.

4 CRESCENT GARDENS, BELFAST, 7.

Sole Distributors for Manley Ventilators and Blease Pulmoflators and agents for most types of anaesthetic equipment.

Coronary Heart Disease

is there a treatment for the patient 'at risk'?

Atromid-S

CLOFIBRATE TRADE MARK

allows you to take positive action because Atromid-S

(a) brings down blood lipid levels to normal

(b) corrects the thrombogenic abnormalities

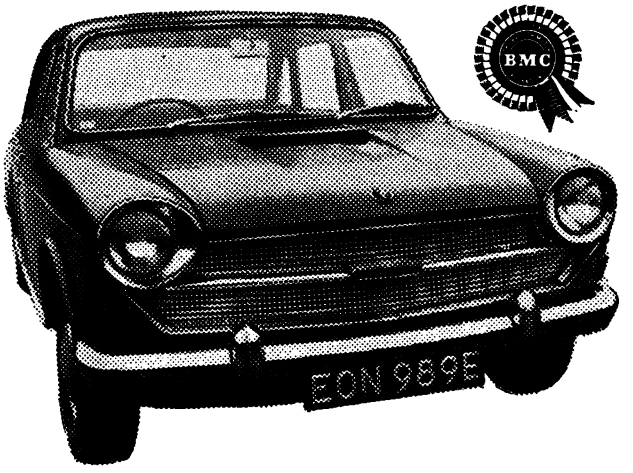
Side-effects are minimal and infrequent and the treatment is easy to take indefinitely. Several thousands of patients have been treated for periods up to five years.

ICI *leaders in cardiovascular research* 1966 1967

IMPERIAL CHEMICAL INDUSTRIES LIMITED PHARMACEUTICALS DIVISION
ALDERLEY PARK MACCLESFIELD CHESHIRE

Ph575m

Meet the protector



Austin 1800 de luxe £923.11.11 (incl. £173.11.11 p.t.)
power with protection
see it at

THOMPSON-REID
Limited
Donegall Square Belfast 1
Telephone 30566

and at GLENGORMLEY 2896/3391 ;
BREDA SHOPPING CENTRE 649774 ;
Service at BALMORAL : 63a Stockman's Lane, 668372

SURVIVAL OF PREMATURE INFANTS ROYAL MATERNITY HOSPITAL, BELFAST, 1952-1963

By

M. McC. REID, M.B., B.Ch., D.C.H., M.R.C.P. (Glasg.)

M. A. McVICKER, M.B., Ch.B.

D. J. DAVIS, S.R.N., S.C.N.

The Department of Child Health, The Queen's University of Belfast, and the Royal Maternity Hospital, Belfast

THE survival rates and main causes of death of 'premature' babies, cared for in the Special Care Baby Unit of the Royal Maternity Hospital, Belfast, have been determined for the 6-year periods 1952-57 and 1958-63. 'Premature' babies are defined as those weighing 2,500 G. or less at birth (W.H.O. 1961).

General Management

The Special Care Baby Unit contains approximately 40 cots and incubators. It has its own senior nursing staff, and consultant paediatric medical staff who also hold appointments at the Royal Belfast Hospital for Sick Children.

Babies admitted to the nursery are nursed either in cots or in incubators with high humidity at a temperature of 85–95°F. depending on their weight and condition. Initial feeding has always been carried out in the first 24 hours provided there are no obvious contraindications. Cyanosed or dyspnoeic babies are given oxygen, and intramuscular vitamin K is administered routinely. Except where necessary (in the case of cyanosed babies), the concentration of oxygen has not exceeded 40 per cent., since the reports of retrolental fibroplasia in the early fifties; and the dose of vitamin K has not exceeded 1–2 mg. following reports of kernicterus with higher dosage in the same period. Penicillin and streptomycin have been given in conventional neonatal doses whenever there was a history of rupture of the membrances for more than 48 hours.

To reduce the possibility of infection the following measures are taken :

1. The wearing of masks, clean coats and overshoes by all entering the unit.
2. Hand washing before and after the examination of each infant.
3. No visitors (infants may be viewed in cot or incubator from corridor beside nursery).
4. All feeds are dispensed in autoclaved bottles and prepared under sterile conditions in the hospital milk room.
5. Individual gowns, bedding and toilet equipment for each baby.

Analysis of Number of Premature Babies Nursed in Special Care Baby Unit

The infants have been divided into three categories :

1. Babies born in the Royal Maternity Hospital, whose mothers received antenatal care in the hospital, i.e., Booked babies.
2. Babies born in the Royal Maternity Hospital, where mothers received no antenatal care in this hospital, i.e., Non-booked babies.
3. Babies born in other hospitals or at home, and who were then transferred to the Royal Maternity Hospital, i.e., Admitted babies.

During the period of our survey (1952-63) a total of 3,829 premature infants have been cared for. The survival rates in relation to booked- non-booked and admitted babies is shown in Table I.

TABLE I

Number of babies

	1952–57			1958–63			Total		
	Total	*Died*	*Percentage survived*	*Total*	*Died*	*Percentage survived*	*Total*	*Died*	*Percentage survived*
Booked	817	90	88.9	912	124	86.4	1,729	214	87.7
Non-booked	401	62	84.5	318	63	80.3	719	125	82.5
Admitted	623	129	79.1	758	179	76.4	1,381	308	78.4
Total	1,841	281	84.8	1,988	366	81.6	3,829	647	83.1

The overall survival rates has been calculated for each of four weight groups, i.e., Group I=under 1,000 G., II=1,001–1,500 G., III=1,500–2,000 G., IV=2,001–2,500 G. (Table II). These survival rates have been compared with those from other centres in Table IX.

TABLE II

Survival rates of premature infants related to different weight groups

Group I	16.5%	53.8%
Group II	62.2%	
Group III	83.5%	
Group IV	93.5%	

TABLE III

Survival rates of premature infants, Royal Maternity Hospital, Belfast, 1952–1957

Weight (Grams)		*Total live births*	*Percentage survival rate*
	Booked	21	14.3
<1000	Non-booked	15	6.7
	Admitted	24	25.0
	Total	60	18.0
	Booked	66	60.7
1001–1500	Non-booked	60	63.2
	Admitted	131	62.6
	Total	257	62.3
	Booked	208	84.1
1501–2000	Non-booked	121	86.8
	Admitted	292	83.5
	Total	621	84.7
	Booked	522	95.8
2001–2500	Non-booked	205	96.1
	Admitted	176	85.8
	Total	903	93.8

Details of the survival rates in each group for each 6-year period are shown in Tables III and IV, which also take into account whether they are booked, non-booked or admitted. The survival rates dropped slightly during the second 6-year period. This was probably due to several factors :

TABLE IV

Survival rates of premature infants, Royal Maternity Hospital, Belfast, 1958–1963

Weight (Grams)		*Total live births*	*Percentage survival rate*
	Booked	46	8.7
<1000	Non-booked	18	16.7
	Admitted	46	23.9
	Total	110	16.4
	Booked	79	64.5
1001–1500	Non-booked	50	56.0
	Admitted	166	62.6
	Total	295	62.0
	Booked	199	81.5
1501–2000	Non-booked	82	82.9
	Admitted	301	82.7
	Total	582	82.5
	Booked	588	96.6
2001–2500	Non-booked	168	92.3
	Admitted	245	86.1
	Total	1001	93.3

(a) The marked increase in the number of babies in Group I, i.e., 60 to 110 – the group with the lowest survival rate.
(b) The increase in the number of babies born at home or admitted from other hospitals.

The relatively poor survival rate in the admitted category can be in part accounted for by the fact that most babies in Group IV who are making good progress at home or in other hospitals are kept there, while many of the infants who are ill or making poor progress are transferred to the Royal Maternity Hospital, thus worsening the survival figures, viz., survival rate for babies of Group IV in booked plus on-booked of 95.8 per cent. compared with admitted of 86 per cent.

TABLE V

Premature infant mortality and post mortem rates 1952–63

	Post mortem		*No post mortem*	
Weight (Grams)	*Number*	*Percentage*	*Number*	*Percentage*
<1000	50	35.4	91	64.6
1000–1500	104	53.9	89	46.1
1500–2000	140	74.6	49	25.4
2001–2500	99	80.0	25	20.0
Total	393	60.7	254	39.3

Causes of Death

The number of infants submitted to post mortem examination is shown in Table V, and the causes and times of death in Tables VI and VII.

Table VI
Causes of death related to weight

	Weight group					
Cause of death	*I*	*II*	*III*	*IV*	*Total*	*Percentage*
I. P.M. Carried Out						
Respiratory (excluding infection)	36	76	73	45	230	35.6
Cerebral birth trauma/hypoxia	5	13	22	14	54	8.4
Congenital malformation	2	7	19	12	40	6.2
Infection	5	4	13	10	32	5.0
Haemolytic disease of newborn	1	2	9	15	27	4.3
Others	1	2	4	3	10	1.6
II. P.M. Not Done						
Cause of death obvious	6	6	12	7	31	4.9
Cause of death presumed, on good evidence other than prematurity	2	1	2	4	9	1.1
No obvious cause >1,000 G.	0	82	35	14	131	20.1
No obvious cause <1,000 G.	83	0	0	0	83	12.8
Total	141	193	189	124	647	100.0

Table VII
Cause of death related to age at birth

Cause of death	*24 hrs.*	*24–48 hrs.*	*48 hrs.–7 days*	*7–14 days*	*14–28 days*	*Total*
I. P.M. Carried Out						393
Respiratory (excluding infection)	104	48	62	10	6	230
Cerebral birth trauma/hypoxia	30	8	13	3	0	54
Congenital malformation	14	3	13	4	6	40
Infection	4	3	9	7	9	32
Haemolytic disease of newborn	16	4	5	2	0	27
Others	1	2	1	2	4	10
II. P.M. Not Done						254
Cause of death obvious	14	5	10	1	1	31
Cause of death presumed, on good evidence other than prematurity	3	2	3	1	0	9
No obvious cause >1,000 G.	97	25	8	1	0	131
No obvious cause <1,000 G.	61	8	9	4	1	83
Total	344	108	133	35	27	647

1. *Respiratory Disorders* (excluding infection)

These accounted for 230 deaths or 57.5 per cent. of post mortems (or 35.6 per cent. of all deaths). Of these, 152 (66.1 per cent.) died within 48 hours, and only 16 (7 per cent.) after the seventh day of life.

Infants coded in the hospital records as having died from atelectasis, respiratory distress syndrome, hyaline membrane disease and immaturity of the lung have all been included under this heading. If more post mortems had been carried out on Group IV infants, a higher incidence of respiratory disorders would probably have been found.

The Usher regimen of intravenous glucose and sodium bicarbonate under Astrup acid/base control (Usher 1961) was used in a few cases during the last year or two of the survey.

As Avery (1964) has indicated, the available evidence does not permit the endorsement of any one treatment for the respiratory distress syndrome, apart from giving oxygen, high humidity, treatment of the metabolic acidosis, correction of hypoglycaemia and the maintenance of normal body temperature. However, workers have reported good results from prolonged intermittent positive pressure respiration (Delivora-Papadopoulos, Levinson and Swyer 1965) and reports of acetylcholine treatment are also encouraging (Chu 1965). Therapy with hyperbaric oxygen has been advocated (Hutchinson *et al.* 1962) but more recent studies have not confirmed its value (Cochran 1965).

2. *Cerebral Birth Trauma/Hypoxia*

This category accounted for 53 deaths or 12 per cent. of post mortems (or 8.3 per cent. of all deaths). Of these, 37 (70 per cent.) died within 48 hours and only three (6 per cent.) died after the seventh day of life. The commonest pathological findings in this category were subarachnoid and intraventricular haemorrhage. These forms of intercranial haemorrhage are seen very commonly in premature anoxic infants (Gruenwald 1951; Morison 1963), and are due to venous congestion and rupture of the poorly supported vessels in the ventricular and subarachnoid spaces.

The incidence varies from centre to centre, e.g., Chicago 13.4 per cent. (Bundeson 1952) and Bristol 10.0 per cent (Corner 1960), in their post mortem series.

With the improvement in antenatal care which has taken place, earlier recognition of abnormal obstetrical conditions and the increased awareness of the signs of foetal hypoxia, it is unlikely that we can expect much further reduction in death from this cause.

3. *Congenital Malformation*

This accounted for 40 deaths or 10 per cent of post mortems (or 6.2 per cent. of all deaths). Of these, only 17 (42.5 per cent.) occurred within 48 hours and 10 (25 per cent.) after the seventh day of life. Thirty-one (75 per cent.) of these deaths were in infants of less than 1,500 G.

The majority of the malformations were of the central nervous system and cardiovascular system, e.g., meningomyelocoele, encephalocoele, transposition of the great vessels and ventricular septal defect.

Cardiovascular defects were treated medically since the repair of many of the defects causing death in this age group is still not yet feasible.

Since 1964, i.e., after this survey finished, the meningomyelocoeles have been treated as in other centres, where possible, by early repair and closure of the defect and treatment of the often associated hydrocephalus by valve drainage. With earlier diagnosis and treatment some of these infants with central nervous system defects may be saved, though if this is not to result in a shift of deaths from the neonatal period to death in the first year or years of life an aggressive surgical approach to the problems of hydrocephalus and urinary tract obstruction will need to be maintained.

Other centres report similar figures for deaths from congenital malformations, i.e., New York 15 per cent. of deaths in live born premature infants (New York Academy of Medicine 1955) and Bristol, 11 per cent. of premature live births (Corner 1960).

4. *Infection*

This accounted for 32 deaths or 8.5 per cent. of post mortems (or 5 per cent. of all deaths). Of these, 7 (22 per cent.) occurred within 48 hours and 16 (50 per cent.) after the seventh day of life.

The death rate from infection fell from 7.1 per cent. (1952-56) to 3.3 per cent. in the two-year period (1962-63). The drop in the death rate may have been due to several factors.

(a) An increased awareness of the danger of cross-infection.
(b) Antibiotic prophylaxis in suitable circumstances, and the use of more effective antibiotics where indicated in severe infections, e.g., tetracycline and now the synthetic newer penicillins.
(c) Prompt treatment of minor skin, umbilical and eye infections, thus preventing further systemic spread.
(d) Earlier recognition of signs of infection in premature infants, such as poor feeding, cyanotic attacks, and subnormal temperature.

The rates are similar from other centres, e.g., Birmingham 11 per cent. live born prematures (Crosse 1961) and Southmead, Bristol 11 per cent. of live born prematures (Corner 1960).

5. *Haemolytic Disease of the Newborn*

This accounted for 27 deaths or 7.5 per cent. of post mortems (or 4.3 per cent. of all deaths) after the seventh day of life. This compares with a 6 per cent. death rate in New York (Perinatal Mortality in New York City 1955).

The premature infant with haemolytic disease naturally fared less well than the full-term infant. However, due to the ill effects of the disease many premature deliveries had to be performed. Moreover, more cases of haemolytic disease are liable to be premature in the near future, due to the increased use of intrauterine transfusion, in cases where there has been a history of severely affected pregnancies. Therefore, infants who might have been stillborn, or severely affected full-term infants may now, if the procedure is used more extensively, come into the premature group; and though we hope that the majority would survive, probably a few would die, thus increasing the numbers dying from haemolytic disease in the premature group.

Studies are being undertaken in Liverpool (Clarke 1964, 1965) and other centres into the effects of administering anti-D gamma globulin to mothers at delivery.

By this measure it is hoped to haemolyse any Rhesus positive cells in the Rhesus negative mother's circulation, thereby reducing the antigenic stimulus to antibody production. The long-term prospects for this technique seem brighter than any other in current use. Should it prove successful and its adoption become widespread, the incidence of Rhesus haemolytic disease will decline.

Age at Death Related to Weight

The figures are shown in Table VIII. It is interesting to see 53.2 per cent of premature babies die in less than 24 hours (England and Wales 1961 – 59.6 per cent.) and a further 16.3 per cent in the next 24 hours, thus emphasising the need for immediate nursing and medical care in a special unit as soon after birth as possible. This is further illustrated by the fact that 63.7 per cent of infants in Group I die in less than 24 hours, as against 40.4 per cent of infants in Group IV.

These figures are very similar to those quoted by Corner (1960) for 504 premature deaths at the Southmead Hospital where she found that 51.4 per cent. died in less than 24 hours and 18.1 per cent. during the next 24-hour period. Of the infants in Group I in her series, 85 per cent died in the first 24 hours, and in Group IV 40.2 per cent.; against our figure of 63.7 per cent. for Group I, and 40.4 per cent. for Group IV.

Table VIII

Age at death related to weight 1952–63

Group	*Weight*	24 *hours*	24–48 *hours*	49 *hrs.*– 7 *days*	8–14 *days*	15–28 *days*	*Total*
	<1000 *Grams*						
	Booked	43	5	7	2	2	59
I	Non-booked	18	4	1	4	2	29
	Admitted	27	6	13	3	4	53
	Total	88 (63.7%)	15 (10.5%)	21 (14.1%)	9 (6.2%	8 (5.5%)	141
	1001–1500 *Grams*						
	Booked	32	4	11	2	1	50
II	Non-booked	27	5	6	0	2	40
	Admitted	60	22	12	6	3	103
	Total	119 (62%)	31 (16%)	29 (15%)	8 (4%)	6 (3%)	193
	1501–2000 *Grams*						
	Booked	30	11	15	2	0	58
III	Non-booked	20	6	3	1	0	30
	Admitted	37	22	30	7	5	101
	Total	87 (45.8%)	39 (21.1%)	48 (25.3%)	10 (5.2%)	5 (2.6%)	189
	2001–2500 *Grams*						
	Booked	23	3	8	6	3	43
IV	Non-booked	10	4	6	0	1	21
	Admitted	17	16	21	2	4	60
	Total	50 (40.4%)	23 (18.5%)	35 (28.3%)	8 (6.4%)	8 (6.4%)	124
	Totals	344 (53.2%)	108 (16.3%)	133 (22.2%)	35 (5.3%)	27 (4.1%)	647

TABLE IX

Comparative survival rates in various centres

Group	*Group I*	*Group II*	*Group III*	*Group IV*
R.M.H.	16.5	62.2	83.5	93.5(95.8)*
		53.9		
England and Wales (1961)		34.1	83.0	95.2
Boston (1956)	10	60	89	96
U.S.A. (1956)	13	45	79	95
Southmead Gen. Hosp. (1960–61)	12.5	46.5	79.4	94.5
Toronto Hosp. for Sick Children (1959–63)	5	50	83	94.5
Houston Medical Centre, Texas	17	61.7	92.9	95.0

England and Wales—Ministry of Health Report of the Subcommittee on the Prevention of Prematurity and the care of the Premature Infant, H.M.S.O. 1961

Boston Lying-in Hospital—Text-book of Pediatrics, Nelson, W. F. 8th ed., Saunders, Philadelphia, 1964.

U.S. Dept. of Health, Education and Welfare, Special Report. Vol. 45, No. 10. 1957.

Southmead Gen. Hosp. Statistical Report.

Hospital for Sick Children, Toronto—The Newborn, McKendry, J. B. J., Bailey, J. B., Univ. Toronto Press, 1965.

Texas Medical Center, Baylor University College, Houston. Rudolph, A. J. (1966). Pediat. Clin. N. Amer. Vol. 13, No. 3.

* Survival rates for admitted and non-booked infants R.M.H.

DISCUSSION

There are more than 58,000 premature infants born each year in England and Wales, a rate of 7.7 per cent. of all notified births (Ministry of Health, H.M.S.O. 1961). Since many of the factors predisposing to prematurity, e.g., grand multiparity, poor social conditions, etc. (Drillien 1956) apply to the Province, there is no reason to believe that the rate is any lower in Northern Ireland; i.e., the premature live birth rate in Belfast in 1960 was 8.2 per cent. of notified births (Warnock).

It is, therefore, a problem of considerable magnitude as deaths of premature infants account for 60 per cent. of all babies dying within the first week of life. As has been demonstrated by this survey, the prognosis for infants weighing more than 2,000 G., many of whom are not immature in terms of gestation, is good. If progress is to be made in reducing the total premature mortality it must be made in respect of infants under 2,000 G. who have an especially high incidence of respiratory disease, cerebral haemorrhage and congenital malformations.

The long term prognosis for these infants once they survive the neonatal period has been studied by a large number of workers with varying conclusions, e.g., Drillien (1964) has shown that more than 66 per cent. of those weighing less than 3 lb. (1360 G.) had some form of physical, mental or emotional handicap at the age of 5 years, and in the Baltimore study Harper (1962) showed that premature infants continued to to be smaller than controls, had a lower I.Q. and finally a greater incidence of illness during the first three years. However, when social class and the parents' I.Q. are taken into account Robinson (1965) believes there is little difference at least as regards mental ability between premature infants and controls of normal birth weight.

The smallest surviving infant from our nursery weighed 22 ounces at a gestation of 26 weeks, and despite several chest infections and anaemia requiring two transfusions, is now progressing well, and is at the top of her class at school at the age of 7 years.

Summary

The survival rates of 3,829 premature infants during the neonatal period have been analysed for the year 1952-57 and 1958-63. The mortality rate did not vary substantially during these years. The majority of deaths occurred during the first 24 hours; this was particularly marked in the lower weight groups. The causes of death during this period are briefly discussed. The main causes of death were respiratory disease, congenital malformation, cerebral birth trauma, infection and haemolytic disease of the newborn.

Acknowledgements

We should like to acknowledge our grateful thanks to Professor I. J. Carré for his help and encouragement in the preparation of this paper; and Dr. W. A. B. Campbell and Dr. J. A. Dodge for their advice.

References

AVERY, M. E. (1964). *The Lung and its Disorders in the Newborn Infant.* Saunders, Philadelphia.

BUNDESON, H. N. (1952). *Progress in the Prevention of Neonatal Death.* Chicago Health Dept., Chicago.

CHU, J. (1965). *Pediatrics*, **35**, 733.

CLARKE, C. A., FINN, R., McCONNELL, R. B. and WOODROW, J. C. (1964). *Brit. med. J.*, **2**, 1110.
, and SHEPPARD, P. M. (1965). *Lancet*, **2**, 343.

COCHRAN, W. D. (1965). *New Engl. J. Med.*, **272**, 347.

CORNER, B. (1960). *Prematurity.* Cassell, London.

CROSSE, V. M. (1961). *The Premature Baby.* 4th ed. Churchill, London.

DELIVORA-PAPADOPOULOS, M., LEVINSON, H. and SWYER, P. (1965). *Arch. Dis. Childh.*, **40**, 474.

DRILLIEN, C. M. (1964). *The Growth and Development of the Prematurely Born Infant.* Livingstone, Edinburgh.
, and RICHMOND, F. (1956). *Arch. Dis. Childh.*, **31**, 390.

GRUENWALD, P. (1951). *Amer. J. Obstet. Gynec.*, **61**, 1285.

HARPER, P. (1962). *Preventive Pediatrics.* Appleton-Century-Crofts, New York.

HUTCHISON, J. H., KERR, M. M., McPHAIL, F. M., DOUGLAS, T. A., SMITH, G., NORMAN, J. N. and BATES, E. H. (1962). *Lancet*, **2**, 465.

Ministry of Health Report of the Sub-Committee on the Prevention of Prematurity and Care of Premature Infants. H.M.S.O., 1961.

MORISON, J. E. (1963). *Foetal and Neonatal Mortality.* 2nd ed. Butterworth, London.

New York Academy of Medicine (1955). *Perinatal Mortality in New York City.* Harvard Press, Camb., Mass.

ROBINSON, N. B. (1965). *Pediatrics*, **35**, 425.

USHER, R. (1961). *Pediat. Clin. N. Amer.*, **8**, 525.

W.H.O. (1961). *W.H.O. Technical Report No.* 217.

WARNOCK, H. A. Personal Communication.

CLINICAL TRIAL OF PROPRANOLOL IN ACUTE MYOCARDIAL INFARCTION

By J. M. BARBER, F. M. MURPHY and J. D. MERRETT

From the North Down Hospitals Group and the Department of Medical Statistics, The Queen's University of Belfast

BETA-ADRENERGIC blocking agents have been used with success in angina pectoris (Alleyne et al, 1963; Hamer et al, 1964; Keelan, 1965); and in various cardiac arrthymias (Besterman and Friedlander, 1965). Snow (1965) administered 10-20 mg. of propranolol (Inderal—I.C.I.) eight-hourly to 45 patients with myocardial infarction and found that the mortality in the treated cases was 16 per cent. compared with 35 per cent. in the controls. Snow's results have been challenged by Balcon et al (1966) and by Clausen et al (1966).

Agents of this type can reduce the cardiac output and may therefore predispose to heart failure. It was felt that this risk was acceptable if they would prolong the survival time after acute myocardial infarction.

Plan of Trial

Earlier work had suggested that about 30 per cent. of patients treated in hospital for acute myocardial infarction died within 4 weeks, most of these within the first few days. It was decided that if the administration of propranolol reduced this death rate to 15 per cent. it would be of clinical value. Consequently the trial was designed to have a 95 per cent. probability of detecting, at the conventional 5 per cent. probability level of significance, a critical difference of 15 per cent. in the survival rate at 4 weeks after onset of a group of patients on propranolol and a control group.

Patients were admitted to the trial if they had a clinical history of myocardial infarction within the preceding 24 hours and electrocardiographic changes compatible with this diagnosis. Serum glutamic oxalacetic transaminase (S.G.O.T.) levels were estimated but no patient was admitted to the trial on this criterion alone. Patients who had been admitted on clinical grounds and in whom subsequent cardiographs failed to reveal the expected changes were withdrawn from the trial.

No patient with a heart rate of under 60 beats per minute was admitted to the trial, whether this was due to sinus bradycardia or atrio-ventricular block. Asthma or broncho-spasm was also regarded as a contra-indication, as was a systolic blood pressure less than 90 mm. Hg. They were all electrocardiographically monitored in the first 48 hours at least. Propranolol was given in the dose of 40 mgms. six-hourly for 28 days. This is a larger dose than those used by Snow (1965), Balcon et al (1966) and Clausen et al (1966). Particular attention was directed to the development of heart failure, rhythm changes and further episodes of cardiac pain.

This is a restricted sequential trial with the valuation of treatments by observed preferences between patients within pairs, each member of a pair being differently treated. The design was described by Armitage (1960). Treatments were allotted at random to each pair; preferences are defined as pairs in which one patient was successfully treated. The criterion of success was survival at 4 weeks.

In Armitage's (1960) notation the specific sequential plan required to satisfy the conditions is identified by the specification given in Fig. 1.

Each patient was allotted to one of four sub-groups according to age, under 60 years, 60 years and over, and sex. Within each of two hospitals and within each of the sub-groups patients were allotted to two treatment groups at random in accordance with a previously prepared plan.

RESULTS

In all, 107 patients were admitted to the trial during the period December, 1965—September, 1966. Of these, 8 were withdrawn from the trial as they did not meet the above criteria, 2 were on propranolol and 6 on the placebo. This left 42 pairs of patients and of these only 12 yielded preferences, of which 7 were for propranolol. These preferences are plotted on Fig. 1. If this trend continued until the boundary

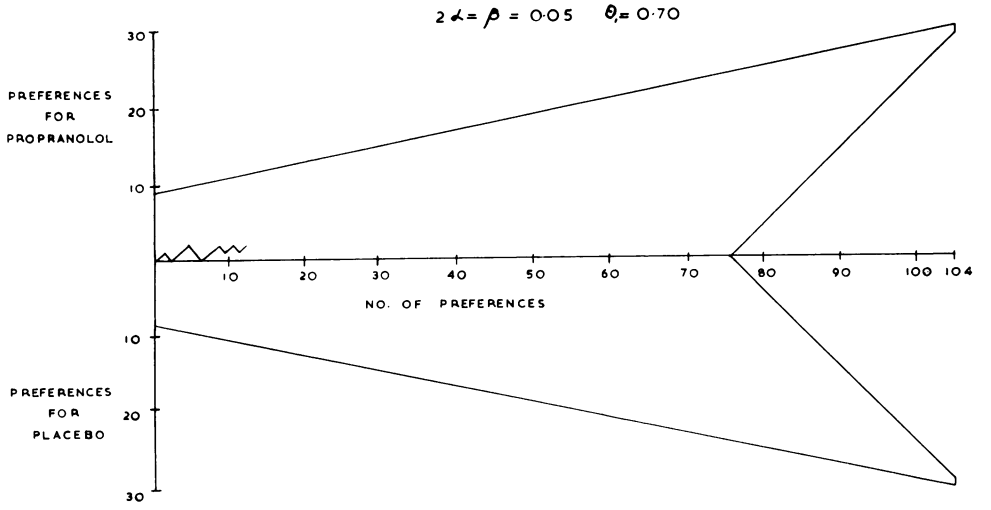


FIG. 1 SEQUENTIAL DIAGRAM

indicating non-significance was crossed it was estimated that the patients would have to be admitted to the trial for the next six years.

TABLE I
Mortality rates

	Treatment	
Result of treatment	*Propranolol*	*Placebo*
Died within 4 weeks of onset	10 (19.4)	12 (25.5)
Survived 4 weeks	42	35
Total	52	47
χ^2=0.261	D.F.=1, 0.7>P>0.5	

Figures in brackets give percentage number of deaths in each treatment regime.

TABLE II

Mortality rates by treatment regime, age and sex

	Males		*Females*	
Treatment	*under* 60	60 *and over*	*under* 60	60 *and over*
Propranolol	5.9 (17)	33.3 (21)	— (4)	20.0 (10)
Placebo	— (11)	26.1 (23)	— (2)	54.5 (11)

Number of patients in each sub-group is given in brackets.

In view of the apparent similarity of the effects of the two treatments, it was decided to terminate the sequential trial and compare the death rates between treatment regimes by convential χ^2 tests or exact probability tests. The 99 patients who completed the trial were included in this analysis. Table I shows that there was no significant difference (at $P<0.05$) between the mortality of patients on propranolol and those on the placebo. Table II shows the mortality rates in each treatment regime within each of the four age-sex sub-groups. The number of patients of either sex in the younger age group was too few to permit a comparison of mortality to be made. In the older age group, no significant difference was found in the mortality for either males ($\chi^2=0.036$, D.F.$=1$, $0.9>P>0.8$), or females (P, double tail$=0.183$).

COMPLICATIONS

No serious side effects were encountered during this trial. Eighteen cases developed heart failure in the control group, as against twenty on propranolol. There was no evidence that this procedure precipitated heart failure in any case. In two patients on propranolol the systolic blood pressure fell to 80. After the omission of one dose the pressure rose within a few hours and remained satisfactory.

TABLE III

Incidence per cent. of complications

		COMPLICATION		
Treatment	*No. of patients*	*Heart failure*	*Rhythm change*	*Further attacks of heart pain*
Propranolol	52	38.5	13.5	26.9
Placebo	47	38.3	21.3	21.3
$\chi 2$		0.0005	0.582	0.176
D.F.		1	1	1
P.		0.98–0.99	0.30–0.50	0.50–0.70

Table III shows the percentage number of patients with heart failure, rhythm change, and further attacks of heart pain for each treatment regime. The arrythmias encountered included multiple ectopic beats, auricular tachycardia, auricular fibrillation, ventricular tachycardia, and ventricular fibrillation. No significant

difference was found in percentage incidence for any particular complication (see χ^2's of Table 3). Similar trends were found when the incidences were compared within each age and sex sub-group.

Summary

In a trial of propranolol (40 mgms. six-hourly) in patients with acute myocardial infarction, no significant difference in mortality at 4 weeks was demonstrated between the drug and the placebo. The incidence of heart failure, cardiac arrythmias, and further episodes of cardiac pain was similar in both groups.

Thanks

We wish to thank Dr. S. A. Stephen of Imperial Chemical Industries, Pharmaceuticals Division, for advice and supplies of Propranolol and placebo. We are indebted to Miss Jean Fletcher and Miss M. J. Reid for secretarial assistance.

References

Alleyne, G. A. O., Dickenson, C. J., Dornhurst, A. C., Fulton, R. M., Green, K. G., Hill, I. D., Hurst, P., Lawrence D. R., Pilkington, T., Pritchard, B. N. C., Robinson, B. and Rosenheim, M. L. (1963). *Brit. med. J.*, **2**, 1226.

Armitage, P. (1960). *Sequential Medical Trials.* Blackwell, London.

Balcon, R., Jewitt, D. E., Davies, J. P. H. and Oram, S. (1966). *Lancet*, **2**, 917.

Besterman, E. M. M. and Friedlander, D. H. (1965). *Postgrad. med. J.*, **41**, 526.

Clausen, J., Felsby, M., Jorgensen, F. S., Neilsen, B. L., Roin, J. and Strange, B. (1966). *Lancet*, **2**, 920.

Hamer, J., Grandjean, T., Melendez, L. and Sowton, G. E. (1964). *Brit. med. J.*, **2**, 720.

Keelan, P. J. R. B. (1965). *Brit. med. J.*, **1**, 897.

Snow, P. J. D. (1965). *Lancet*, **2**, 551.

THE MANAGEMENT OF RESPIRATORY FAILURE IN A COUNTRY HOSPITAL :

with special reference to crushed chests

By R. M. NICHOLL, M.D., F.F.A.R.C.S.
Consultant Anaesthetist, Royal Victoria Hospital, Belfast
and
S. S. BROWN, M.B., F.F.A.R.C.S.
Senior Tutor, Department of Anaesthetics, Queen's University of Belfast
Belfast 12.

RESPIRATORY FAILURE, which may be defined as a "condition in which the amount of oxygen and carbon dioxide in the blood stream is altered by an abnormality of the respiratory system" (Arnott, 1960), may arise from many causes – among them diseases of, injury to, or intoxications of the central or peripheral nervous systems, thoracic skeleton, diaphragm and other respiratory muscles, and lung parenchyma. Many of these lesions are reversible, and if the patient is adequately resuscitated during the period of temporary respiratory inadequacy, a full recovery may be expected.

The use of artificial respiration to maintain life in animals unable to breathe was described by Hooke (1667), and in curarized man by Waterton (1879). These descriptions were primarily of experimental work. The application of prolonged artificial respiration in clinical medicine was described by Drinker and McKhann (1929) and Eve (1932). Since then the development of efficient compact lung ventilators, and the widespread use of curariform drugs in anaesthesia following their use by Griffith and Johnston (1943) has increased the use of artificial respiration in clinical medicine.

It has been suggested that patients requiring artificial or intermittent positive ventilation (I.P.V.) should be treated in the intensive care or respiratory failure unit of a large hospital (Windsor and Dwyer, 1961). From the point of view of the economy of use of medical staff (Dundee and Gray, 1963) and availability of laboratory facilities this system has much to commend it. It has, however, two disadvantages :

(1) Patients with crushing chest wall trauma, which commonly causes reversible respiratory failure, frequently have multiple injuries. They may have lost much blood, or be shocked and do not tolerate movement well. Furthermore, the presence of internal haemorrhage, arising from a ruptured spleen, liver or kidney can be most easily diagnosed by close observation of changes in pulse rate and blood pressure. A rising pulse rate or fall in blood pressure will often be regarded as an indication for laparotomy. Movement of an injured patient may easily provoke cardio-vascular changes simulating those of internal haemorrhage. Unnecessary movement may thus render the diagnosis of associated internal injuries more difficult and result in delay in their treatment.

(2) Ventilatory failure may occur in some patients with overdosage of or abnormal response to drugs, but if treated immediately and effectively the patient's life may be saved. Since the period of I.P.V. required is often a matter of hours rather than days, the time spent on the journey to a respiratory unit may be disproportionate to the total period of resuscitation required. The management of a case of this type in a country hospital has been described by Barron and Milliken (1960).

This paper presents a series of patients who received I.P.V. in the treatment of respiratory failure arising in the surgical practice of Daisy Hill Hospital, Newry, during the period August 1961–December 1965. A case of respiratory failure which was treated by means other than I.P.V. is reported elsewhere (Nicholl et al., 1967).

Case Reports

Case 1

A 57 year old female had a hydronephrotic right kidney removed in Daisy Hill Hospital on 29th August, 1960. Operation, anaesthesia and convalescence were uneventful. She was discharged on 7th September and failed to attend the follow-up clinic.

She was re-admitted on 22nd October 1961 with a history of abdominal pain and vomiting ; there was a progressive rise in temperature and she became anuric. X-ray of the left renal tract showed an opacity near the lower end of the ureter. After atropine premedication, under thiopentone, nitrous oxide, oxygen and halothane anaesthesia, cystoscopy was performed and an attempt made to pass a ureteric catheter. This was unsuccessful, so the patient was intubated under topical (lignocaine 4 per cent.) anaesthesia and the lower end of the ureter was explored. During this latter procedure, as relaxation was inadequate, the halothane was turned off and the patient was given gallamine (Flaxedil) 80 mg. Manual ventilation of the lungs was performed by compression of the bag in the anaesthetic circuit. Twenty minutes later the patient began to breathe more vigorously so she was given a supplemenary dose of gallamine 20 mg. The wall of the lower end of the ureter was found to be calcified. The bladder was opened and the ureter dilated. This caused the escape of some purulent urine which had been held up by the obstruction. During closure of the wound relaxation was again insufficient, so she was given a further injection of gallamine 10 mg. intravenously approximately 15 minutes after the second injection of this drug. Throughout the operation the patient's respiratory efforts were not completely abolished by the dose of relaxant employed, which totalled 110 mg. of gallamine.

At the end of the operation diaphragmatic breathing and tracheal tug were present and the intercostal muscles were paralysed. Administration of atropine and neostigmine caused an improvement in her condition lasting about half an hour, after which the signs of partial curarization recurred.

A tracheotomy was performed and the patient was respired for nine hours with a Smith-Clarke ventilator, following which she recovered. A sample of blood taken at the time of operation had a urea content of 275 mg. per 100 ml. Four weeks later the blood urea had fallen to 20 mg. per 100 ml.

The patient was re-admitted on 6th December 1961 with airway obstruction. This was found to be due to the formation of a web in the trachea near the site of the

tracheotomy. The web was broken down and the airway re-established but it re-curred about three weeks later. The tracheal stricture was again dilated, but tracheal resection was subsequently required to effect a permanent cure. This complication of tracheotomy has been noted by other authors (Bargh and Slawson, 1965).

Case 2

A 34 year old female was admitted on 14th January 1965 with multiple injuries following a motor car accident. These included fractures of the shafts of both femora, pelvis and orbital margin, sixth right rib, left third to ninth ribs and she had a left pneumothorax. On admission she was severely shocked. After transfusion with two pints of plasma, four pints of blood and administration of cortisol and metaraminol (Aramine), the legs were placed in Thomas' splints under general anaesthesia (methohexitone 10 mg. nitrous oxide and oxygen).

During the next three days "traumatic wet lung" gradually developed and on the 18th January a tracheotomy was performed because of the profuse amount of purulent sputum which was being aspirated from the tracheo-bronchial tree. A size 10 Oxford tracheotomy tube was inserted. Her condition continued to deteriorate and by evening the respiratory rate had risen to 44 per minute and there was paradoxical movement of the chest wall. I.P.V. was started using an Adelaide Mk. 2 ventilator (Kenny and Lewis, 1960), a Garthur condenser-humidifier being used to prevent drying of the bronchial tree. Since the tube was a close fit in the trachea, with a negligible leak of air, the cuff was not inflated. At first the patient resisted mechanical ventilation, but she readily became apnoeic after being hyperventilated manually using an Ambu bag. Thereafter it was possible to ventilate her with the Adelaide machine at 28 cycles per minute. A similar routine was necessary to get the patient re-established on the ventilator after tracheal suction, which was carried out at half-hourly intervals.

By the fifth day of ventilator treatment (23rd January) it was possible for her to stay off the ventilator for up to 30 minutes at a time, but she became very restless on the slightest physical exertion. On the 25th the ventilator was changed to a Smith-Clarke machine. Although the Garthur condenser-humidifier had proved adequate to prevent drying of the bronchial tree, it did nothing to replace water vapour which was removed when tracheal suction was performed. It was felt that the hot moist air provided by the Smith-Clarke ventilator would be more beneficial.

Between 27th and 31st January the patient developed acute gastric dilitation and it was necessary to give up to five litres of fluid intravenously daily in order to balance the patient's body water loss.

On the first of February artificial ventilation was discontinued (after 14 days) but the tracheotomy was kept patent for a further four days in order to perform adequate bronchial toilet. By the 2nd February the gastric aspiration was reduced to 90 ml. in 24 hours and the stomach tube was withdrawn. Thereafter convalescence was uneventful in so far as her respiratory and alimentary function was concerned, although prolonged because of her fractured femora. She was discharged on 21st July.

The aetiology of the acute gastric dilation in this patient is obscure. It may arise in patients with tetanus who are curarized and given I.P.V., possibly due to the action of curare on the sympathetic ganglia ; but this patient did not receive any

myo-neural blocking agent at any time. It may also arise in patients who are hypokalaemic, but during this period of loss of alimentary function the patient's serum potassium level was 4·4 m. eq/l, 3·6 m. eq/l and 3·8 m. eq/l on three occasions.

Case 3

A 64 year old male underwent laparotomy for gastric carcinoma on 2nd February 1965, operation revealing an inoperable growth with extensive metastases. Anaesthesia (thiopentone, suxamethonium, nitrous oxide, oxygen, d-tubocurarine chloride) was uneventful, but there was difficulty in re-establishing adequate respiratory movement post-operatively. The patient displayed clinical signs of partial curarisation which was unaffected by intravenous injections of atropine and neostigmine. He was ventilated with air through an oro-tracheal tube from a Smith-Clarke ventilator for eight hours after which he was extubated.

His convalescence was thereafter uneventful and he was discharged home on 21st February. It was thought that the causation of the prolonged paralysis may have been a mixed type neuromuscular block (Paton, 1956).

Case 4

A 75 year old male was admitted to hospital on 23rd November 1965, following a motor accident in which he sustained fractures of the right first to seventh ribs and of both rami of the pubic bones. There were also multiple bruises and some minor lacerations.

He had been in hospital two months previously with a history of chest pain, when an electrocardiograph showed evidence of right bundle branch block.

Signs of a lung infection developed and by 8th December he was cyanosed and sweating, with paradoxical movement of the chest wall deep to the right pectoralis major. The trachea was intubated under topical (lignocaine 2 per cent.) anaesthesia and about 20 ml. purulent mucus sucked out of the trachea. He was ventilated through the endotracheal tube with an Adelaide ventilator with a considerable improvement in his colour and a diminution in sweating. Because of his respiratory inadequacy and the copious amounts of pus which were being obtained from the trachea, tracheotomy was performed and a size 10 Oxford tracheotomy tube was inserted. Ventilation was carried out with a Smith-Clarke machine delivering a tidal volume of 700 ml. at a respiratory frequency of 22 cycles/minute, a supplementary oxygen flow of 2 litres/minute being added to the inspired air.

Five hours later there was a considerable improvement in his condition and it was possible to turn off the supplementary oxygen. He tended to resist inflation, but settled well after receiving morphine 10 mg. intramuscularly. Ventilation was continued on the following day, but on the 10th December he was able to breathe adequately for two hours.

During the next two weeks there was a very gradual improvement in his condition, although he was very frail throughout. Faecal incontinence developed on the 12th and it was difficult to prevent bedsores occurring. A tracheal swab taken on the 13th grew coagulase-positive Staphylococcus pyogenes, coliforms, Clostridium welchii and Proteus. The tracheotomy was cleaned with hydrogen peroxide, gentian violet and "Hibitane" and he was given systemic antibiotics. It was possible to clear the wound of three of these organisms, but the staphylococcus remained to the end.

After two and a half weeks of ventilator treatment he was able to dispense with I.P.V. for three days, during which he was breathing adequately through the tracheotomy. Unfortunately, he now developed signs of venous thrombosis in the left leg. Anti-coagulant therapy was started on the 27th but on the 31st there was a marked deterioration in his condition and it became necessary to restart ventilator treatment. It was thought that he had developed a pulmonary embolism. The deterioration in his condition continued and he was transferred to the Royal Victoria Hospital on the 6th January 1966. He died four days later.

Post mortem examination showed a thrombosis of the left femoral vein with bilateral pulmonary emboli.

A fifth case has been reported previously in detail in this journal (Nicholl & Pillow, 1964) and is summarised briefly below :

Case 5

A woman of 22 years was admitted, following a motor car accident, with multiple injuries which included a fracture of the middle fossa of skull, multiple bilateral rib fractures and a right pneumothorax. On admission she was unconscious with periodic (Cheyne-Stokes) breathing ; she had a pulse rate of 140 beats per minute, but the blood pressure was within normal limits.

Twenty-four hours later there was a deterioration in her condition. The pulse rate, which had earlier fallen, had again started to rise and the blood pressure had fallen. Because of these signs of internal haemorrhage laparotomy was performed following blood transfusion. Operation revealed a ruptured spleen which was removed. The patient's post-operative condition was satisfactory, but twelve hours later it began to deteriorate ; cyanosis developed and secretions pooling in the pharynx began to "spill over" into the larynx, causing intermittent laryngeal spasm. Tracheotomy was performed and the patient's condition remained satisfactory for a further 36 hours ; after which a further deterioration took place. Cyanosis returned, the respiratory rate increased and paradoxical movement of the sternum and anterior ends of the ribs was marked. I.P.V. was given continuously for the next four days and intermittently for a further seven days. After this she was able to breathe adequately but only through a tracheostome. The tracheotomy was removed on the thirty-third day and she was discharged home forty-five days after admission to hospital.

Discussion

Since the use of a tank respirator to resuscitate a patient with multiple rib fractures by Hagen (1945), and more so since the use of I.P.V. in the management of reversible respiratory failure in acute poliomyelitis by Lassen (1953) and Ibsen (1954), artfiicial respiration has acquired a wide application in therapeutics. The principles of treatment are well established (Spalding and Smith, 1963) although there are differences in detail among different authors.

The management of individual patients with severe crushing chest wall injury has been described in some detail (Avery et al., 1955 and 1966 ; Clarkson and Robinson, 1962 ; Garden and Mackenzie, 1963). Some describe series of patients with respiratory failure of diverse origins (Pearce, 1961) ; including chest wall injury as one of the causes (Safar et al., 1961 ; Norlander et al., 1961 ; Fairley, 1961 ; Robbie and Feldman, 1963 ; Bargh and Slawson, 1965). Other authors have

published details of larger series of patients with crushing chest injury and analysed the results (Griffiths, 1960 ; Whitwam and Norman, 1964 ; Reid and Baird, 1965 ; Lloyd, et al., 1965; Campbell, 1966).

Many of these papers have come from teaching hospitals or other large units which usually have a highly developed laboratory service. This is reflected in the complexity of the investigations which several of the authors seem to regard as routine (Campbell, 1966) or even obligatory (Bates, 1964) if a patient with respiratory failure is to be resuscitated. Since "patients with conditions so desperate as to require intensive care withstand movement extremely badly" (Robinson, 1966) a difficult decision may face the clinician in charge of such a case, if the patient is admitted to a provincial hospital in which facilities for blood gas analysis are not always available.

In spite of the difficulties attending the management of patients with major chest wall injury in respiratory failure in provincial hospitals, Sandor (1963) has reported a series of 9 patients with paradoxical chest wall movement due to rib fractures treated in two provincial hospitals in five years. None of his patients received I.P.V. as a therapeutic measure and only one patient required a tracheotomy. Two of his patients underwent thoracotomy for associated intra-thoracic injuries.

This series is presented to illustrate the feasibility of treating patients in respiratory failure with I.P.V. in a country hospital with limited laboratory facilities and no methods for blood gas analysis. The assessment of the adequacy of ventilation was on purely clinical grounds :

(1) As a general rule patients were ventilated with air only (i.e. without additional oxygen). Patients might easily be underventilated (with a resulting retention of CO_2) if an oxygen enriched atmosphere were employed for a long time. By reducing or eliminating alveolar nitrogen this also predisposes to pulmonary, lobar or alveolar collapse if there is much retained sputum.

(2) If patients become cyanosed, oxygen is added to the inhaled air and the minute volume is increased until the patient's colour improves. As soon as this happens the oxygen is gradually reduced until the patient is again being ventilated with air only.

(3) The early treatment of post-haemorrhagic anaemia is important because wounds and fractures are slow to heal in anaemic subjects. Cyanosis as an important sign of hypoxaemia, and of possible underventilation, is lost on these patients.

(4) If a patient feels comfortable when on a ventilator, respiration is probably adequate.

(5) Heavy sedation is avoided, because in the presence of respiratory depression inadequate ventilation may be tolerated. Experience shows that patients require most sedation when due to be weaned off the ventilator or when there is foreign material in the bronchial tree.

It may be suggested that, while it is possible to treat patients in respiratory failure due to crushing chest injury in a country hospital, the superior results which may be expected in a larger unit justify the risks of an otherwise unnecessary journey. The table gives an estimate of the mortality rate among patients receiving ventilator treatment for crushing chest injury in ten teaching hospitals. Where an author gives the number of patients requiring I.P.V. for chest injury, this is quoted but some have not differentiated between patients with crushed chests who required

TABLE

Centre	*Author*	*No. of cases admitted to intensive care unit*	*No. with severe chest injury*	*No. of deaths among patients with severe chest injury*
Baltimore	Safar et al.	3931*	8	1
Belfast	Gray, Dundee and Clark	350	19	9
Edinburgh	Bargh and Slawson	160	51	7
Glasgow	Campbell	51	28	14
Leeds	Whitwam and Norman	9	9	3
Liverpool	Robinson	168	11	3
Oxford	Lloyd et al.	121	33	9
Stockholm	Norlander et al.	522	14	4
Toronto	Fairley	204	20	4
Westminster	Robbie and Feldman	50	2	0
	Total		195	54

NOTE: * The Baltimore figure includes 3370 post-operative cases with no complications, admitted to the intensive care unit.

The results of treatment of crushed chests by I.P.V. in ten teaching hospitals.

ventilator treatment, and those less ill who did not require this. Here the total number of cases with major chest injury managed by that unit is quoted. It will be seen that of a total of 195 patients treated for crushing chest wall injuries, 54 died ; a mortality rate of approximately 27 per cent.

A patient admitted with multiple rib fractures to a small hospital may face the risk of transport to a larger unit which may aggravate his state of shock and render more difficult the diagnosis and treatment of associated injuries. By treating the patient in the hospital to which he is first admitted the risks of movement are avoided and the diagnosis of concomitant injuries may be facilitated, but the risks associated with ventilator treatment remain.

The results obtained by the anaesthetic service in Daisy Hill Hospital, Newry, in the management of such patients during the period August 1961 to December 1965 support this view.

SUMMARY

The possibility of treating patients in respiratory failure by mechanical lung ventilation in a country hospital is demonstrated. Case histories are given and some of the complications of treatment are described.

ACKNOWLEDGEMENTS

We would like to record our thanks to our colleagues on the medical and nursing staffs of Daisy Hill Hospital for their assistance in the management of these cases. Nos. 1 and 5 were under the care of Mr. G. W. Vause Greig; Nos. 2 and 3 were under the care of Mr. James Blundell, and No. 4 was under the care of Mr. D. T. L. Nash.

The tracheostomies on cases 1, 2 and 4 were done by Mr. H. S. Henry, and that on case 5 by Mr. Roy Stinson.

Mr. H. M. Stevenson performed the tracheal resection on case No. 1.

We are especially indebted to Professor J. W. Dundee and Dr. R. C. Gray for the loan of ventilators used in the treatment of cases 1-4.

References

ARNOTT, W. M. (1960). *Lancet*, **1**, 1.

AVERY, E. E., MORCH, E. T., HEAD, J. R. and BENSON, D. W. (1955). *Quart. Bull. Northwestern Univ. Med. Sch.*, **29**, 301.

BARGH, W. and SLAWSON, K. B. (1965). *Brit. J. Anaesth.*, **37**, 574.

BARRON, D. W. and MILLIKEN, T. G. (1960). *Lancet*, **1**, 262.

BATES, D. V. (1964). *Anesthesiology*, **25**, 192.

CAMPBELL, D. (1966). *Brit. J. Anaesth.*, **38**, 298.

CLARKSON, W. D. and ROBINSON, JOHN S. (1962). *Brit. J. Anaesth.*, **34**, 371.

DRINKER, P. and McKHANN, C. F. (1932). *J. Amer. med. Ass.*, **92**, 1658.

DUNDEE, J. W. and GRAY, R. C. (1963). *J. roy. Coll. Surg. Irel.*, **1**, 46.

EVE, F. C. (1932). *Lancet*, **2**, 995.

FAIRLEY, H. B. (1961). *Anaesthesia*, **16**, 267.

GARDEN, J. and MacKENZIE, A. I. (1963). *Brit. J. Anaesth.*, **35**, 731.

GRAY, R. C., DUNDEE, J. W. and CLARKE, R. S. J. (1967). *Ulster med. J.* (in press).

GRIFFITH, H. R. and JOHNSON, G. E. (1943). *Anesthesiology*, **3**, 418.

GRIFFITHS, H. W. C. (1960). *J. roy. Coll. Surg. Edinb.*, **6**, 13.

HAGEN, K. (1945). *J. Bone Jt. Surg.*, **27**, 330.

HOOKE, R. (1667). *Phil. Trans. roy Soc.*, **2**, 539.

IBSEN, B. (1954). *Proc. roy. Soc. Med.*, **47**, 72.

KENNY, SHEILA and LEWIS, M. (1960). *Brit. J. Anaesth.*, **32**, 444.

LASSEN, H. C. A. (1953). *Lancet*, **1**, 37.

LLOYD, J. W., CRAMPTON SMITH, A. and O'CONNOR, B. T. (1965). *Brit. med. J.* **1**, 1518.

NICHOLL, R. M., HOLLAND, E. L. and BROWN, S. S. (1967). *Brit. med. J.* (in press).

NICHOLL, R. M. and PILLOW, W. M. (1964). *Ulster med. J.*, **33**, 36.

NORLANDER, O. P., BJORK, V. O., CRAFOORD, C., FRIBERG, O., HOLMDAHL, M., SWENSSON, A. and WIDMAN, B. (1961). *Anaesthesia*, **16**, 285.

PATON, W. D. M. (1956). *Brit. J. Anaesth.*, **28**, 470.

PEARCE, D. J. (1961). *Anaesthesia*, **16**, 308.

REID, J. M. and BAIRD, W. L. M. (1965). *Brit. med. J.*, **1**, 1105.

ROBBIE, D. S. and FELDMAN, S. A. (1963). *Brit. J. Anaesth.*, **35**, 771.

ROBINSON, J. S. (1966). *Brit. J. Anaesth.*, **38**, 132.

SAFAR, P., DeKRONFELD, T. J., PEARSON, J. W., REDDING, J. S. (1961). *Anaesthesia*, **16**, 275.

SANDER, FRANCIS (1963). *Thorax.*, **18**, 116.

SPALDING, J. M. K. and SMITH, A. C. (1963). *Clinical Practice and Physiology of Artificial Respiration*. Oxford: Blackwell.

WATERTON, C. (1879). Wanderings in South America.

WHITWAM, J. G. and NORMAN, J. (1964). *Brit. med. J.*, **1**, 349.

WINDSOR, H. M. and DWYER, B. (1961). *Thorax*, **16**, 3.

THE PREVALENCE OF MENTAL SUBNORMALITY IN TWO REGIONS

Some Comparisons Between North-East Scotland and Northern Ireland

By

CECIL B. KIDD, M.D., Ph.D., D.P.M.
G. INNES, M.D., D.P.H., and
H. S. ROSS, M.B., Ch.B.

Department of Mental Health, University of Aberdeen, Scotland

STUDIES on the prevalence of mental subnormality are carried out for three reasons: first, by establishing case rates for known subnormality to examine patterns of morbidity and the factors that influence this: second, to gain operational data relevant to existing practice, needs and planning of services: third, to provide a data bank for mounting clinical, genetical, social or biochemical studies on this diagnostic sub-group of the population. Detailed studies among regional populations, however, have been few in number. Forty years ago E. O. Lewis investigated six areas in England an Wales, each with a population of about 100,000 persons, and provided the first measure of severe subnormality (idiocy and imbecility) in this country (Lewis, 1929). Goodman and Tizard (1962) determined the prevalence of severe subnormality among children in Middlesex and in part of London using methods that allowed useful comparisons to be made with the findings obtained by Lewis. The prevalence of severe subnormality among young people in Salford was studied by Kushlick (1961) whose later enquiries provided similar prevalence data in respect of the population of the Wessex region (Kushlick, 1964, 1965).

The most comprehensive study of the prevalence of all known mental subnormality in a large region was carried out recently in Northern Ireland by Scally and MacKay (1964a). The detail and accurate coverage in this population survey owed much to the facilities, structure and development of the Special Care Service in Northern Ireland, uniquely in the United Kingdom, one authority responsible both for the community and hospital care of the mentally subnormal (Scally and MacKay, 1964b; Weir, 1949). A similar hospital and community survey of mental subnormality has been carried out in the North-East region of Scotland (Innes, Kidd and Ross, 1967). This enquiry was deliberately contrived to yield findings that would be directly comparable with those of the Northern Ireland survey. This paper reports on these comparisons.

The Geographical Background

The North-East region of Scotland comprises the city of Aberdeen, the mainland counties of Aberdeen, Banff, Kincardine and Moray and the island counties of Orkney and Zetland (Shetland). Comparable with Northern Ireland the region occupies the north-eastern part of the land mass and is bounded on two sides by

sea. Aberdeen, the regional capital, like Belfast, is situated on the eastern seaboard, it is a university city and a centre of heavy and light industry. The mainland part of the region is 3,460 square miles in area, or one-ninth of Scotland. It forms the eastern part of the Highlands. The counties of Orkney and Zetland together form an archipelago of about 180 islands with a total area of 927 square miles; only 45 islands are now inhabited (Baldwin and Millar, 1964). The total regional area (4,387 square miles) is rather smaller than Northern Ireland (5,238 square miles). It is less densely populated; the population (479,421 persons) is one third that of Northern Ireland (1,435,400 persons).

Method

A diagnosis of mental subnormality was accepted where the intelligence quotient of a patient was ascertained to have been less than 70 on full intellectual development, a psychological measure equivalent to the socio-medical measure of "persons requiring special care" used in Northern Ireland. All patients with mental subnormality known to the hospital services of the North-Eastern Regional Hospital Board, Scotland, or to the Local Authority services of the region were included in the series. A point-prevalence survey was carried out to obtain clinical, social and demographic data on every subnormal patient identified at all child and adult mental deficiency and psychiatric hospitals, children's hospitals, out-patient services and from the records of each Local Authority service in the region. Care was taken to seek information on subnormal patients from the region who were in hospital care elsewhere in Scotland. The identifying, social and clinical factors that characterized each patient were recorded on a proforma; after checking and verification the data was processed and analysed.

Results

On the census day 2,887 known mentally subnormal patients of all ages (1,616 men, 1,271 women) were resident in the North-East Scottish region or placed in hospitals elsewhere by arrangement of the region's services. This figure represents a case rate for mental subnormality of 6.02 per 1,000 of the total regional population (based on the 1961 census). Scally and MacKay (1964a) reported that on census 4,361 known mentally subnormal patients of all ages (2,441 men, 2,190 women) were resident in Northern Ireland or placed in hospitals elsewhere by arrangement of the region's service. This figure represents a case rate of 3.2 per 1,000 of the total regional population (based on the Registrar General's mid-year estimate for 1962). The overall rate for North-East Scotland was almost twice that for Northern Ireland. The ratio of men to women patients in the two regions was similar, 1.27 : 1 for North-East Scotland and 1.12 : 1 for Northern Ireland.

Although in Northern Ireland persons ascertained as being in need of special care are not graded according to degree of severity of subnormality for statutory purposes, they are so graded for medical and psychological purposes. In Scottish practice the same gradings also are used; high grade (feeble-minded, I.Q. 50-69), medium grade (imbecile, I.Q. 20-49) and low grade (idiot, I.Q. 0-19). Table I compares the percentage distribution by grade and prevalence for the North-East Scottish series with Scally and MacKay's equivalent figures for the Northern Irish series.

Medium grade patients constituted the largest group (59 per cent.) of the Northern Irish series while high grade patients (54 per cent.) predominated in the

TABLE I

Comparison of the percentage distribution and prevalence of mental subnormality in North-East Scotland and Northern Ireland by grade

Grade of mental subnormality	*North-East Scotland*			*Northern Ireland* (Scally and MacKay, 1964)		
	Number	*Percentage of series*	*Prevalence per 1,000 pop.*	*Number*	*Percentage of series*	*Prevalence per. 1,000 pop.*
Low grade	106	3.7	0.23	510	11.0	0.35
Medium grade	933	32.2	1.94	2,732	59.0	1.90
High grade	1,565	54.2	3.26	1,389	30.0	1.97
Not known	283	9.8	0.59	—	—	—
All grades	2,887	100.0	6.02	4,631	100.0	3.22

North-East Scottish series. In both regions the smallest group were low grade patients. The higher overall prevalence rate among the North-East Scottish population is seen to be accounted for by the prevalence of high grade subnormality in this region, 3.26 per 1,000 at risk compared with 1.97 per 1,000 of the population of Northern Ireland. This difference did not obtain for severe subnormality. In both regions the rates for low grade subnormality were similar and for medium grade subnormality were identical.

The degree of handicap had been ascertained for all the patients in the Northern Irish study. In 283 cases of the North-East Scottish series (9.8 per cent.) the grade of subnormality was not stated in the records. One third of these were in the 0-4 age group and the remainder mostly were patients living on small islands where they were not easily accessible for psychometric assessment.

In both series the male : female ratio was similar for all grades of subnormality. This was also so in all age groups within each grade where in both regions the male patients outnumbered or equalled the females.

The distribution of the prevalence of medium and low grade subnormality per 1,000 population of North-East Scotland and of Northern Ireland by age groups is shown in Table II. As in Scally and MacKay's report high grade patients have been omitted, rates for low and medium grade patients are presented both separately and combined and the figures have been rounded to the first decimal place.

The rates for low grade subnormality in Northern Ireland were higher than those in North-East Scotland in all age groups below 30 years while above this age the reverse was true. The rates for medium grade subnormality in North-East Scotland similarly exceeded the figures for Northern Ireland in all age groups over 30 years but also in age groups 5-9 and 15-19 years. However, the difference between the regions in age-specific prevalence are not marked. Rates for combined medium and low grade subnormality only differed substantially in the 10-14 age group where the prevalence in Northern Ireland (3.7 per 1,000 population) was higher than in North-East Scotland (2.3 per 1,000 population) and in the over 60

TABLE II

Prevalence of low and medium grade patients per 1,000 population in North-East Scotland and Northern Ireland by age groups

	North-East Scotland			*Northern Ireland* (Scally and MacKay, 1964)		
Age groups	*Low grade*	*Medium grade*	*Low and Medium grades*	*Low grade*	*Medium grade*	*Low and Medium grades*
0–4	0.3	0.5	0.8	0.4	0.7	1.1
5–9	0.4	3.1	3.5	0.7	2.7	3.4
10–14	0.3	2.0	2.3	0.6	3.0	3.7
15–19	0.3	3.4	3.7	0.7	3.3	4.0
20–29	0.2	3.0	3.2	0.5	3.3	3.9
30–39	0.2	1.9	2.1	0.2	1.8	1.9
40–49	0.3	1.7	2.0	0.2	1.5	1.7
50–59	0.2	1.6	1.8	0.1	1.2	1.3
60+	0.1	1.2	1.3	0.0	0.6	0.6
All ages	0.2	1.9	2.2	0.4	1.9	2.3

age group where the prevalence in North-East Scotland (1.3 per 1,000 population) was higher than in Northern Ireland (0.6 per 1,000 population).

DISCUSSION

Casual observations suggest that the regions of North-East Scotland and Northern Ireland have much in common. Geographically both are similarly situated in the British Isles, the north-east position of each island. The boundaries of both are the sea on the north and east and mountains on the west and south. Population density is greatest on the coasts and valleys, least in the hills and moorlands. The people of each area have similar attributes that delineate them from those of neighbouring regions. Like Northern Ireland, the population of North-East Scotland is predominantly Protestant, their ethnicity deriving from lowland Scots, English and early Scandinavian elements. The remainder are Roman Catholics, their ethnicity deriving largely from gaeldom. There is considerable rural-urban shift and, in common with Northern Ireland, economic factors and employment difficulties lead to emigration. The natural boundaries and the defined but diversified populations of both these regions provide an ideal and stable foundation for epidemiological surveys.

Scally and MacKay (1964a) have commented on the problems that beset meaningful comparisons of population morbidity surveys of mental subnormality and this needs no further elaboration here except to indicate that, where possible, these difficulties have been minimised in the present study. The methods, techniques, data handling and data presentation of this survey of subnormality in the North-East region of Scotland were identical to those used by Scally and MacKay in the Northern Irish survey. Because of this, comparisons between the findings from both regions have some validity.

The regions differ in the structure of the services provided for the case of the mentally subnormal. The Special Care Service in Northern Ireland is responsible

for the ascertainment and care of patients both in hospitals and in the community. In North-East Scotland the Regional Hospital Board is responsible for subnormal patients in mental hospitals and mental deficiency hospitals through their respective Boards of Management and the Local Authorities are responsible for the community care and provisions of services and supervision of non-hospitalised patients living in each county area. The criteria for ascertained subnormality differ in the two regions, although mainly in definition. A medico-social criterion is employed in Northern Ireland and a medico-psychological criterion is employed in Scotland. This may explain the difference in overall prevalence found when these surveys are compared, especially since the higher rate in North-East Scotland was found to be due to the higher prevalence of high grade subnormality in this population. It is possible that many of these high grade patients while known by the authorities to have impaired intellect might not be defined in respect of their social behaviour as "persons suffering from arrested or incomplete development of mind . . . which renders them socially inefficient to such an extent that they require supervision, training, or control in their own interests, or in the interests of other persons." (Mental Health Act, Northern Ireland, 1961).

Scally and MacKay (1964a) pointed out accurately that if there is a relationship between severity of mental handicap and extent of social inefficiency the number of persons of medium and low grade subnormality who stay outwith the special care services would be small, and that known cases would provide a reliable index of true prevalence. The prevalence of medium and low grade subnormality in North-East Scotland (2.2 per 1,000 at risk) was the same as for Northern Ireland (2.3 per 1,000 at risk). Other findings from the North-East Scottish survey also highlight more similarities than differences between the two regions. Both regions have similar separate rates for low grade subnormality and for medium grade subnormality, and broadly similar patterns of distribution among age groups where in both regions known prevalence was highest in the age groups 5-29 years and lowest in age groups 0-4 years and over 30 years.

Kushlick (1961) considered that the prevalence of known subnormality among the 15-19 years age groups was an accurate index of true prevalence since few patients would not have been detected at school and those not identified would likely become known during early work years. In North-East Scotland the case rate for combined medium and low grade subnormality among this age group was 3.7 per 1,000 population. This is similar to the rate of 4.0 per 1,000 recorded for the same age group in Northern Ireland, of 3.64 per 1,000 in Salford (Kushlick, 1961) and of 3.75 per 1,000 in the Wessex region (Kushlick, 1964).

The differences between the two regions in age-specific prevalence of medium and low grade subnormality were not marked. In essence there were proportionally more older patients known to the authorities in North-East Scotland than were registered with the Northern Ireland Special Care Service. The trend in Northern Ireland for many years has been a reduction in admissions and an increase in transfer of special care patients from mental hospitals to special care accommodation. Of the subnormal population in North-East Scotland, one third of those in hospital, a tenth of all subnormal patients, were in mental hospitals. Of the subnormal patients who were in mental hospitals, 51 per cent. were age 60 years and over (Innes et al., 1961).

Summary

The case load of mental subnormality in the North-East region of Scotland was determined by carrying out a point-prevalence survey of all patients with mental subnormality identified at the hospital services or known to the local authority services of the region. The deliberate use of methods and data presentation employed in a recent similar survey of all patients with mental subnormality known to the Northern Ireland Special Care Service allowed valid comparisons to be made on the prevalence of subnormality in these two large regions.

These comparisons are presented and discussed. Except in respect of high grade subnormality and of older age groups, inter-regional comparisons show striking similarities in the prevalence of mental subnormality and its distribution.

Acknowledgements

This enquiry was launched following discussions and examination of method and data with Dr. Brian Scally of The Northern Ireland Special Care Service. We are indebted to him.

References

Baldwin, J. A. and Millar, W. M. (eds. (1964). *Community Psychiatry*. Boston: Little, Brown & Co.

Goodman, N. and Tizard, J. (1962). *Brit. med. J. i*, 216.

Innes, G., Kidd, C. B. and Ross, H. S. (1967). *Brit. J. Psychiat.* In press.

Kushlick, A. 1961) in: *A Report on the Mental Health Service of the City of Salford for the Year*, 1960 page 18. Salford Health Department.

Kushlick, A. (1961) in: *A Report on the Mental Health Service of the City of Salford for*

Kushlick, A. (1965). *Proc. roy. soc. Med.*, **58**, 373.

Lewis, E. O. (1929) in *Report of the Mental Deficiency Committee, Part IV*. H.M.S.O., London.

Mental Health Act (Northern Ireland) 1961. H.M.S.O., Belfast

Scally, B. G. and Mackay, D. N. (1964a). *Acta. Psych. Scand.*, **40**, 203.

Scally, B. G. and Mackay, D. N. (1964b) *Ir. J. med. Sci.* 267.

Weir, T. W. H. (1949) in *Modern Practice in Phychological Medicine*. Ed. J. R. Rees, London: Butterworth.

INTENSIVE RESPIRATORY CARE
A survey of 350 consecutive cases

By

ROBERT C. GRAY, M.D., F.F.A.R.C.S.I.
JOHN W. DUNDEE, M.D., Ph.D., F.F.A.R.C.S.
RICHARD S. J. CLARKE, M.D., B.Sc., F.F.A.R.C.S.
Respiratory Unit, Royal Victoria Hospital, Belfast

A unit for the intensive management of cases of potential, imminent or actual respiratory failure has existed in the Royal Victoria Hospital since 1962 but for three years prior to this, members of the Department of Anaesthetics were treating such cases in the general wards of the hospital or giving advice on their management elsewhere if requested. The present consultant in charge of the unit held a hospital research fellowship for two years. The object was to investigate the need for such specialised work in Northern Ireland and suggest how it could be best carried out.

Over the seven year period 1959–1966 about 400 patients have been cared for in, or by members of, the unit and this brief report deals with the nature of 350 consecutive cases, with some data on the method and outcome of treatment. Some aspects of this have been published by Dundee and Gray (1963) and by Gray and Dundee (1965). This is not an exhaustive survey but it is hoped that it will give some indication of the type of patient most likely to benefit from intensive respiratory care.

Staffing

In contrast to some other centres, the main care of these patients is in the hands of the anaesthetists, but when they are transferred from other units the advice and help of the staff concerned is valued, particularly in relation to special problems. The unit has full time Consultant Anaesthetist cover on a sessional basis, Dr. R. C. Gray contributing six sessions and Professor J. W. Dundee and Dr. R. S. J. Clarke, two sessions each. The senior anaesthetic tutor provides holiday cover and night and week-end cover is shared by all four. There is an anaesthetist in training allocated to the unit on a rota basis; these are of seniority ranging from senior house officers to senior registrars, depending on their needs. The period is normally for one month and a night rota is provided by all the trainees. This means that there is always an anaesthetist in the unit (which has its own bed-sitting room) when a patient is on a respirator and at such other times as necessary.

The permanent nursing staff consists of one sister and three staff nurses, continuity being provided by the staff nurses taking turns on night as well as day duty. The junior nursing cover is on the basis of one nurse per patient at all times so that the total number of nurses required varies widely but can be as many as 19 with six patients in the unit. Physiotherapy is also necessary seven days a week and at least once during the evening and night as well as the standard day-time visits.

Classification of Cases

As implied from the opening remarks, the work of the unit is not limited to the management of cases of established respiratory failure. In fact, if at all possible, many patients are seen and admitted before the respiratory insufficiency develops. In some instances, respiratory failure can be averted by appropriate treatment such as tracheo-bronchial toilet, humidification, antibiotics or barrier nursing, with or without tracheotomy. Early admission is desirable for patients with potential respiratory failure, especially in convulsive states, myasthenia gravis and severe chest trauma. Here constant nursing care and individual attention can reduce the risk of a sudden hypoxic episode. It also allows a close watch to be kept on the progress of the disease and institution of appropriate measures at the earliest possible moment.

Many pathological and aetiological classifications of the causes of actual respiratory inadequacy have been described, and taking the broader interpretation of the meaning of respiratory failure, the clinical classification of Dundee and Gray (1963)

Table I

Classification of causes of respiratory insufficiency

(Reproduced by kind permission of the Editor, J. roy. Coll. Surg. Irel.)

A : *Central depression*	poisoning. increased intracranial pressure. head injury. cerebrovascular accident. miscellaneous—post-hypoxia hypoglycaemia.
B : *Impairment of respiratory mechanism*	
Nervous tissue	poliomyelitis, polyneuritis, porphyria.
Myoneural junction	myasthenia gravis, carcinomatous neuropathy.
Muscle	polymyositis, progressive muscular atrophy, trauma to chest wall.
Obstruction to airway—	including asthma.
Lung damage	bronchitis and emphysema. pneumonia, including effects of aspiration of stomach contents.
Pain	traumatic or post-operative.
C : *Mixed causes*	cardiovascular and respiratory inadequacy.
D : *Induced insufficiency*	
Inadvertent – following muscle relaxants.	
Therapeutic – control of convulsions.	

seems to be comprehensive (Table I). The frequency of the various causes will now be discussed, with the incidence of each requiring intermittent pressure ventilation (I.P.V.).

Central Depression	Total 136 (39%)	
	No. of cases	*% I.P.V.*
Poisoning	57	44
Head injury	24	60
Cerebral tumour	7	57
Cerebrovascular accident	12	92
Encephalitis	7	71
Emboli (mostly fat)	11	9
Post hypoxic episodes	12	75
Hypoglycaemia	3	67
Cerebral abscess	3	100

Although barbiturates are still the main drugs used in suicidal poisoning, in many cases they were combined with other preparations such as meprobamate, phenothiazines or other tranquillisers. This contrasts with some other large reported series (Matthew, 1966) but it must be remembered that the 57 patients discussed here form only a small percentage of poisoned cases admitted to the Royal Victoria Hospital during the years under survey. There was only one fatality in 30 cases of barbiturate poisoning, whereas both cases with carbon monoxide poisoning died, probably because they had suffered irreversible cerebral damage before admission. One interesting pharmacological puzzle was the patient who survived following what were expected to be fatal doses of meprobamate and strychnine and aspirin – presumably these drugs antagonised each other to some extent.

The outcome has been disappointing in cases with head injury (50 per cent. mortality), apnoea following cerebrovascular accidents (92 per cent. mortality) and in those suffering from a post-hypoxic episode (75 per cent. mortality). There have been no survivors following severe head injuries causing apnoea, despite prolonged periods of I.P.V.

For those who may be faced with the problem, it is worth noting that none of the three patients with severe hypoglycaemia survived. These, and carbon monoxide poisoning, could be also classed as post-hypoxic with the twelve cases who had periods of cardiac arrest, giving an overall mortality of 80 per cent.

Impairment of Respiratory Mechanisms	Total 133 (38%)	
	No. of cases	*% I.P.V.*
Poliomyelitis	3	67
Polyneuritis	18	67
Porphyria	18	67
Polymyositis	7	87
Myasthenia gravis	7	87
Carcinomatous neuropathy	4	50
Progressive muscular atrophy	1	100
Trauma to chest wall	25	76
Airway obstruction	8	25
Respiratory infection	27	56
Aspiration pneumonitis	6	50
Post-pneumonectomy	13	85
Other post-operative	15	33
Lung tumour	2	50

Paralytic poliomyelitis has not been the cause of as many cases of respiratory inadequacy as polyneuritis, which appears to be increasing both in frequency and severity. Ten of the eighteen patients died, mostly of extensive involvement of the gut, autonomic nervous system or even the heart, while the period of treatment of survivors was usually very long (3-10 weeks).

Acute intermittent porphyria was probably barbiturate-induced in both instances. Myasthenia gravis crisis and cholinergic crisis are benefited by periods of artificial ventilation and carry a good short term prognosis with no deaths in the seven patients, although at a later date one died from intra-thoracic spread of a malignant thymoma.

Chest injuries were the third most common condition necessitating the services of the unit. They were rarely the sole pathology in the patients who often had head, abdominal or other injuries. Campbell (1966) found multiple injuries in 63 per cent. of a large series. These carried a 50 per cent. mortality, with cardiac trauma and lung haematoma being common in the fatalities. Early experience with I.P.V. in chronic bronchitis or cor pulmonale was not encouraging, for though patients could be tided over an acute exacerbation, they often quickly relapsed into respiratory failure, particularly in the winter. One could not help being troubled by the ethics of management of one such patient who was respirator-dependent for over a year.

Mixed Causes	Total 21 (6%)	
	No. of cases	% *I.P.V.*
Pulmonary oedema	4	75
Peritonitis/shock	2	100
Bulbar paralysis	1	100
Arnold-Chiari syndrome	1	100
Post cardiac surgery	13	69

In many of these patients, assistance of the unit staff was not sought until the condition of the patients was critical. Nevertheless, tracheobronchial toilet, humidification and adequate oxygenation, with or without artificial ventilation often resulted in a startling improvement in their condition.

Induced Respiratory Insufficiency	Total 60 (17%)	
	No. of cases	% *I.P.V.*
Inadvertent—post relaxant	6	83
Therapeutic—Tetanus	48	71
—Epilepsy	6	83

Surprising as it may seem, tetanus was the most common cause of admission to the unit during the past three years. The respiratory problems in this disease are many, including ability to swallow leading to aspiration of secretions, bruising of the tongue, spasm of the glottis and respiratory muscles, coupled with an increased demand for oxygen during convulsions. While these can be managed in some mild cases by posture, sedatives, anti-spasmodics and analgesics, tracheotomy with or without curarisation and I.P.V. often provides the only hope for survival. Tetanus requires the most meticulous and prolonged care of all conditions (Ablett, 1956). Nutrition, electrolyte and acid-base balance, bowel function, relaxant and sedative

dosage and infection of the respiratory tract all pose special problems. The successful outcome demands co-operation between nursing staff, medical staff and physiotherapists and it has been cstimated that, on an average, treatment of a typically severe case in this series cost about £1,000. Twenty-eight survivors (80 per cent.) out of 35 severe cases who required curarisation (Gray and Dundee, 1966) compares favourably with larger series where circumstances necessitated limiting the length of the period of curarisation and I.P.V. (Adams et all 1966). In general, the worst results have been obtained when patients over the age of 65 required curarisation. The same principle of converting spontaneous inco-ordinated ineffective respiration into effective artificial ventilation has been successfully applied to some cases of status epilepticus, with good results. Our limited experience does not support the views of Brown and Horton (1967) that these cases can always be safely controlled with thiopentone. One patient continued to convulse after 4 g. of the barbiturate, although showing signs of severe barbiturate poisoning, while another had vomited and aspirated when thiopentone was given in the ward.

Changing Pattern of Cases

The frequency of some of the most common conditions requiring treatment by the unit for the 1959-1963 (200 patients) and 1963-1966 (150 patients) periods are compared in Table II. Attention has already been drawn to some of the important differences with reference to the incidence of poliomyelitis, polyneuritis, bronchitis, trauma to chest wall and tetanus. If the present trend continued unabated the incidence of the latter two conditions may soon outstrip the present facilities of the unit.

Table II

	% Incidence of cases		*% Requiring I.P.V.*	
	1959–1963	1963–1966	1959–1963	1963–1966
Poisoning	17	15	26	70
Head Injury	9	4	43	100
Cerebro-Vascular Accident	44	3	87	100
Poliomyelitis	2	0	67	
Polyneuritis	3	9	40	86
Polyneuritis	3	9	40	86
Bronchitis/Cor Pulmonale	9	4	39	83
Chest Wall Trauma	3	13	50	85
Myasthenia Gravis	2	3	67	100
Post-operative				
Lung Surgery	3	5	80	88
Cardiac Surgery	3	5	20	100
Embolic phenomena	3	2	0	30
Others	2	7	0	50
Tetanus	11	17	68	73

Incidence of cases of various types of respiratory failure and per cent. requiring intermittent pressure ventilation.

References

Ablett, J. J. L. (1956). *Brit. J. Anaesth.*, **28**, 258.
Adams, E. B., Holloway, R., Thambiran, A. K. and Desai, S. D. (1966). *Lancet*, **2**, 1176.
Brown, A. S. and Horton, J. M. (1967). *Brit. med. J.*, **1**, 27.
Campbell, D. (1966). *Brit. J. Anaesth.*, **38**, 298.
Dundee, J. W. and Gray, R. C. (1963). *J. roy. Coll. Surg. Irel.*, **1**, 46.
Gray, R. C. and Dundee, J. W. (1965). *J. roy. Coll. Surg. Irel.*, **1**, 199.
Gray, R. C. and Dundee, J. W. (1966). *Lancet*, **2**, 1359.
Matthew, H. (1966). *Brit. med. J.*, **2**, 788.

RESEARCH IN GENERAL PRACTICE

By C. BURNS, J.P., M.B., B.Ch., B.A.O.
Ballymoney, Co. Antrim

IN this age of specialisation, if General Practice is to survive as a subject and not to disintegrate and fragment as successive parts are swallowed up by the increasing numbers of specialities, whose fields become narrower and narrower, then it must establish itself on three foundations. That is to say—(a) the practice of good and better general practice; (b) the academic teaching of general practice; (c) research in general practice.

Originally all medical research started in general practice, and it has an honourable history, distinguished by such names as Sydenham, Jenner, Koch, Budd, Withering, Mackinzie, Pickles, and Fry. Today it is acknowledged that 80 per cent. of all illness is seen and dealt with in general practice, and therefore there still remains (and this is frequently overlooked) a large clinical field to be explored. How does one equip oneself for the task ?

Firstly, there is the attitude of mind. As Pasteur wrote: "In the fields of observation chance favours the mind that is prepared." One must develop the enquiring and questioning attitude to all problems. This is best illustrated by the following quotation :

> "I keep six honest serving men,
> They taught me all I know,
> Their names are What, and Why, and When,
> And How, and Where, and Who."
>
> (The Just-so Stories—The Elephant Child)

Research is always worth doing even if the results are negative; even if it is not published. It is a discipline for the mind, and great personal satisfaction can be experienced because of this self-imposed discipline. Each project can be in reality a very good refresher course.

Secondly, as Pinsent (1958) says: "Observe, record, consider, and conclude." These we were taught at medical school, and it is a most important practice to follow. It should be observed with all our cases, because not all research is planned ahead. Some is retrospective, and therefore if our material has not been recorded fully and systematically, then some good and important material may be lost.

Thirdly, one may ask how does one choose a subject ? The subject that is best is ths one that the general practitioner is personally interested in himself. But if there happens to be no particular personal problem, then there are many fields such as :

1. Hereditary defects and diseases.
2. Minor ailments or common complaints, i.e., dyspepsia, migraine, chronic rheumatism, chronic bronchitis.
3. Therapeutics, i.e., old remedies and new drugs.
4. Care of the aged.
5. Stress disease.

6. Progress of disease, i.e., hypertension, cirrhosis of liver, malignant disease, multiple sclerosis.
7. Early stages of disease.
8. Mental disease.
9. Epidemiology.
10. Observation of the normal.

Types of Research

It is important that one should consider the types of research that may be embarked upon. These can be either individual effort, or taking part in a group research programme, and can be either retrospective or prospective. As it is always essential that there should be sufficient material, it is therefore in the more common ailments that individual research takes place, and in the rarer ailments that group research is carried out. Most research in general practice must also be observational rather than experimental, and based on good solid clinical findings rather than on X-ray or laboratory findings.

Pitfalls

In order to carry out successful and useful research, it is very important to know the common pitfalls so that one's contribution may be of the greatest possible interest and value. Some of these, as stated by Kuenssberg (1963) are :

(a) Use of figures in the light of modern statistical requirements—one should read Hill (1961) and consult a statistician before embarking on a scheme to make sure that the scheme satisfies all the requirements.

(b) Measurement in all fields must be clearly and strictly defined, i.e., a condition may be "mild" or "severe"; or the result of treatment may have "cured", "improved", or "not cured" the condition; or hypertension may be taken as systolic reading of over 140 mm. Hg. and/or diatolic of over 100 mm. Hg.; but whatever terms we use or introduce, they must be clearly defined in an unambiguous way.

(c) Accuracy of diagnosis. The definition of the diagnosis must be clearly stated and strictly adhered to.

(d) Use of placebo. The enthusiasm of the doctor might have an influence on the patient which could be difficult to measure.

(e) Wrong or loose use of technical statistical methods can only produce false results and be misleading, i.e., errors in sampling; errors in the interpretation of figures; errors in the use of statistical language.

(f) The general practitioner in isolation is out of touch with the bibliography. This can be overcome by using the nearest medical library (and these are increasing in number); the British Medical Association library; the College library.

(g) Retrospective interpretation can be very tricky if the research has not been well planned.

(h) Bad or loose planning. If the initial planning is not well thought out, then this places the whole subject in jeopardy.

Assistance and Advice

When one is contemplating a research project, where does one turn for legitimate help and assistance? Well, there is now an increasing number of sources of help :

(1) The Research Committee of the College of General Practitioners is always willing to give assistance in planning, and is well informed as to what projects are taking place elsewhere so that overlapping and wasted effort is avoided. Indeed they can encourage the co-operation of one or two doctors who unwittingly may be interested in the same subject. They also plan group research projects and one can add one's name to their Research Register.
(2) The head of the appropriate university department is always willing to give help and advice. They usually welcome this, and this keeps the practitioner in touch with a university, which can be stimulating and satisfying.
(3) The Medical Research Council will give help and advice.
(4) The information resources of most pharmaceutical firms are readily made available to help.
(5) Most hospitals will also assist and co-operate.

In some cases financial aid can be obtained for your project, if needed, from the College of General Practitioners, some Universities, Nuffield Trust, some regional hospital boards, and some pharmaceutical companies.

Ethical Considerations

The ethical side of conducting research in general practice to those of us who take the Hippocratic Oath seriously, can be an inhibiting factor and one that has to be faced and considered seriously. This aspect of research can be more difficult to reconcile in general practice than in hospital practice, where the patients are not known so intimately. Fry (1953) has said that there should be no discomfort; no unnecessary risks; no omission of accepted remedies, and that the general practitioner might have to be a Dr. Jekyll and Mr. Hyde. That is, one must adopt the humble approach to medical research and at the same time maintain the confident appearance towards the patient. It is in conducting research involving the use of placebos that our consciences are most stretched. I consider that where there is no accepted therapeutic agent for the condition, then it is quite legitimate for the placebo to be used to carry out a drug trial.

The Tools of Good Research

These can be written very simply but are of the utmost importance :

(1) Good record keeping. Without this even good general practice does not exist.
(2) Age-Sex Register. This is very easy to set up and to manage.
(3) E-Book.
(4) Some connection with a Medical Library.

Having discussed and reviewed the many aspects of research in general practice, it would be helpful to discuss or set out how one should conduct a piece of research step by step. The plan should be as simple as possible so as to take up as little time as possible. "It should be compatible with the work of a busy G.P." Fry (1953).

(1) Choosing a subject. This can be some problem that one is personally interested in, or one might be invited to take part in a group research.
(2) Read the appropriate literature on the subject for the past ten years. This can be obtained by looking up *Index Medicus* which lists all the papers

published under Disease Titles from 1879-1966. One can also consult *Bibliography of Medical Reviews* started in 1955. These will be found in all good medical reference libraries. Some drug firms will give this service especially if their products are being used in the project.

(3) Plan the project. First of all, set out clearly the proposition; then give a short history of recent advances in this field; the materials to be used and in what manner; and finally how to set out and assess the results.

(4) Consultation. This could be with any of a number of people, e.g., the head of the appropriate department at the local university; the Research Registrar of the College of General Practitioners; a medical statistician; or the medical adviser on research to a drug firm.

(5) Actual research. Having obtained all the legitimate help and advice, now proceed to carry out the experiment, and when this is done, proceed to assess the results. This can be done in consultation with one's advisors.

(6) Write paper. How this should be done depends very much on the type of research and the subject, but in general terms it is a good idea to open with the objects of the exercise stated clearly, and to finish with a clear and concisely written summary. This is most important, because nowadays medical people are inundated with medical literature, and most people read the title, the introduction, and the summary, and only if these arouse interest will they pause to read the full paper. Another important point is that one should keep a sheet of paper convenient when writing, and jot down all references as they are quoted, so that when the paper is finished one has an accurate bibliography. If this is not done at the time, it can be very tedious and troublesome to compile afterwards.

(7) Criticism. In the early days of doing research, one's articles should be submitted to advisors for criticism before sending them to the medical journals. This can save a lot of disappointment, and in any case constructive criticism is always useful.

(8) Acknowledgments. One should always acknowledge generously the people who have given help, and this is done at the end of the paper.

I am indebted to Miss Margaret Hammond, Librarian, The College of General Practitioners, for all the help she gave me in finding the references to prepare this paper.

References

PINSENT, R. J. F. H. (1958). "Research in General Practic.e" J. *Coll. Gen. Practit.*, **1**, 23.

KUENSSBERG, E. V. (1963). "Some pitfalls in general practitioner research." *J. Coll. Gen. Practit.*, **6**, 242.

HILL, BRADFORD (1961). *Principles of Medical Statistics*. Seventh edition. Lancet, London.

FRY, J. (1953). "G.P. research: its scope and methods." *Med. World*. August.

FEBRILE CONVULSIONS

PATRICK CLARKE, M.B., M.R.C.P.(E), D.C.H.
*** PETER BAKER** *** DENIS BOYD**
*** STEPHEN BROWN** *** PETER CROWE**
The Nuffield Department of Child Health, The Queen's University of Belfast

Based on a paediatric teaching seminar prepared and read by the authors to Final Year Medical Students on April 28th, 1967.

FEBRILE convulsion is a term used to describe the occurrence of a convulsion in a febrile patient with no evidence of infection in the central nervous system. In recent years, two varieties have been described, namely those of a simple nature which are not epileptic in origin, i.e., simple febrile convulsions, and those which are a manfestation of epilepsy, i.e., epileptic febrile convulsions.

Definition of Simple Febrile Convulsions

In order to appreciate current concepts of febrile convulsions, it is important to consider briefly some of the views expressed by earlier investigators. One of the earliest references to the condition is that of Husler (1921) who stated that febrile convulsions were not related to epilepsy. Faxen (1935) and Herlitz (1942) both agreed that children with febrile convulsions rarely suffered from epilepsy in later life. Buchanan (1946) on the other hand reported that 15 to 20 per cent. of children who suffered from febrile convulsions in early childhood, subsequently developed epilepsy. This view was supported by Lennox (1947) who regarded febrile convulsions and epilepsy as a single disease entity.

Livingston (1958) was first to express the view that there are two types of febrile convulsion ; namely those of a simple nature which are not epileptic in origin, and those which are. He further maintained that these two types could be distinguished clinically. Of 622 cases of febrile convulsions where such differentiation had been made, 40 per cent. were simple, and 60 per cent. were due to epilepsy.

The criteria employed by different authors to define simple febrile convulsions are shown in Table I. The reliability of these definitions can be seen in Table II. Fewer than 3 per cent. of the patients initially classified as having simple febrile convulsions subsequently suffered from epilepsy. Conversely the diagnosis of epilepsy was confirmed in 355 (97 per cent.) of the 366 children with febrile convulsions who were initially classified by Livingston as having epilepsy. While accepting that it is possible to achieve a high degree of reliability in differentiating the two types, it is significant that some 5 per cent.–6 per cent. of all cases were incorrectly diagnosed in the first instance.

Incidence

Friderichsen and Melchior (1954) found the overall incidence of seizures in children under the age of five years to be 5 per cent. – of these, 50 per cent. were associated with a febrile illness. These figures have been confirmed by other authors.

---

*FINAL YEAR MEDICAL STUDENT

TABLE I—DEFINITON OF SIMPLE FEBRILE CONVULSIONS

Authors	*Age of onset (yrs.)*	*Duration of fit (mins.)*	*Character of fit*	*Past medical history*	*Family history of simple febrile convulsion*	*EEG*
Livingston (1958)	<6	1–5 (max. 10)	generalized	–	–	Normal 7 days after subsidence of pyrexia
Friderchsen and Melchior (1954)	½ to 6	<30	generalized	No history of afebrile convulsion	Common. No F.H. of epilepsy	–
Prichard and McGreal (1958)	½ to 4	<30	generalized	–	Common	Normal after subsidence of pyrexia

TABLE II—FOLLOW-UP OF CHILDREN WITH FEBRILE CONVULSIONS

Authors	*Total cases of febrile convulsions*	*Initially classified as simple febrile convulsions*	*Initially classified as epilepsy*	*Subsequently developing epilepsy*	*Length of follow-up in years*
Livingston (1958)	622	256	–	7 (2.9%)	15
		–	366	355 (97%)	
Friderichsen and Melchior (1954)	–	282	–	10 (2.8%)	16

D. A. Thom (1942) found that 7 per cent. of children in a Boston community had had at least one convulsion; E. M. Bridge (1949) arrived at the same figure of 7 per cent. in children admitted to the Johns Hopkins Hospital, of which 60 per cent. had an associated febrile illness. He found that except for respiratory infections, pneumonia and gastro-intestinal disorders, convulsions were the most common problem encountered at that centre. More recently, Schuman and Miller (1966) found that 142 of 3,953 people under 20 years of age living in a South-Eastern

Michigan community had had at least one febrile convulsion. They excluded those with meningitis, encephalitis, and those in whom epilepsy had been diagnosed by their physicians. This figure represents 3.6 per cent of the population under 20.

Age of Onset of Simple Febrile Convulsions

Though recorded, simple febrile convulsions rarely have their onset before 6 months or after 6 years. Friderichsen and Melchior (1954) have shown that the incidence of simple febrile convulsions is maximal between the ages of 1 and 2 years, and that 82 per cent. of simple febrile convulsions occur during this age period. A peak incidence between the ages of 1 and 2 years was confirmed by Schuman and Miller (1966) and Peterman (1952). It is important to emphasise however that the association of fever and convulsions, especially in children under 2 years of age, should always arouse suspicion of infection in the central nervous system. Such a possibility must be excluded before any alternate diagnosis is entertained.

Recurrence of Simple Febrile Convulsions

Earlier workers on this subject using a broad definition of febrile convulsions, quoted high figures for the expected number of subsequent fits in a patient who had had one febrile convulsion.

More recently, Friderchsen and Melchior (1954), using acceptable criteria for simple febrile convulsions, found that 87 per cent. of their patients had had only one convulsion. In Schuman and Miller's study (1966), 70 per cent. had had only one convulsion, and the average number of simple febrile convulsions per patient was 1.7. In those cases who suffer repeated simple febrile convulsions, the majority have had their last convulsion by the age of 4 years (Livingston, 1947 ; Schuman and Miller, 1966).

Occasionally a second convulsion may occur shortly after the first, but as a rule, the convulsion will occur only once during a febrile illness at a time when the temperature is rising to its peak. Repetition of a febrile convulsion later than 18 hours after the onset of fever is extremely rare, and such an occurrence suggests epilepsy or a more serious illness such as meningitis.

Infections Associated with Simple Febrile Convulsions

Upper respiratory tract infections are the most common cause of fever in children, and it is therefore not surprising that simple febrile convulsions most often occur in association with these infections. Apart from two febrile illnesses, namely roseola infantum (Moller, 1956) and shigellosis (Knowlessen and Forbes, 1958), no other organism or illness has been singled out which commonly gives rise to febrile convulsions. In the former condition, Vahlquist (1942) has implied that these are not simple febrile seizures, but may be a manifestation of meningo-encephalitis. Confirmation of this hypothesis by examination of cerebro-spinal fluid was not, however, carried out.

In shigellosis there is no good evidence to show that the organism has any direct toxic effect on nerve tissue though in exceptional instances *Shigella sonnei* have been reported as a cause of meningitis in the young infant (Johnston and Sell, 1964 ; Whitfield and Humphries, 1967). Disturbances in body fluids and electrolytes would seem to be a more likely cause of convulsions in shigellosis.

Family History

Prichard and McGreal (1958) have drawn attention to the fact that in 50 per cent. of cases of simple febrile convulsions, a parent, sibling or near relative had suffered from a similar complaint. Schuman and Miller (1966) have reported similar findings. In addition, these authors noted that not only was the incidence of simple febrile convulsions high in these families, but so also was the incidence of mental retardation. They pointed out that an unexplained and unexpectedly strong relationship occurred between simple febrile convulsions and mental retardation, i.e. the incidence of mental handicap in siblings of children with a history of simple febrile convulsions was in their series five times that noted in the childhood population. Conversely there was a five-fold increase in the incidence of simple febrile convulsions in siblings of a child with a mental handicap.

Electroencephalography

Although the electroencephalogram is widely used in the diagnosis of disorders of the central nervous system, it has limitations. Not only is there difficulty in interpreting the record in the young child, but even during a convulsion, the electroencephalogram may show a normal record. Moveover, a convulsion per se may give rise to an abnormal tracing for periods of up to 72 hours afterwards (Lennox, 1949), and although general agreement does not exist, some authors suggest that pyrexia may also cause temporary abnormalities in rhythm for as long as three weeks after the temperature returns to normal (Livingston, 1958). Livingston recommends delay in recording the EEG until the child is afebrile for at least one week. Caution is therefore indicated in interpreting the EEG recorded shortly after a recent fever, for in a follow up of 143 patients with febrile convulsions epilepsy was subsequently confirmed in only 25 per cent. of those who initially showed up abnormal record (Lennox, 1949).

Prognosis of Simple Febrile Convulsions

The literature contains conflicting data which is largely due to problems in definition. Earlier authors using a general definition of febrile convulsions, clearly included many cases of epileptic convulsions, and it is therefore not possible to draw any conclusions from these studies regarding simple febrile seizures. For instance, the most frequent complication quoted by several authors is hemiplegia. Schmidt (1958) has stated that many cases of acute infantile hemiplegia are caused by febrile convulsions. Herlitz (1942) reporting a series of 424 cases of febrile convulsions, found that in children whose convulsion lasted for more than 30 minutes, 3.6 per cent. developed hemiparesis. Fowler (1957) reporting five cases of prolonged febrile convulsions, four of whom died, found at post mortem, degeneration of the cerebral cortex of recent origin. He suggested that the changes were most likely due to anoxia. Prichard and McGreal (1958) confirmed Schmidt's and Fowler's findings, and stressed the frequency of subsequent neurological changes following prolonged periods of unconsciousness. It is generally accepted, therefore, that there is a distinct risk of sequelae with seizures lasting longer than 30 minutes. There is little evidence however to suggest that simple febrile convulsions, which by any of the acceptable definitions last less than 30 minutes, give rise to serious sequelae such as hemiplegia. For example, Friderichsen and Melchior (1954) using an acceptable definition, found that of 282 cases of simple febrile convulsions, none

had hemiplegia. However, 12 of their patients on review were considered to be of excessively nervous disposition, 3 had word blindness, and 3 had retarded development. It is of interest to note that the majority of these developmental anomalies occurred in children who had had repeated febrile convulsions. Whether or not simple febrile convulsions give rise to minimal cerebral damage has not yet been answered, for minor developmental anomalies are not uncommon in childhood, and may well have been present prior to the convulsion.

Treatment

The literature is even more confused on the subject of prophylactic therapy, which again is largely due to difficulties in definition. However, most authors agree that continuous prophylactic therapy should be offered in the following circumstances :

1. if the convulsion lasts for more than 30 minutes.
2. if the convulsion is focal in nature.
3. if there is evidence of brain damage.
4. if the child is 4 years or older at the onset of convulsions.

Clearly these criteria strongly suggest underlying epilepsy.

While it is generally agreed that epilepsy requires prophylactic therapy, no controlled study has been found which confines its therapeutic approach to simple febrile convulsions. This lack of knowledge is manifest by the diversity of regimens and indications for therapy suggested by various authors. While a number of authors recommend continuous treatment with anti-convulsant drugs following an initial simple febrile convulsion, others do not begin therapy until a second or third febrile convulsion has occurred. Some, including Livingston (1958) and Millichap (1960) advocate intermittent therapy and advise parents to give "Disprin" and phenobarbitone to the child at the first sign of an infection. The efficacy of this form of treatment is not stated, and indeed because of the difficulty in anticipating a febrile illness in children, appears to have a fundamental drawback. Nor does general agreement exist on the duration of either intermittent or continuous prophylactic therapy. Some advocate continuation of therapy to the age of 4 years, while others persist until 6 years. Because one does not lightly embark on a course of therapy with anticonvulsant drugs for periods of up to 4 years in a child who most probably will only have a single febrile convulsion, there appears to be a great need for clarification of the need to give such treatment in simple febrile convulsions. It is therefore suggested that continuous prophylactic therapy should only be offered to those cases in whom epilepsy is either suspect or proven. Because of the inherent dangers of prolonged convulsions, and the inability to diagnose epilepsy accurately, we believe that any febrile convulsion which differs from an acceptable definition of simple febrile convulsions, should be regarded as suspect epilepsy, and therefore treated as such.

Aetiology

The aetiology of febrile convulsions is as yet unknown. Authors have disagreed for many years about which factor is the more important in producing a convulsion, namely, height of temperature, or rate of rise. Welch (1888) concluded from his experiments on rabbits that the two factors were of equal importance. More recently some difference of opinion has been evident. Wegman (1939) concluded from

experiments on kittens that the rate of rise of temperature was the major factor, whereas Millichap (1960) considered the height of temperature to be of more importance. Two drawbacks however were present in Wegman's work. Firstly, as he did not know the ages of his animals, he classified them by weight ; and secondly, temperature rises were poorly controlled. On the other hand Millichap's experiments were carried out on four different species of animals of known ages, and with a heat source which resulted in much better temperature control. He showed that the temperature at which a particular animal convulsed was the same irrespective of the rate at which the temperature was raised. Although Millichap's technique was apparently faultless, his experiments do have one drawback in that slow rises in temperature were achieved in a relatively short time. Wegman applied heat to his animals for up to 7 hours, whereas Millichap's slowest rise in temperature took less than seven minutes.

Although the clinical impression exists that the occurrence of febrile convulsions depend more on the rate of rise than on the height of temperature, there is no data to support this view. Indeed, Friderichsen and Melchior (1954) have shown that the incidence of simple febrile convulsions increases with the height of temperature.

In both of the above experiments, the convulsions were induced by the application of heat alone, and no attempt was made to simulate a febrile state due to infection. Not only does thermosensitivity of the central nervous system remain an unsolved problem, but the pathogenesis of fever is also poorly understood. Atkins (1960) has shown that infection results in the release of a pyrogenic substance from the host tissue. Harrell and Aikawa (1951) claim that one of the effects of infection is an alteration in the permeability of cell membrances, including those of the nervous system. Thus it is suggested that the invading organisms cause the liberation of a pyrogen which not only acts on the thermoregulatory centre to cause pyrexia, but also increases the permeability of cell membranes. This increased permeability may well be an important factor in the aetiology of febrile convulsions.

Millichap (1958, 1959) has shown that both the convulsive threshold and the concentration of potassium in brain tissue increase as the animal matures and that the convulsive threshold could be lowered by reducing the content of brain potassium. He also claimed that dehydration raised the convulsive threshold, but did not specify the concentrations of electrolytes achieved by dehydration. Therefore the correlation between changes in distribution of brain water and convulsions may well have been due to alteration in the concentrations of electrolytes rather than the result of changes in water content. There is therefore some evidence to suggest that alterations in the concentration of brain potassium may be of importance in lowering or raising the convulsive threshold.

One may postulate that the infective process, or the pyrexia, or both, by increasing the permeability of the C.N.S. cell membrane, leads to an outflow of potassium, a situation which has already been shown to lower the convulsive threshold. Unfortunately this hypothesis only partly answers the problems of aetiology, for one question remains unanswered, "why do some children have simple febrile convulsions, while other children of the same age and with similar high temperatures, do not?" Perhaps further studies of convulsion-prone families and fuller knowledge of thermosensitivity of the immature cerebral cortex may clarify this problem.

Summary

Published data would indicate that the diagnosis of simple febrile convulsions should be confined to those patients under 6 years of age who present the following features : short generalised seizures of less than 10 minutes which occur soon after an elevation of temperature due to an extracranial infection, and in whom a normal EEG record is obtained one week after the temperature has returned to normal. A negative family history for epilepsy and a positive family history of simple febrile seizures or mental retardation in a near relative, affords further supportive evidence. Whereas prolonged seizures (over 10 minutes), focal convulsions, convulsions with fever in a child over 6 years, or the presence of specific abnormalities in the EEG after the patient has been afebrile for at least one week, suggest epileptic seizures precipitated by a fever.

Since a simple febrile convulsion is unlikely to recur and as serious sequelae have not been reported, continuous prophylactic therapy is not recommended for simple febrile convulsions. However, because of the inherent risks of prolonged seizures, a febrile convulsion which differs in any way from the criteria outlined as constituting simple febrile convulsions should be regarded as suspect epilepsy, and continuous treatment offered.

References

ATKINS, E. (1960). *Physiol. Rev.*, **40**, 580.
BRIDGE, E. M. (1949). *Epilepsy and convulsive disorders in children.* New York. McGraw-Hill Book Co.
BUCHANAN, D. (1946). *Med. Clin. N. Amer.*, **30**, 163.
FAXEN, N. (1935). *Rev. franc. Pediat.* **11**, 665.
FOWLER, M. (1957). *Arch. Dis. Childh.*, **32**, 67.
FRIDERICHSEN, C. and MELCHIOR, J. (1954). *Acta paediat.*, **43**, (supp. 100), 307.
HARRELL, G. T. and AIKAWA, J. K. (1951). *J. Amer. med. Ass.*, **147**, 232.
HERLITZ, G. (1942). *Acta paediat. Supp.*, **29**, 1.
HUSLER, J. H. (1921). *Ergbn. inn. Med. Kinderheilk.*, **19**, 624.
JOHNSTON, R. B. Jr. and SELL, SARA: H. (1964). *Pediatrics*, **34**, 473.
KNOWLESSEN, M. and FORBES, G. B. (1958). *New Engl. J. Med.*, **258**, 520.
LENNOX, M. A. (1947). *A Res. Nerv. Ment. Dis. Proc.*, **26**, 342.
LENNOX, M. A. (1949). *Amer. J. Dis. Child.*, **78**, 868.
LIVINGSTON, S., BRIDGE, E. M. and KAJDI, L. (1947). *J. Pediat.*, **31**, 509.
LIVINGSTON, S. (1958). *Advances in Pediatrics vol X.* Year book. Publisher. Chicago.
MILLICHAP, J. G., ALEDORT, L. M. and MADSEN, J. A. (1960). *J. Pediat.*, **56**, 364.
MILLICHAP, J. G. (1959). *Pediatrics*, **23**, 76.
MILLICHAP, J. G. (1960). *Neurology*, **10**, 312.
MILLICHAP, J. G. (1958). *Amer. J. Dis. Child.*, **96**, 492.
MOLLER, K. L. (1956). *Acta paediat.*, **45**, 534.
PETERMAN, M. J. (1952). *J. Pediat.*, **13**, 537.
PRICHARD, J. S. and MCGREAL, D. A. (1958). *Med. Clin. N. Amer.*, **42**, 379.
SCHMIDT, R. P. (1958). *Med. Clin. N. Amer.*, **42**, 398.
SCHUMAN, S. H. and MILLER, L. I. (1966). *Clin. pediat.*, **5**, 604.
THOM, D. A. (1942). *Amer. J. Psychiat.*, **98**, 574.
VAHLQUIST, B. (1942). *Svensk. Laktion.*, **39**, 1273.
WEGMAN, M. E. (1939). *J. Pediat.*, **14**, 190.
WELCH, W. H. (1888). *Med. News*, **52**, 397.
WHITFIELD, C. W. and HUMPHRIES, J. M. (1967). *J. Pediat.*, **70**, 805.
WOODBURY, D. M., KOCH, A. and VERNIADAKIS, A. (1958). *Neurology.*, **8** (supp. 1) 113.

CERVICAL SCREENING IN NORTH ANTRIM

by C. G. IRWIN, M.B., F.R.C.O.G., and DONALD SMITH, M.B., M.R.C.O.G.
Route Hospital, Ballymoney, Northern Ireland

SINCE the cytology service was begun in this area cervical smears have been taken routinely at postnatal and gynaecological clinics. Positive smears thus obtained have been purposely excluded from the present series which refers only to asymptomatic women. Initial requests to practitioners to refer such patients met with a very disappointing response and it was decided to begin an organised programme, the purposes of which were threefold.

(a) For the early detection of malignant and premalignant disease of the uterine cervix and to gain information about its incidence in asymptomatic women in the community.

(b) To stimulate the interest and enthusiasm of our medical colleagues in general practice, in local authority and family planning clinics, and that of the general public in this aspect of preventative medicine.

(c) To determine the best approach to the task of screening a community for cervical cancer and to highlight some of the problems and difficulties encountered.

At the six months' Obstetric Statistical Review meeting held at the Route Hospital in February, 1965, local practitioners were invited to submit lists of all female patients under their care over the age of 30. (All patients below this age who requested a cervical smear were also accepted.) These patients were sent the following letter inviting them to attend the outpatients department on a Wednesday afternoon to have a cervical smear taken.

Dear Madam,

We are offering to all women in this district over the age of 30 the option of having a test done which, it is hoped, will help in the early detection of diseases of the womb.

Names are being selected in alphabetical order and each week a group will be notified to attend to have this simple test carried out.

Your name is one of those selected this week, and we hope you will co-operate by attending at the Outpatients Department on ..... at .....

Your own doctor knows about this, and if you would like any further information please contact him.

Should the date given coincide with your menstrual period, we will be pleased to see you one week later.

Yours sincerely,

.....

SURNAME ..... CHRISTIAN NAMES.....
ADDRESS .....
..... AGE .....
OWN DOCTOR .....
LAST MONTHLY PERIOD .....
HAVE YOU HAD ANY OPERATIONS ON THE WOMB? (YES or NO) .....
(Please complete the above details and bring this letter with you)

All patients attending the clinic were advised to have the test repeated in 4 years' time, or earlier if they noted any irregular bleeding, discharge, or other gynaecological symptoms.

From the 10th June, 1965, till the 31st March, 1967, letters were sent to 3,003 women requesting them to attend for a cervical smear. 1,682 came to the clinic

in response to this invitation. Of those 1,321 who were not screened the following may be eliminated.

Previous total hysterectomy	36
Left the district	16
Unfit due to arthritis, cardiovascular disease, etc.	8
Recent smear already done elsewhere	17
Deceased	3
Total	80

Thus as far as is known 1,241 women refused the test for no valid reason. Of these, only 4 took the trouble to reply. This gives a total attendance rate of 57.5 per cent.

Four per cent. of the patients were nulliparous, 12 per cent. had one child and 84 per cent. had 2 or more children.

The ages ranged from 20-75 and the age distribution, of those attending, was as follows :

31 (1.8 per cent.) were aged 20-29, 466 (27.6 per cent.) 30-39, 649 (38.5 per cent.) 40-49, 383 (20.7 per cent.) 50-59, 146 (8.5 per cent.) 60-69 and 7 (0.8 per cent.) were aged 70 or over. The highest attendance rates were in the 30-39 and 40-50 age groups.

In the vast majority of cases the cervix was scraped using Ayre's spatula. Considerable technical difficulty was encountered in 10 per cent. of cases due to acute retroversion, vaginal wall prolapse and high multiparity, extreme obesity, senile vaginal stenosis, poor relaxation and in one case, a pelvic tumour displacing the cervix. However, in these cases adequate smears were eventually obtained. Direct cervical scrapes were impossible to obtain in 1 per cent. due to nulliparity and vaginismus and in these pipette specimens were taken from the posterior fornix.

Of the smears 1.2 per cent. were unsuitable for examination and were too scanty, improperly fixed or contaminated with blood. A further 2.2 per cent. showed no endocervical cells. All these were repeated after a carefully worded letter had been sent to the patients concrned.

Associated gynaecological disorders included cervicitis and/or erosion (20 per cent.), uterovaginal prolapse (18 per cent.), cervical polyp (4 per cent.), Bartholin's cyst (3 cases), multiple fibroids (2 cases), ovarian tumour (1 case), and vulval warts (1 case). These cases were referred to the gynaecological clinic for further assessment.

The Results

The cervical smears from the 1,682 women showed malignant cells in 8 cases – an incidence of 4.75 per 1,000. Two of these had frank invasive carcinoma of the cervix. The first, aged 52 and para 12, had had post-menopausal bleeding for 3 months but did not seek advice. She had a stage I squamous carcinoma of the excavating ulcer type which was clinically obvious. The second, aged 49 and para 5, had had no symptoms, but the cervix was friable and bled readily and biopsy showed invasive spuamous carcinoma in relation to the endocervical glands. Both patients were referred for radiotherapy and have so far done well. In these two cases the smears were positive but false negatives occur in 6-10 per cent. of cases

of frank carcinoma which fail to exfoliate cells freely and, in our opinion, it is essential that the examination be carried out by a trained worker who is able to assess the appearance of the cervix and refer clinically suspect cases for biopsy.

In the remaining 6 asymptomatic patients whose smears showed malignant cells the cervix appeared healthy. One was nulliparous and the parity of the others ranged from 1-6. Three were treated by abdominal hysterectomy and 2 (with associated uterovaginal prolapse) by vaginal hysterectomy with preliminary cone biopsy. Their post-operative convalescence and subsequent progress was uneventful. One patient, aged 35 and para 1, was found to be 5 weeks pregnant when admitted for treatment and amputation of the cervix was carried out. She is not yet delivered but her pregnancy has continued normally so far. In all these cases, carcinoma-in-situ was confirmed histologically – in the epithelium of the cervical canal in 3 instances and in relation to the endo cervical glands in 3. In every case the lesion was completely excised. Thus the incidence of carcinoma-in-situ in this series is 3.5 per 1,000.

Eight patients aged 37-50 years had dyskaryotic smears. Two of these showed a marked inflammatory reaction and they received local antibiotics. All these patients are being followed up with repeat smears at six monthly intervals. In 3 cases (one of which received antibiotic treatment) cytology had reverted to normal. In the remaining 5 the appearances are unchanged. Thus the incidence of dysplasia in this series is approximately the same as that of carcinoma-in-situ. This is in agreement with the experience of Mackay (1959) who found that up to 75 per cent. of such lesions regressed. They do not warrant immediate definitive therapy but call for close diagnostic observation.

Other findings were as follows :

Inflammatory changes	14%
Trichomonas vaginalis	10.5%
Monilia	0.6%

Where Trichomonas or monilia infection was detected, a copy of the report was sent to the patient's doctor and treatment recommended.

Discussion

It has been estimated that the 10-year cervical rate for all cases of invasive carcinoma of the cervix is approximately 30 per cent. and despite advances in surgical and radiotherapeutic technique there has been no dramatic improvement in this figure. In the areas in which mass screening has been carried out there has been a marked lowering of the incidence in invasive carcinoma, e.g. in British Columbia there has been a 45 per cent. decline from 1955-1962. (Boyes, Fidler and Lock, 1961) and the incidence has dropped significantly in Edinburgh and Dumfries where there have been the largest campaigns in Scotland (Yule, 1961). No new cases of invasive carcinoma have been seen at the gynaecological outpatients at the Route Hospital in the last year whereas formerly 3 or 4 were encountered annually.

At the beginning of the campaign the attendance rate was 36 per cent. This rose gradually to a peak of 68 per cent. in December, 1965, and fell to 59 per cent. in March, 1966. This may reflect a growing interest and enthusiasm on the part of patients and general practitioners who had to answer numerous and varied

enquiries on the subject. Unfortunately, we are still failing to attract the group of women with the higher incidence of invasive cervical cancer – those who have coitus frequently and from an early age, who are of high parity, do not attend family planning clinics, default from antenatal and postnatal clinics and conceal symptoms of overt malignancy. Pederson (1966) noted that the vast majority of cases of stage II and III carcinoma in his series had never attended screening clinics and Jones (1966) found four positive smears in 100 consecutive cases of criminal abortion in Leeds. The Davis cytopipette was not used in the campaign though it has been suggested that it might be sent to women who refuse scrape smears. However, 16 per cent. of such smears taken by patients themselves are unsatisfactory. The apparatus is costly and postage rates high. In addition, no opportunity is afforded for viewing the cervix.

Though the earliest age at which we encountered a positive smear in this series was 35 there is evidence to suggest that screening should be begun earlier. Kellar et al (1966) found that 37.8 per cent. of pre- and microinvasive carcinoma in asymptomatic women in their series occurred at 35 or younger, and in Aberdeen the detection rate in women of under 35 with more than four pregnancies was higher than in any other age group.

It is hoped that the women who have been screened will be followed up by regular smears. One negative smear confers no permanent immunity. Dunn (1966) found several lesions in women with 2 previous negative screenings to be already in the invasive phase and such explosive lesions can only be detected by repeating smears regularly and at fairly short intervals of 1-2 years. We would also stress that suspicious symptoms and signs must always be investigated by curettage and cervical biopsy where indicated as negative cytology may be returned in cases of frank carcinoma of the cervix and even more so in patients who have carcinoma of the endometrium.

As the diagnosis of carinoma-in-situ must dictate treatment it is not known what percentage becomes invasive and how long this takes. In a proportion of cases it may be a benign lesion. In certain areas treatment of increasing numbers of in-situ lesions has not brought about the drop in incidence of invasive cancer, which might have been expected. Also, there is a disparity between the true incidence of carcinoma-in-situ and that theoretically derived from the known incidence of invasive cancer and there is a much greater familial incidence of carcinoma-in-situ (Anderson, 1959).

These facts however, are not arguments against cytological screening of asymptomatic women. The appearances of the smear in invasive lesions are potentially indistinguishable from those in carcinoma-in-situ which does not progress, and the lesion must always be regarded as of serious import and treated accordingly. Cytological screening also affords an opportunity for inspecting the cervix and is essential for the follow-up of doubtful and treated cases.

Summary

The development of a well women clinic for the cytological screening of a district is described. In the age group 30 and over 57.5 per cent. of the women invited attended and smears from 8 of these showed malignant cells. Two of the 8 cases had invasive carcinoma and in the remaining 6 carcinoma-in-situ was

confirmed histologically. A further 8 smears showed dyskaryosis. Uterovaginal prolapse was found in 18 per cent. and cervicitis or erosion in 20 per cent.

Acknowledgments

We wish to record our thanks to Dr. J. H. Robertson, M.D., M.R.C.P.E., Consultant Pathologist at the Belfast City Hospital and to his department for the additional work imposed by the campaign, for prompt reporting, and for helpful advice, to the general practitioners of the Ballymoney area for supplying the lists of patients and encouraging them to attend, to Sister Rock of the out-patients department for her enthusiastic co-operation and to Miss Biggart and the secretarial staff for typing the letters and keeping the records.

References

Anderson, A. F. (1959). *J. Obstet. Gynaec. Brit. Emp.*, **66**, 239.

Boyes, D. A., Fidler, H. K. and Lock (1961). Paper read to International Congress of Cytology in Vienna.

Dunn, J. E. (1966). *Proc. R. Soc. Med.*, **59**, 1198.

Jones, W. R. (1966). *Lancet*, **2**, 1187.

Kellar, R., Anderson, A. F., Way, S. and Henningan, M. (1966). *Lancet*, **2**, 1030.

McKay, D. G. *et al* (1959). *Obstet. Gynaec.*, **13**, 2.

McLaren, H. C. (1963). *The Prevention of Cervical Cancer*, English Universities Press, London.

Pedersen, E. (1966).*Proc. R. Soc. Med.*, **59**, 1189.

BOOK REVIEWS

HUMAN GUINEA-PIGS EXPERIMENTATION IN MAN. By M. H. Pappworth. (32s). London: Rutledge & Kegan Paul, 1967.

THIS is a disappointing book. The reader gains the impression that the author has searched the world's medical literature to reveal procedures to which patients have been submitted that he thinks to be unpleasant, hazardous and unjustified.

There is little evidence that anything more than a search of the literature has been undertaken. I would have been more impressed if the author had shown that he had investigated some of the alleged malpractices in greater depth. As it is, I am disconcerted to find that in three instances where I have personal knowledge of investigations that Dr. Pappaworth has criticized, I find his comments misleading and unreliable.

For instance, he critizes investigations carried out under the direction of Dr. Stanley Bradley working at Boston and at the Presbyterian Hospital, New York (pages 88, 90 and 115). Dr. Pappworth clearly has little idea of the integrity of this investigator who would never allow anyone in his Department to carry out any procedure on any patient who did not have a full knowledge and understanding of what was being done. He also has little idea of the readiness with which patients will co-operate with procedures of this sort if they understand why they are being done, and he over-estimates the discomfort of these procedures and implies hazards that were not present.

Later in the book he criticizes (pages 149-152) the cardiac catheterization studies carried out in the Department of Medicine at the Queen Elizabeth Hospital, Birmingham, in the early 1950's on patients with mitral valvular disease. But he does not make it clear that at that time valvotomy was not an operation to be entered upon lightly. The main purpose of those cardiac catheterizations was to determine whether the pulmonary artery pressure was or was not abnormal, and this was considered a valuable indication as to whether surgery should or should not be offered to each individual patient.

Dr. Pappworth quite rightly critizses the American practice of inviting prison inmates to volunteer for medical investigation. But he is less than just to Dr J. A. Shannon (pages 61-62) who was asked urgently to carry out studies of antimalarial drugs at a time of National Emergency in 1943-44 when the world's supply of quinine had been lost to the Japanese in the Dutch East Indies. In this instance, at any rate, each volunteer knew exactly what he was submitting himself to; they regarded volunteering as a personal tribute to their nation at war, and the authors thank them in their paper for their "enthusiastic co-operation."

Dr. Pappworth would seem to have had little personal experience of some of the methods of investigation which he criticizes, and this possibly accounts for the emotive words he uses so tediously throughout the book: needles are "stabbed" into patients; catheters are "thrust"; patients are put in the "position of the crucifixion" and faces are "covered" by breathing apparatus. I have had all these procedures done to me at the same time and found the situation far from intolerable; indeed, I have had lunch with an arterial needle in my brachial artery on several occasions.

There have certainly been research investigations carried out which should not have been carried out, and this must be condemned. But Dr. Pappworth has too often condemned justifiable and carefully considered investigations. His book lacks balance, it is misleading and is extraordinarily ungenerous to the majority of clinical research workers whose main aim is to alleviate the suffering of individual human beings who are the victims of diseases the nature of which we know far too little. Nor does he indicate that many of the advances of the last few years, for which patients have been so grateful, are in great part due to the efforts of those whom he criticized. I am left with the impression that this book has been written to shock and this makes it an unreliable study of an important subject.

O.L.W.

A DOCTOR'S GUIDE TO COURT. By Keith Simpson, M.A.(Oxon.), M.D.(Path.) Lond., F.R.C.P., F.C.Path., D.M.J. Second Edition. (Pp. IX+197; figs. 12. 45s). London: Butterworth, 1967.

MOST spheres of medical practice carry the risk of having to appear in court as a witness and for those who do this infrequently, the experience can be worrying. Familiarity with court procedure and the ways of lawyers and the bench can remove much of the doctor's apprehension and this is best achieved by frequently taking part in court cases. For those who cannot obtain this practice, however, and this includes the majority of doctors, this small book is excellent.

When it first appeared in 1962, it was well received by doctors and lawyers alike. Chapters on the structure of English law and the rules of evidence are followed by advice on medical reports and giving evidence. A chapter deals with injury and compensation and there are others on those kinds of case for which the doctor is frequently called to court, namely, wounding in assaults, drunkenness, sexual offences, abortion and suspicious infant deaths. In this new edition there have been some alterations demanded by recent changes in the law and a chapter has been added on matrimonial causes.

Professor Simpson draws widely on his considerable personal experience in the witness box and the text is liberally interspersed and illustrated by case details. The style is light and entertaining; for instance, concerning appointments to the judiciary he writes: "Retirements—at ripe ages ranging from 72 to 75—deaths, impossible misconduct or incapacity create vacancies." A list of synonyms favoured by counsel and an analysis of their "spoiling tactics" are both amusing and true. A glossary of legal terms is included to help the doctor with legal documents and to follow legal arguments in court and for those whose memories are fallible, there are appendices which contain useful factual data including normal biological values.

There is a useful reminder on the inner front cover of the types of case to be reported to the coroner but an accompanying diagram which attempts to relate blood and urine alcohol levels to the minimum consumption of alcohol could well have been omitted in view of the recent disapproval of this practice by the B.M.A. in their booklet "The Drinking Driver".

The book is surely one which should be on every doctor's, and indeed every lawyer's, shelf. It is very well produced in the Butterworth tradition and it seems a pity that the price could not have been less than 45s. because this will probably deter many from buying it.

T.M.

CLINICAL DIETETICS AND NUTRITION. F. P. Antia, M.D.(Bom.), M.R.C.P.Lond. (Pp. IX+363; tables 59. 42s). Bombay, London and New York. Oxford University Press, 1967.

THIS is a particularly useful contribution to present knowledge of dietetics and nutrition. It has been written with special reference to tropical foods, which will make it an invaluable textbook in such countries as India, and also in western countries where a large number of Indians have come to live.

Special points noted were the inclusion of references of the work quoted. References are given at the end of each chapter and unfortunately this is not always done in a textbook of this sort. In the first part of the book, covering 198 pages, there is an excellent and very up to date summary of the physiology of nutrition. The second part deals in detail with the more practical aspects of the relationship of these nutritional facts to various foods, and the final section deals with clinical disease and nutrition. In the clinical section, the chapters on malabsorption, atherosclerosis and heart disease are particularly well done and the extensive tables of food values at the end of the book are extremely useful.

J.A.W.

A DOCTOR'S GUIDE TO COURT. By Keith Simpson, M.A.(Oxon.), M.D.(Path.) Lond., F.R.C.P., F.C.Path., D.M.J. Second Edition. (Pp. IX+197; figs. 12. 45s). London: Butterworth, 1967.

MOST spheres of medical practice carry the risk of having to appear in court as a witness and for those who do this infrequently, the experience can be worrying. Familiarity with court procedure and the ways of lawyers and the bench can remove much of the doctor's apprehension and this is best achieved by frequently taking part in court cases. For those who cannot obtain this practice, however, and this includes the majority of doctors, this small book is excellent.

When it first appeared in 1962, it was well received by doctors and lawyers alike. Chapters on the structure of English law and the rules of evidence are followed by advice on medical reports and giving evidence. A chapter deals with injury and compensation and there are others on those kinds of case for which the doctor is frequently called to court, namely, wounding in assaults, drunkenness, sexual offences, abortion and suspicious infant deaths. In this new edition there have been some alterations demanded by recent changes in the law and a chapter has been added on matrimonial causes.

Professor Simpson draws widely on his considerable personal experience in the witness box and the text is liberally interspersed and illustrated by case details. The style is light and entertaining; for instance, concerning appointments to the judiciary he writes: "Retirements—at ripe ages ranging from 72 to 75—deaths, impossible misconduct or incapacity create vacancies." A list of synonyms favoured by counsel and an analysis of their "spoiling tactics" are both amusing and true. A glossary of legal terms is included to help the doctor with legal documents and to follow legal arguments in court and for those whose memories are fallible, there are appendices which contain useful factual data including normal biological values.

There is a useful reminder on the inner front cover of the types of case to be reported to the coroner but an accompanying diagram which attempts to relate blood and urine alcohol levels to the minimum consumption of alcohol could well have been omitted in view of the recent disapproval of this practice by the B.M.A. in their booklet "The Drinking Driver".

The book is surely one which should be on every doctor's, and indeed every lawyer's, shelf. It is very well produced in the Butterworth tradition and it seems a pity that the price could not have been less than 45s. because this will probably deter many from buying it.

T.M.

CLINICAL DIETETICS AND NUTRITION. F. P. Antia, M.D.(Bom.), M.R.C.P.Lond. (Pp. IX+363; tables 59. 42s). Bombay, London and New York. Oxford University Press, 1967.

THIS is a particularly useful contribution to present knowledge of dietetics and nutrition. It has been written with special reference to tropical foods, which will make it an invaluable textbook in such countries as India, and also in western countries where a large number of Indians have come to live.

Special points noted were the inclusion of references of the work quoted. References are given at the end of each chapter and unfortunately this is not always done in a textbook of this sort. In the first part of the book, covering 198 pages, there is an excellent and very up to date summary of the physiology of nutrition. The second part deals in detail with the more practical aspects of the relationship of these nutritional facts to various foods, and the final section deals with clinical disease and nutrition. In the clinical section, the chapters on malabsorption, atherosclerosis and heart disease are particularly well done and the extensive tables of food values at the end of the book are extremely useful.

J.A.W.

A SHORT TEXTBOOK OF GYNAECOLOGY AND OBSTETRICS. By G. D. Pinker, M.B., F.R.C.S., and D. W. T. Roberts, M.Chir., F.R.C.S., F.R.C.O.G. (Pp. XII+188; figs. 29. 16s paper, 25s boards). London: English Universities Press, 1967.

THIS book is a further example of a recent welcome trend away from bulky volumes which suit neither the undergraduate's need for a concise yet comprehensive and up-to-date presentation nor the capacity of his pocket (literally and financially). It is one of a new series of paperbacks aimed at fulfilling the medical student's needs. A normally bound library edition is also available.

Although the authors have largely succeeded in their aim of concentrating on essential principles, while leaving details of technique and management to postgraduate training, it seems a pity that such important proceedures as taking cervical smears, palpating the breasts and intubating the newborn are noted rather than described.

A certain carelessness in terminology is unfortunate, and it is surprising to find that two experienced teachers and examiners are unable to name correctly a standard vaginal speculum. The expectation that a new concise text will be thoroughly modern is not always fulfilled. For example, vacuum extraction by ventouse and the total intravenous dose method of parenternal iron therapy are not mentioned.

The first edition may provide a medical student with a rapid general introduction to the subject and a means of last minute revision before examinations, but falls short of the requirements for a single comprehensive undergraduate text. The latter need be no larger than the book under review, and one hopes that a carefully revised second edition will be forthcoming.

C.R.W.

A SHORT TEXTBOOK OF SURGERY. By Selwyn Taylor, D.M., M.Ch., F.R.C.S.; L. T. Cotton, M.Ch., F.R.C.S., and J. G. Murray, Ch.M., F.R.C.S.Ed. (Pp. 628; figs. 87. 30s paper, 42s boards). London: English Universities Press, 1967.

THIS is one of the series of "University Medical Texts" which is being published with the intention of providing "up to date, low priced textbooks suitable for qualifying or post-graduate students."

At 30s. for the 600 page paperback edition the price compares very favourably with comparable current textbooks. On the whole the material is certainly up to date by textbook (as distinct from journal) standards, and if frequent new editions keep abreast with future advances another of the aims of the book undoubtedly will be fulfilled. The detail of the subject matter is quite adequate for final year students. However, it is unlikely to provide more than a starting point in the surgical studies of any post-graduate students working for higher qualifications, though references for further reading are given with most chapters or sections.

The whole range of surgery is covered. General principles are dealt with in the opening chapters and the emphasis here is rightly on such subjects as blood loss and its replacement, fluid balance, nutrition and wound healing, infection, antibiotics and cross-infection.

The systematic arrangement of the rest of the book is fairly orthodox. The presentation is clear and should help the student to understand his subject. Though not large the book is much more than a synopsis or a mere list of facts to be memorized for an examination. On the other hand, it certainly is not a reference book. It is in fact what the authors have called it—a short textbook of surgery.

The standard of the text, the selected detail of the content and the low price should make it both useful to, and popular with, future generations of medical students.

W.A.H.

A SHORT TEXTBOOK OF GYNAECOLOGY AND OBSTETRICS. By G. D. Pinker, M.B., F.R.C.S., and D. W. T. Roberts, M.Chir., F.R.C.S., F.R.C.O.G. (Pp. XII+188; figs. 29. 16s paper, 25s boards). London: English Universities Press, 1967.

THIS book is a further example of a recent welcome trend away from bulky volumes which suit neither the undergraduate's need for a concise yet comprehensive and up-to-date presentation nor the capacity of his pocket (literally and financially). It is one of a new series of paperbacks aimed at fulfilling the medical student's needs. A normally bound library edition is also available.

Although the authors have largely succeeded in their aim of concentrating on essential principles, while leaving details of technique and management to postgraduate training, it seems a pity that such important proceedures as taking cervical smears, palpating the breasts and intubating the newborn are noted rather than described.

A certain carelessness in terminology is unfortunate, and it is surprising to find that two experienced teachers and examiners are unable to name correctly a standard vaginal speculum. The expectation that a new concise text will be thoroughly modern is not always fulfilled. For example, vacuum extraction by ventouse and the total intravenous dose method of parenternal iron therapy are not mentioned.

The first edition may provide a medical student with a rapid general introduction to the subject and a means of last minute revision before examinations, but falls short of the requirements for a single comprehensive undergraduate text. The latter need be no larger than the book under review, and one hopes that a carefully revised second edition will be forthcoming.

C.R.W.

A SHORT TEXTBOOK OF SURGERY. By Selwyn Taylor, D.M., M.Ch., F.R.C.S.; L. T. Cotton, M.Ch., F.R.C.S., and J. G. Murray, Ch.M., F.R.C.S.Ed. (Pp. 628; figs. 87. 30s paper, 42s boards). London: English Universities Press, 1967.

THIS is one of the series of "University Medical Texts" which is being published with the intention of providing "up to date, low priced textbooks suitable for qualifying or post-graduate students."

At 30s. for the 600 page paperback edition the price compares very favourably with comparable current textbooks. On the whole the material is certainly up to date by textbook (as distinct from journal) standards, and if frequent new editions keep abreast with future advances another of the aims of the book undoubtedly will be fulfilled. The detail of the subject matter is quite adequate for final year students. However, it is unlikely to provide more than a starting point in the surgical studies of any post-graduate students working for higher qualifications, though references for further reading are given with most chapters or sections.

The whole range of surgery is covered. General principles are dealt with in the opening chapters and the emphasis here is rightly on such subjects as blood loss and its replacement, fluid balance, nutrition and wound healing, infection, antibiotics and cross-infection.

The systematic arrangement of the rest of the book is fairly orthodox. The presentation is clear and should help the student to understand his subject. Though not large the book is much more than a synopsis or a mere list of facts to be memorized for an examination. On the other hand, it certainly is not a reference book. It is in fact what the authors have called it—a short textbook of surgery.

The standard of the text, the selected detail of the content and the low price should make it both useful to, and popular with, future generations of medical students.

W.A.H.

DISEASES OF THE NOSE, THROAT AND EAR. By I. Simson Hall, M.B., Ch.B., F.R.C.P.Ed., F.R.C.S.Ed., and Bernard H. Colman, M.B., Ch.B., F.R.C.S.Ed. Eighth Edition. (Pp. XII+424; figs. 85 30s). Edinburgh and London: E. & S. Livingstone, 1967.

THE appearance of the eighth edition, the first having appeared in 1937 and three editions having been reprinted, is a sign of the popularity of this text book designed for students and general practitioners.

The general plan is the same as in previous editions. Each section is introduced by a short resume of the anatomy and physiology of the region. Minor alterations have been made to bring it up to date. New terms have been substituted for old, such as "Sensori-Neural Deafness". The chapter headed "Nasal Allergy" replaces the previous one entitled "Vasomotor Rhinorrhoea". The systemic use of cortisone is not now advised in nasal allergy. Malignant tumours of the naso-pharynx are now classified as after Eggston & Wolff (1947). The classification of malignant tumours of the larynx is now that recommended by the International Union against Cancer. The classification of chronic otitis media has also been revised. The indications for a tracheostomy are now listed. Short notes have been made on several conditions not previously mentioned, such as rhino-sporidiosis; rhino-scleroma; trans-sphenoidal hypophysectomy; salivary tumours; leukoplakia; abscess, collapse and carcinoma of the lung; hiatal hernia and electro-nystagmography.

The eighth edition fulfils its original purpose. It provides all the basic essentials for diagnosis and treatment of those conditions which interest the general practitioner and the student. No attempt is made to describe the major operative procedures which are carried out.

K.H.

NOMENCLATURE OF FUNGI PATHOGENIC FOR MAN AND ANIMALS. By the Medical Mycology Committee. Medical Research Council's Memorandum Number 23. Third Edition. (20 pages. 3s). London: Her Majesty's Stationery Office, 1967.

FINDING the correct names for fungi and the disease(s) they cause is sometimes difficult and frequently controversial. On occasions, the names of fungi may change overnight, evoking perplexity or irritation in those concerned only with the clinical aspects of the mycoses. It is perhaps only fair to point out that mycologists, despite a widespread belief to the contrary, usually have excellent reasons for changing the name of a fungus. In producing this memorandum, the MRC has summarised the prevailing concepts of fungal nomenclature – presenting the results of the mycologists' labours without revealing the preceding intellectual processes. This is the first edition since 1958 and it takes account of the many significant advances that have been made since then. The scope of the memorandum has been widened, and in addition to completely revised indexes of fungi and fungal diseases, a separate section has been included on poisonous fungi and fungi in allergic disorders. Brief explanatory notes are given where necessary. This unique publication has a value well in excess of its modest price, for it constitutes a concise and authoritative *vade mecum* and should provide an accessible and satisfactory means of standardizing fungal names. Also included is a list of synonyms of both fungal and disease names and a list of references. In addition, there is a system for distinguishing fungi which have not been recorded in the U.K. but which are of major importance elsewhere, and non-indigenous fungi which have been recorded in this country. Disease nomenclature, in particular, is always subject to controversy and the system proposed in this memorandum may not be entirely free from criticism. Nevertheless it does provide a standard work of reference for these diseases and the fungi which cause them, and which will relieve the user from involvement or responsibility in current or future controversies. Whenever pathogenic fungi are to be cited, it is strongly recommended that they should be done so only after reference to this memorandum.

D.W.R.M.

DISEASES OF THE NOSE, THROAT AND EAR. By I. Simson Hall, M.B., Ch.B., F.R.C.P.Ed., F.R.C.S.Ed., and Bernard H. Colman, M.B., Ch.B., F.R.C.S.Ed. Eighth Edition. (Pp. XII+424; figs. 85 30s). Edinburgh and London: E. & S. Livingstone, 1967.

THE appearance of the eighth edition, the first having appeared in 1937 and three editions having been reprinted, is a sign of the popularity of this text book designed for students and general practitioners.

The general plan is the same as in previous editions. Each section is introduced by a short resume of the anatomy and physiology of the region. Minor alterations have been made to bring it up to date. New terms have been substituted for old, such as "Sensori-Neural Deafness". The chapter headed "Nasal Allergy" replaces the previous one entitled "Vasomotor Rhinorrhoea". The systemic use of cortisone is not now advised in nasal allergy. Malignant tumours of the naso-pharynx are now classified as after Eggston & Wolff (1947). The classification of malignant tumours of the larynx is now that recommended by the International Union against Cancer. The classification of chronic otitis media has also been revised. The indications for a tracheostomy are now listed. Short notes have been made on several conditions not previously mentioned, such as rhino-sporidiosis; rhino-scleroma; trans-sphenoidal hypophysectomy; salivary tumours; leukoplakia; abscess, collapse and carcinoma of the lung; hiatal hernia and electro-nystagmography.

The eighth edition fulfils its original purpose. It provides all the basic essentials for diagnosis and treatment of those conditions which interest the general practitioner and the student. No attempt is made to describe the major operative procedures which are carried out.

K.H.

NOMENCLATURE OF FUNGI PATHOGENIC FOR MAN AND ANIMALS. By the Medical Mycology Committee. Medical Research Council's Memorandum Number 23. Third Edition. (20 pages. 3s). London: Her Majesty's Stationery Office, 1967.

FINDING the correct names for fungi and the disease(s) they cause is sometimes difficult and frequently controversial. On occasions, the names of fungi may change overnight, evoking perplexity or irritation in those concerned only with the clinical aspects of the mycoses. It is perhaps only fair to point out that mycologists, despite a widespread belief to the contrary, usually have excellent reasons for changing the name of a fungus. In producing this memorandum, the MRC has summarised the prevailing concepts of fungal nomenclature – presenting the results of the mycologists' labours without revealing the preceding intellectual processes. This is the first edition since 1958 and it takes account of the many significant advances that have been made since then. The scope of the memorandum has been widened, and in addition to completely revised indexes of fungi and fungal diseases, a separate section has been included on poisonous fungi and fungi in allergic disorders. Brief explanatory notes are given where necessary. This unique publication has a value well in excess of its modest price, for it constitutes a concise and authoritative *vade mecum* and should provide an accessible and satisfactory means of standardizing fungal names. Also included is a list of synonyms of both fungal and disease names and a list of references. In addition, there is a system for distinguishing fungi which have not been recorded in the U.K. but which are of major importance elsewhere, and non-indigenous fungi which have been recorded in this country. Disease nomenclature, in particular, is always subject to controversy and the system proposed in this memorandum may not be entirely free from criticism. Nevertheless it does provide a standard work of reference for these diseases and the fungi which cause them, and which will relieve the user from involvement or responsibility in current or future controversies. Whenever pathogenic fungi are to be cited, it is strongly recommended that they should be done so only after reference to this memorandum.

D.W.R.M.

ETHICAL RESPONSIBILITY IN MEDICINE – A CHRISTIAN APPROACH. Edited by Vincent Edmunds, M.D., M.R.C.P., and C. Gordon Storer, M.D., F.R.C.S. (Pp. VIII+197. 30s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book aims to give the findings of a medical discussion group whose members believe that Christian ethics and the application of Christian principles offer the most reliable and convincing guide in the changing responsibilities of the medical profession.

In the opening chapter Alastair M. McConnell discusses "The Nature of Responsibility". He includes an interesting review of delinquency and says that it "may run contrary to the cherished beliefs of many to view delinquency as a disease". Nevertheless it is a fact that delinquency may be associated with abnormal brain function.

Douglas McG. Jackson links "The Ethics of Clinical Research" with a consideration of responsibility and the sanctity of life. He says that the root of the moral problem as regards clinical research is man himself. Following consideration of the patient's consent and co-operation, he gives detailed practical advice for the investigator.

In the chapter on "Why the Preservation of Life?" Duncan W. Vere discusses the elderly, and says: "From whatever angle the problem is approached, we are driven back to the apparent view of Christ that the restoration of personality implies not physical renewal alone, but in such mental and spiritual surroundings as will let it flourish". There are also full reviews of the problems of euthanasia and abortion.

"There is no other discipline in medicine which carries with it so much moral and ethical responsibility as obstetrics and gynaecology," writes John Beattie under 'Therapeutic Procedures and the Sanctity of Life". He discusses contraception, abortion, artificial insemination, A.I.D. and sterilisation. Many think that existing English law on abortion should not be greatly liberalised, is the opinion of this writer.

"Population Control," by Daniel A. Andersen and Professor Paul W. Brand is written from the point of view of Christian missionary doctors, and deals particularly with the problem in rural areas of India. They stress the need for education and for improved food supplies, and describe the work of family planning clinics. Their conclusion is: " ' ' ' the hand that helps a tired mother to postpone or to avoid her next pregnancy, is as much a part of Christ's ministry on earth as the hand that helps to bring a child to a previously childless marriage".

F. J. Roberts writes on "The Concept of Responsibility in Psychiatric Treatment", and stresses the need to regard psychologically disordered patients as responsible people. "Even the most disordered can be expected to be responsible within certain areas."

"Alcoholism and Drug Addiction" is an important chapter contributed by Basil Merriman. Alcoholism has been called the "most neglected disease of our time", and the writer declares: "It is nothing short of a tragedy that there are so few centres where early specialised treatment is available". As a result of his experience with alcoholics and drug addicts he is firmly convinced that the answer to the stresses of the twentieth century way of life is primarily a religious one.

Victor Parsons discusses homosexuality, suicide and alcoholism as "Social Aberrations—Sin, Crime or Disease?" Patients with these troubles may see the doctor first rather than the clergyman or lawyer, and it is the doctor's duty to treat the patient. Such patients need prolonged follow-up.

The ethical problems of the medical officer of health are dealt with by W. George Swann and he cites, as an illustration, the fluoridation of water which raises the ethical question of forcing the community to drink this water although some people may strongly object.

There is much common sense in "Meeting-Points of Church and Medicine" by the Rev. Dr. Hugh C. Trowell, M.D., M.R.C.P. He is "opposed to all public services of healing, but there is a place for private intercessions and ministrations in the case of committed and instructed Christians".

In the final chapter "Man Himself—The Vital Factor" based on a talk by the Rev. D. Martyn Lloyd-Jones, M.D., M.R.C.P., a quotation from Lister seems to be an excellent summing-up; "There is only one rule of practice, put yourself in the patient's place."

J.M.H.

NEUROPHYSIOLOGY OF POSTURAL MECHANISMS. By Tristan D. M. Roberts. (Pp. 354 and XVII ; illustrated. 100s). London: Butterworth & Co. (Publishers) Ltd.

BASIC IDEAS IN NEUROPHYSIOLOGY. By Tristan D. M. Roberts. (Pp. 108 and XI ; illustrated. 25s). London: Butterworth & Co. (Publishers) Ltd.

THESE two books can be conveniently considered together since the second volume is composed of the first four or five chapters of the first. The author is a senior lecturer in the Department of Physiology in Glasgow and has brought to his task many years of experience in explaining to students the complexities of the workings of the nervous system. The first few chapters of the first volume deal with the modern views on the basic phenomena of neuronal function, i.e. maintenance of membrane potential, excitation, conduction, synaptic transmission and receptor activation. The later chapters deal with the manner in which neuronal activity is integrated in the central nervous system to regulate posture and locomotion. Most students find these areas of study rather depressing because of the plethora of Sherringtonian reflexes whose relevance to ordinary locomotion seems obscure. In the present state of knowledge it is hard to avoid this. The author has made a valiant effort to keep a sense of reality in his descriptions. The parts dealing with the servo control of muscular activity are especially good. I would accept the publishers statement on the dust cover, "Anyone who is concerned with movement in man or in animals should find this book both stimulating and helpful". I.C.R.

SYMPOSIUM – DISORDERS OF THE HEART AND CIRCULATION. (Pp. 159. 25s). Edinburgh: The Royal College of Physicians, 1966.

THIS book of 159 pages gives a remarkable up-to-date review of cardiac problems of current interest at the present time. It includes addresses given at the Symposium by various authors of international repute. Such subjects as the surgical treatment of aortic stenosis and incompetence are covered comprehensively. There is also a section on the role of beta adrenergic blocking agents in treatment. There are many excellent illustrations and the contributors give their own personal view of the various complex problems in diagnosis and treatment. Discussion panels are also included and this book should be read by all physicians interested in the modern investigation and treatment of cardiac disease. E.F.

CARLETON'S HISTOLOGICAL TECHNIQUE. By R. A. B. Drury, M.A., D.M.(Oxon.), F.C.Path., and E. A. Wallington, F.I.M.L.T. Fourth Edition. (Pp. IX+432 ; figs. 55. 60s). London: Oxford University Press, 1967.

"CARLTON" was first published in 1926 and since then has been essential reading for all those interested in histological technique. This fourth edition has been completely rewritten. The wide experience of the main authors has allowed them to select reliable methods and the text reflects today's more scientific approach to histological technique.

The quality of the photographs is considerably superior to that of previous editions and the diagrams, expecting Fig. 40, fulfil their function admirably. References are at the end of each chapter and are an excellent blend of historical and modern. The four appendices, index of names cited in the text, and index of dyes are useful. The main index has been prepared by the authors themselves and displays clearly their disciplined approach to their subject.

This book deserves to become the main starting point for all serious students of histological technique and is particularly recommended to candidates for Membership of the College of Pathologists, for Associateship of the Institute of Medical Laboratory Technology and to those working in the biological sciences who need to demonstrate structure. J.O.

NEUROPHYSIOLOGY OF POSTURAL MECHANISMS. By Tristan D. M. Roberts. (Pp. 354 and XVII ; illustrated. 100s). London: Butterworth & Co. (Publishers) Ltd.

BASIC IDEAS IN NEUROPHYSIOLOGY. By Tristan D. M. Roberts. (Pp. 108 and XI ; illustrated. 25s). London: Butterworth & Co. (Publishers) Ltd.

THESE two books can be conveniently considered together since the second volume is composed of the first four or five chapters of the first. The author is a senior lecturer in the Department of Physiology in Glasgow and has brought to his task many years of experience in explaining to students the complexities of the workings of the nervous system. The first few chapters of the first volume deal with the modern views on the basic phenomena of neuronal function, i.e. maintenance of membrane potential, excitation, conduction, synaptic transmission and receptor activation. The later chapters deal with the manner in which neuronal activity is integrated in the central nervous system to regulate posture and locomotion. Most students find these areas of study rather depressing because of the plethora of Sherringtonian reflexes whose relevance to ordinary locomotion seems obscure. In the present state of knowledge it is hard to avoid this. The author has made a valiant effort to keep a sense of reality in his descriptions. The parts dealing with the servo control of muscular activity are especially good. I would accept the publishers statement on the dust cover, "Anyone who is concerned with movement in man or in animals should find this book both stimulating and helpful". I.C.R.

SYMPOSIUM – DISORDERS OF THE HEART AND CIRCULATION. (Pp. 159. 25s). Edinburgh: The Royal College of Physicians, 1966.

THIS book of 159 pages gives a remarkable up-to-date review of cardiac problems of current interest at the present time. It includes addresses given at the Symposium by various authors of international repute. Such subjects as the surgical treatment of aortic stenosis and incompetence are covered comprehensively. There is also a section on the role of beta adrenergic blocking agents in treatment. There are many excellent illustrations and the contributors give their own personal view of the various complex problems in diagnosis and treatment. Discussion panels are also included and this book should be read by all physicians interested in the modern investigation and treatment of cardiac disease. E.F.

CARLETON'S HISTOLOGICAL TECHNIQUE. By R. A. B. Drury, M.A., D.M.(Oxon.), F.C.Path., and E. A. Wallington, F.I.M.L.T. Fourth Edition. (Pp. IX+432 ; figs. 55. 60s). London: Oxford University Press, 1967.

"CARLTON" was first published in 1926 and since then has been essential reading for all those interested in histological technique. This fourth edition has been completely rewritten. The wide experience of the main authors has allowed them to select reliable methods and the text reflects today's more scientific approach to histological technique.

The quality of the photographs is considerably superior to that of previous editions and the diagrams, expecting Fig. 40, fulfil their function admirably. References are at the end of each chapter and are an excellent blend of historical and modern. The four appendices, index of names cited in the text, and index of dyes are useful. The main index has been prepared by the authors themselves and displays clearly their disciplined approach to their subject.

This book deserves to become the main starting point for all serious students of histological technique and is particularly recommended to candidates for Membership of the College of Pathologists, for Associateship of the Institute of Medical Laboratory Technology and to those working in the biological sciences who need to demonstrate structure. J.O.

NEUROPHYSIOLOGY OF POSTURAL MECHANISMS. By Tristan D. M. Roberts. (Pp. 354 and XVII ; illustrated. 100s). London: Butterworth & Co. (Publishers) Ltd.

BASIC IDEAS IN NEUROPHYSIOLOGY. By Tristan D. M. Roberts. (Pp. 108 and XI ; illustrated. 25s). London: Butterworth & Co. (Publishers) Ltd.

THESE two books can be conveniently considered together since the second volume is composed of the first four or five chapters of the first. The author is a senior lecturer in the Department of Physiology in Glasgow and has brought to his task many years of experience in explaining to students the complexities of the workings of the nervous system. The first few chapters of the first volume deal with the modern views on the basic phenomena of neuronal function, i.e. maintenance of membrane potential, excitation, conduction, synaptic transmission and receptor activation. The later chapters deal with the manner in which neuronal activity is integrated in the central nervous system to regulate posture and locomotion. Most students find these areas of study rather depressing because of the plethora of Sherringtonian reflexes whose relevance to ordinary locomotion seems obscure. In the present state of knowledge it is hard to avoid this. The author has made a valiant effort to keep a sense of reality in his descriptions. The parts dealing with the servo control of muscular activity are especially good. I would accept the publishers statement on the dust cover, "Anyone who is concerned with movement in man or in animals should find this book both stimulating and helpful". I.C.R.

SYMPOSIUM – DISORDERS OF THE HEART AND CIRCULATION. (Pp. 159. 25s). Edinburgh: The Royal College of Physicians, 1966.

THIS book of 159 pages gives a remarkable up-to-date review of cardiac problems of current interest at the present time. It includes addresses given at the Symposium by various authors of international repute. Such subjects as the surgical treatment of aortic stenosis and incompetence are covered comprehensively. There is also a section on the role of beta adrenergic blocking agents in treatment. There are many excellent illustrations and the contributors give their own personal view of the various complex problems in diagnosis and treatment. Discussion panels are also included and this book should be read by all physicians interested in the modern investigation and treatment of cardiac disease. E.F.

CARLETON'S HISTOLOGICAL TECHNIQUE. By R. A. B. Drury, M.A., D.M.(Oxon.), F.C.Path., and E. A. Wallington, F.I.M.L.T. Fourth Edition. (Pp. IX+432 ; figs. 55. 60s). London: Oxford University Press, 1967.

"CARLTON" was first published in 1926 and since then has been essential reading for all those interested in histological technique. This fourth edition has been completely rewritten. The wide experience of the main authors has allowed them to select reliable methods and the text reflects today's more scientific approach to histological technique.

The quality of the photographs is considerably superior to that of previous editions and the diagrams, expecting Fig. 40, fulfil their function admirably. References are at the end of each chapter and are an excellent blend of historical and modern. The four appendices, index of names cited in the text, and index of dyes are useful. The main index has been prepared by the authors themselves and displays clearly their disciplined approach to their subject.

This book deserves to become the main starting point for all serious students of histological technique and is particularly recommended to candidates for Membership of the College of Pathologists, for Associateship of the Institute of Medical Laboratory Technology and to those working in the biological sciences who need to demonstrate structure. J.O.

THE PATHOLOGY OF LIMB ISCHAEMIA. By J. Henry Dible, M.B., LL.D., F.R.C.P. (Pp. VII+100; figs. 85. 57s 6d). Pathological Monographs No. 3, Edinburgh: Oliver and Boyd, 1967.

THIS constitutes the third volume of the series "Pathological Monographs" edited by the late Sir Roy Cameron and the late Professor G. Payling Wright. It is to be hoped that with the death of the editors the series will not come to an end, for there still remains many problems in pathology worthy of more comprehensive examinations.

The present monograph deals with the morbid anatomy of arterial occlusions in the lower limbs. Professor Dible has studied a large number of amputated limbs, both by injection methods and histologically. There is an interesting discussion on the ageing artery and on atherosclerotic occlusive disease. The various pathways by which the collaterals seek to overcome occlusion are intriguing, and more complex than one would have expected. His findings emphasise the high incidence of the disease in the larger arterial trunks below the knee, and its relative absence from the small arteries such as those of the foot. The importance of the peroneal artery as a "foot saver" is apparent.

One of the more interesting chapters is that on thromboangiitis obliterans. Pathologists in various countries have swung from one extreme to another in their estimate of the frequency of this disease. After a continental paper showing supposedly Buerger's disease as a common event in the coronaries and cerebrals one had some doubt of its specific character. However, seeing twenty men in the early thirties with amputated legs in Penang, one was compelled to admit the occurrence of an occlusive disease other than atheroma. Dible points out the frequent occurrence of venous lesions and the preponderance of lesions in the small peripheral vessels.

The monograph will prove of value not only to pathologists, but also to physicians and surgeons. J.H.B.

CHEADLE ROYAL HOSPITAL: A Bicentenary History. By Nesta Roberts. (Pp. X+189; illustrated. 30s). Altrincham, Cheshire: St. Ann's Press, Park Road, 1967.

THIS is a well written account of a hospital of moderate size that chose to remain outside the National Health Service, yet to co-operate both with it and other services with mutual benefit. The author presents a clear and easily read narrative of the hospital from its beginnings in 1766 to the present day, describing its fortunes under various medical superintendents, including Henry Maudsley. Its early association with a general teaching hospital proved of benefit. Indeed, its fortunes seemed to waiver when the ties were loosened. Today the leaven of teaching and research again coincide with a period of admirable development reaching towards the goal of ". . . a comprehensive health neighbourhood at the centre of which will stand Cheadle Royal Hospital; . . . "

Work for patients throughout the years of the hospital's existence has been therapeutic in lessening the contrast between the lives of those in the hospital and in the community from whence they came. It has tended also to foster better relationships. In earlier days, visiting ladies, the forerunners of occupational therapists, encouraged the patients in the pursuit of the gentler arts. From these beginnings sprang occupational therapy and today industrial rehabilitation in workshops in the hospital grounds, where patients can earn the appropriate wages for work done under contract. The size of the hospital, as well as its administrative structure would seem to have contributed to its success.

This is a history without drama, well presented and illustrated. It will be of particular interest to all those who strive to help those patients handicapped by longstanding mental illness to achieve optimum functioning. The history recounted in the pages of this book illustrates how patients can be provided with opportunities to re-define their roles in relationship to others in society or in a specially structured part of it, within the hospital. J.G.G.

THE PATHOLOGY OF LIMB ISCHAEMIA. By J. Henry Dible, M.B., LL.D., F.R.C.P. (Pp. VII+100; figs. 85. 57s 6d). Pathological Monographs No. 3, Edinburgh: Oliver and Boyd, 1967.

THIS constitutes the third volume of the series "Pathological Monographs" edited by the late Sir Roy Cameron and the late Professor G. Payling Wright. It is to be hoped that with the death of the editors the series will not come to an end, for there still remains many problems in pathology worthy of more comprehensive examinations.

The present monograph deals with the morbid anatomy of arterial occlusions in the lower limbs. Professor Dible has studied a large number of amputated limbs, both by injection methods and histologically. There is an interesting discussion on the ageing artery and on atherosclerotic occlusive disease. The various pathways by which the collaterals seek to overcome occlusion are intriguing, and more complex than one would have expected. His findings emphasise the high incidence of the disease in the larger arterial trunks below the knee, and its relative absence from the small arteries such as those of the foot. The importance of the peroneal artery as a "foot saver" is apparent.

One of the more interesting chapters is that on thromboangiitis obliterans. Pathologists in various countries have swung from one extreme to another in their estimate of the frequency of this disease. After a continental paper showing supposedly Buerger's disease as a common event in the coronaries and cerebrals one had some doubt of its specific character. However, seeing twenty men in the early thirties with amputated legs in Penang, one was compelled to admit the occurrence of an occlusive disease other than atheroma. Dible points out the frequent occurrence of venous lesions and the preponderance of lesions in the small peripheral vessels.

The monograph will prove of value not only to pathologists, but also to physicians and surgeons. J.H.B.

CHEADLE ROYAL HOSPITAL: A Bicentenary History. By Nesta Roberts. (Pp. X+189; illustrated. 30s). Altrincham, Cheshire: St. Ann's Press, Park Road, 1967.

THIS is a well written account of a hospital of moderate size that chose to remain outside the National Health Service, yet to co-operate both with it and other services with mutual benefit. The author presents a clear and easily read narrative of the hospital from its beginnings in 1766 to the present day, describing its fortunes under various medical superintendents, including Henry Maudsley. Its early association with a general teaching hospital proved of benefit. Indeed, its fortunes seemed to waiver when the ties were loosened. Today the leaven of teaching and research again coincide with a period of admirable development reaching towards the goal of ". . . a comprehensive health neighbourhood at the centre of which will stand Cheadle Royal Hospital; . . . "

Work for patients throughout the years of the hospital's existence has been therapeutic in lessening the contrast between the lives of those in the hospital and in the community from whence they came. It has tended also to foster better relationships. In earlier days, visiting ladies, the forerunners of occupational therapists, encouraged the patients in the pursuit of the gentler arts. From these beginnings sprang occupational therapy and today industrial rehabilitation in workshops in the hospital grounds, where patients can earn the appropriate wages for work done under contract. The size of the hospital, as well as its administrative structure would seem to have contributed to its success.

This is a history without drama, well presented and illustrated. It will be of particular interest to all those who strive to help those patients handicapped by longstanding mental illness to achieve optimum functioning. The history recounted in the pages of this book illustrates how patients can be provided with opportunities to re-define their roles in relationship to others in society or in a specially structured part of it, within the hospital. J.G.G.

DEMONSTRATIONS OF OPERATIVE SURGERY. By Hamilton Bailey, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E. Third Edition revised by A. R. Isaac, F.R.CS.(Ed.). (Pp. XII+431 ; figs. 485. 50s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS publication maintains the very high standards of the Hamilton Bailey series. It contains a vast amount of essential information for nurses and surgeons. The presentation is clear, concise and easy to read. The black and white illustrations add greatly to the value of the book and the list of instruments illustrated is, in the reviewer's opinion, a most useful feature.

Section 1 gives a really helpful account of the principles underlying all the work of an operating theatre, including the duties and responsibilities of the nurse viz a vis the surgeon and anaesthetist.

The general high standard is maintained throughout the other sections and it would be invidious to single out any one of them, but it is interesting to note the "bone forceps" method of circumcision being advocated.

I have nothing but praise for this excellent book, and would thoroughly recommend it, especially to nurses and young surgeons in the early stages of their training, and also senior medical students. D.M.B.

A PRIMER OF PATHOLOGY. By F. A. Ward, L.R.C.P.I., M.C.Path. Second Edition. (Pp. VIII+116. 22s. 6d). London: Butterworth, 1967.

To write a simple introduction to pathology is a task of the greatest difficulty and anyone attempting it is unlikely to satisfy other pathologists. This chatty like volume manages to convey some useful information without overtaxing the mental equipment of the student. It is in no way a systematic study. The medical student, nowadays carefully selected and replete with physiological and biochemical knowledge, must surely find it light fare. It relates some pathological facts to clinical practice, but it fails to build on the basic scientific training of the student. The medical student may gain some useful, if isolated, facts from this little book, but it is to be hoped he will soon discard it and learn some pathology. Nurses and other auxilaries may learn a little, and it is to be hoped they will appreciate how little. J.E.M.

STEDMAN'S MEDICAL DICTIONARY. Twenty-first Edition. (Pp. XLIX+ 1836 ; plates 31. 105s). Edinburgh and London: E. & S. Livingstone, 1966.

IT is only after some study of this dictionary that the full wealth of information contained within it can be appreciated. It is very probable that too many think of such a dictionary only as an aid to spelling or to define some unusual word. *Stedman's* will certainly do this, and since the last edition in 1961 it is interesting to note that 9,183 new entries have been added and 8,897 revised. Through the morass of new terminology the consultant panel is a valuable guide, and, as stated in the preface, the dictionary, if it to be a useful guide to a living language, must spell, pronounce and define the words as they are used – not wistfully, as they should be. At the same time the introductory pages are a rich treasure of verbal knowledge and sound scholarship which, if used, would refine many of the barbarous new words introduced into science.

The plates are a useful anatomical atlas. Over 120 tables in the text are valuable summaries of medical data and in 10 appendices a wide range of information from blood groups to printers' corrections is covered.

This is an American dictionary and a useful note gives the main differences from British spelling. It may be a matter of regret, but it must be admitted, that by regular and careful revision and in detailed coverage this American work has become the medical dictionary of the English speaking world.

DEMONSTRATIONS OF OPERATIVE SURGERY. By Hamilton Bailey, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E. Third Edition revised by A. R. Isaac, F.R.CS.(Ed.). (Pp. XII+431 ; figs. 485. 50s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS publication maintains the very high standards of the Hamilton Bailey series. It contains a vast amount of essential information for nurses and surgeons. The presentation is clear, concise and easy to read. The black and white illustrations add greatly to the value of the book and the list of instruments illustrated is, in the reviewer's opinion, a most useful feature.

Section 1 gives a really helpful account of the principles underlying all the work of an operating theatre, including the duties and responsibilities of the nurse viz a vis the surgeon and anaesthetist.

The general high standard is maintained throughout the other sections and it would be invidious to single out any one of them, but it is interesting to note the "bone forceps" method of circumcision being advocated.

I have nothing but praise for this excellent book, and would thoroughly recommend it, especially to nurses and young surgeons in the early stages of their training, and also senior medical students. D.M.B.

A PRIMER OF PATHOLOGY. By F. A. Ward, L.R.C.P.I., M.C.Path. Second Edition. (Pp. VIII+116. 22s. 6d). London: Butterworth, 1967.

To write a simple introduction to pathology is a task of the greatest difficulty and anyone attempting it is unlikely to satisfy other pathologists. This chatty like volume manages to convey some useful information without overtaxing the mental equipment of the student. It is in no way a systematic study. The medical student, nowadays carefully selected and replete with physiological and biochemical knowledge, must surely find it light fare. It relates some pathological facts to clinical practice, but it fails to build on the basic scientific training of the student. The medical student may gain some useful, if isolated, facts from this little book, but it is to be hoped he will soon discard it and learn some pathology. Nurses and other auxilaries may learn a little, and it is to be hoped they will appreciate how little. J.E.M.

STEDMAN'S MEDICAL DICTIONARY. Twenty-first Edition. (Pp. XLIX+ 1836 ; plates 31. 105s). Edinburgh and London: E. & S. Livingstone, 1966.

IT is only after some study of this dictionary that the full wealth of information contained within it can be appreciated. It is very probable that too many think of such a dictionary only as an aid to spelling or to define some unusual word. *Stedman's* will certainly do this, and since the last edition in 1961 it is interesting to note that 9,183 new entries have been added and 8,897 revised. Through the morass of new terminology the consultant panel is a valuable guide, and, as stated in the preface, the dictionary, if it to be a useful guide to a living language, must spell, pronounce and define the words as they are used – not wistfully, as they should be. At the same time the introductory pages are a rich treasure of verbal knowledge and sound scholarship which, if used, would refine many of the barbarous new words introduced into science.

The plates are a useful anatomical atlas. Over 120 tables in the text are valuable summaries of medical data and in 10 appendices a wide range of information from blood groups to printers' corrections is covered.

This is an American dictionary and a useful note gives the main differences from British spelling. It may be a matter of regret, but it must be admitted, that by regular and careful revision and in detailed coverage this American work has become the medical dictionary of the English speaking world.

DEMONSTRATIONS OF OPERATIVE SURGERY. By Hamilton Bailey, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E. Third Edition revised by A. R. Isaac, F.R.CS.(Ed.). (Pp. XII+431 ; figs. 485. 50s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS publication maintains the very high standards of the Hamilton Bailey series. It contains a vast amount of essential information for nurses and surgeons. The presentation is clear, concise and easy to read. The black and white illustrations add greatly to the value of the book and the list of instruments illustrated is, in the reviewer's opinion, a most useful feature.

Section 1 gives a really helpful account of the principles underlying all the work of an operating theatre, including the duties and responsibilities of the nurse viz a vis the surgeon and anaesthetist.

The general high standard is maintained throughout the other sections and it would be invidious to single out any one of them, but it is interesting to note the "bone forceps" method of circumcision being advocated.

I have nothing but praise for this excellent book, and would thoroughly recommend it, especially to nurses and young surgeons in the early stages of their training, and also senior medical students. D.M.B.

A PRIMER OF PATHOLOGY. By F. A. Ward, L.R.C.P.I., M.C.Path. Second Edition. (Pp. VIII+116. 22s. 6d). London: Butterworth, 1967.

To write a simple introduction to pathology is a task of the greatest difficulty and anyone attempting it is unlikely to satisfy other pathologists. This chatty like volume manages to convey some useful information without overtaxing the mental equipment of the student. It is in no way a systematic study. The medical student, nowadays carefully selected and replete with physiological and biochemical knowledge, must surely find it light fare. It relates some pathological facts to clinical practice, but it fails to build on the basic scientific training of the student. The medical student may gain some useful, if isolated, facts from this little book, but it is to be hoped he will soon discard it and learn some pathology. Nurses and other auxilaries may learn a little, and it is to be hoped they will appreciate how little. J.E.M.

STEDMAN'S MEDICAL DICTIONARY. Twenty-first Edition. (Pp. XLIX+ 1836 ; plates 31. 105s). Edinburgh and London: E. & S. Livingstone, 1966.

IT is only after some study of this dictionary that the full wealth of information contained within it can be appreciated. It is very probable that too many think of such a dictionary only as an aid to spelling or to define some unusual word. *Stedman's* will certainly do this, and since the last edition in 1961 it is interesting to note that 9,183 new entries have been added and 8,897 revised. Through the morass of new terminology the consultant panel is a valuable guide, and, as stated in the preface, the dictionary, if it to be a useful guide to a living language, must spell, pronounce and define the words as they are used – not wistfully, as they should be. At the same time the introductory pages are a rich treasure of verbal knowledge and sound scholarship which, if used, would refine many of the barbarous new words introduced into science.

The plates are a useful anatomical atlas. Over 120 tables in the text are valuable summaries of medical data and in 10 appendices a wide range of information from blood groups to printers' corrections is covered.

This is an American dictionary and a useful note gives the main differences from British spelling. It may be a matter of regret, but it must be admitted, that by regular and careful revision and in detailed coverage this American work has become the medical dictionary of the English speaking world.

AN INTRODUCTION TO MEDICAL GENETICS. By J. A. Fraser Roberts, C.B.E., M.A., M.D., D.Sc., F.R.C.P., F.R.S. Fourth Edition. (Pp. XIII+290; figs 121. 25s paper; 38s boards). London: Oxford University Press, 1967.

THIS book is beautifully printed and illustrated and in the paper backed edition most acceptable and really excellent value for money. It remains what it has always been a general introduction for the medical practitioner. It has undergone numerous and useful minor changes throughout and in the later part there is new discussion on chromosomal abnormalities and on the genetics of the commoner congenital malformations. The science of genetics has increased in complexity though newer knowledge has sometimes provided clarification. This book is not all easy reading, but it is an authoritative guide through the growing volume of specialized literature, and everywhere it is apparent that the author is well aware of all the practical problems which may arise. The reviewer continues to consider that this, like the previous editions, remains the best book on genetics available to the medical practitioner.

J.E.M.

THE DOCTOR–PATIENT RELATIONSHIP. By Kevin Brown, M.B., B.S., and Paul Freeling, M.B., B.S. (Pp. VII+73. 10s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book, written by two general practitioner partners who have a special interest in psychological medicine, consists of a series of articles which appeared in *The Practitioner* during 1966.

These articles deal with the more intimate aspects of the doctor-patient relationship, which is surely the essential part of the ethos of general practice. They hear the authentic stamp of personal experience and their teaching is illustrated by a series of well presented case histories from the authors' own practice.

The book outlines methods by which behavioural studies may give doctors at first contact insight into the true needs of their parents. The chapter on the process of communication between doctor and patient, of primary importance in history taking, is especially valuable.

This is a book that should be in the library of every general practitioner and might well be read with advantage by many specialists and consultants. Even the most experienced will find something of value in its pages, while the attention of the younger members of the profession will be rightly directed to the study of the patient as a human being and to the process of communication between doctor and patient which is necessary for the swift and accurate diagnosis and treatment of disease.

T.McK.

FOOD, FACT AND FIGURE. By Mary E. Beck, S.R.D., illustrated by Rowel Friers. (Pp. 74. 6s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book was born in Northern Ireland, is written by one of our senior dieticians and illustrated by one of our outstanding cartoonists. It has the expected attributes of its genetic background for it is good, short, sensible and entertaining. This book is meant for lay people. It tell them the things that we doctors know but which we so often fail to communicate to our patients. An enlightened Health Service would arrange for this book to be handed out free to every young woman on her marriage day and this policy would pay handsomely in improving the health of the community.

I hope that all schools will get copies of this book for their library, and I would like boys encouraged to read it as well as girls.

O.L.W.

AN INTRODUCTION TO MEDICAL GENETICS. By J. A. Fraser Roberts, C.B.E., M.A., M.D., D.Sc., F.R.C.P., F.R.S. Fourth Edition. (Pp. XIII+290; figs 121. 25s paper; 38s boards). London: Oxford University Press, 1967.

THIS book is beautifully printed and illustrated and in the paper backed edition most acceptable and really excellent value for money. It remains what it has always been a general introduction for the medical practitioner. It has undergone numerous and useful minor changes throughout and in the later part there is new discussion on chromosomal abnormalities and on the genetics of the commoner congenital malformations. The science of genetics has increased in complexity though newer knowledge has sometimes provided clarification. This book is not all easy reading, but it is an authoritative guide through the growing volume of specialized literature, and everywhere it is apparent that the author is well aware of all the practical problems which may arise. The reviewer continues to consider that this, like the previous editions, remains the best book on genetics available to the medical practitioner.

J.E.M.

THE DOCTOR–PATIENT RELATIONSHIP. By Kevin Brown, M.B., B.S., and Paul Freeling, M.B., B.S. (Pp. VII+73. 10s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book, written by two general practitioner partners who have a special interest in psychological medicine, consists of a series of articles which appeared in *The Practitioner* during 1966.

These articles deal with the more intimate aspects of the doctor-patient relationship, which is surely the essential part of the ethos of general practice. They hear the authentic stamp of personal experience and their teaching is illustrated by a series of well presented case histories from the authors' own practice.

The book outlines methods by which behavioural studies may give doctors at first contact insight into the true needs of their parents. The chapter on the process of communication between doctor and patient, of primary importance in history taking, is especially valuable.

This is a book that should be in the library of every general practitioner and might well be read with advantage by many specialists and consultants. Even the most experienced will find something of value in its pages, while the attention of the younger members of the profession will be rightly directed to the study of the patient as a human being and to the process of communication between doctor and patient which is necessary for the swift and accurate diagnosis and treatment of disease.

T.McK.

FOOD, FACT AND FIGURE. By Mary E. Beck, S.R.D., illustrated by Rowel Friers. (Pp. 74. 6s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book was born in Northern Ireland, is written by one of our senior dieticians and illustrated by one of our outstanding cartoonists. It has the expected attributes of its genetic background for it is good, short, sensible and entertaining. This book is meant for lay people. It tell them the things that we doctors know but which we so often fail to communicate to our patients. An enlightened Health Service would arrange for this book to be handed out free to every young woman on her marriage day and this policy would pay handsomely in improving the health of the community.

I hope that all schools will get copies of this book for their library, and I would like boys encouraged to read it as well as girls.

O.L.W.

AN INTRODUCTION TO MEDICAL GENETICS. By J. A. Fraser Roberts, C.B.E., M.A., M.D., D.Sc., F.R.C.P., F.R.S. Fourth Edition. (Pp. XIII+290; figs 121. 25s paper; 38s boards). London: Oxford University Press, 1967.

THIS book is beautifully printed and illustrated and in the paper backed edition most acceptable and really excellent value for money. It remains what it has always been a general introduction for the medical practitioner. It has undergone numerous and useful minor changes throughout and in the later part there is new discussion on chromosomal abnormalities and on the genetics of the commoner congenital malformations. The science of genetics has increased in complexity though newer knowledge has sometimes provided clarification. This book is not all easy reading, but it is an authoritative guide through the growing volume of specialized literature, and everywhere it is apparent that the author is well aware of all the practical problems which may arise. The reviewer continues to consider that this, like the previous editions, remains the best book on genetics available to the medical practitioner.

J.E.M.

THE DOCTOR–PATIENT RELATIONSHIP. By Kevin Brown, M.B., B.S., and Paul Freeling, M.B., B.S. (Pp. VII+73. 10s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book, written by two general practitioner partners who have a special interest in psychological medicine, consists of a series of articles which appeared in *The Practitioner* during 1966.

These articles deal with the more intimate aspects of the doctor-patient relationship, which is surely the essential part of the ethos of general practice. They hear the authentic stamp of personal experience and their teaching is illustrated by a series of well presented case histories from the authors' own practice.

The book outlines methods by which behavioural studies may give doctors at first contact insight into the true needs of their parents. The chapter on the process of communication between doctor and patient, of primary importance in history taking, is especially valuable.

This is a book that should be in the library of every general practitioner and might well be read with advantage by many specialists and consultants. Even the most experienced will find something of value in its pages, while the attention of the younger members of the profession will be rightly directed to the study of the patient as a human being and to the process of communication between doctor and patient which is necessary for the swift and accurate diagnosis and treatment of disease.

T.McK.

FOOD, FACT AND FIGURE. By Mary E. Beck, S.R.D., illustrated by Rowel Friers. (Pp. 74. 6s). Edinburgh and London: E. & S. Livingstone, 1967.

THIS book was born in Northern Ireland, is written by one of our senior dieticians and illustrated by one of our outstanding cartoonists. It has the expected attributes of its genetic background for it is good, short, sensible and entertaining. This book is meant for lay people. It tell them the things that we doctors know but which we so often fail to communicate to our patients. An enlightened Health Service would arrange for this book to be handed out free to every young woman on her marriage day and this policy would pay handsomely in improving the health of the community.

I hope that all schools will get copies of this book for their library, and I would like boys encouraged to read it as well as girls.

O.L.W.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND AND ITS MEDICAL SCHOOL 1784-1966. By J. D. H. Widdess, M.A., LittlD.(Dubl.), L.R.C.P. and S.I., M.C.Path. (Pp. 152; plates XXI. 35s). Edinburgh and London: E. & S. Livingstone, 1967.

PROFESSOR WIDDESS in the small compass of 130 pages has covered the Surgery of Dublin and of Ireland in general, dealing particularly with that exciting period of the last 200 years. He deals with the schools of surgery of Dublin which, like their famous counterparts in London, The Hunterian and other schools, were the forenames of their more organised successor The Royal College of Surgeons in Ireland.

Dublin at that time was the second capital in the British Empire, and with its famous hospitals and more famous teachers, was the mecca for all enterprising doctors of that period. This book covers the details of these 200 years in a clear, readable and attractive style. It is a book which should be in every surgeon's hands and particularly with those who are interested in the history of progress of surgery during this time. Well printed, compact and well illustrated, the second edition of this book brings us right up to date with modern times.

As Librarian of the Royal College of Surgeons Professor Widdess has had all the material available; his book seems to have covered every facet in the progress of that institution. I cannot recommend too highly this excellent book which seems in a small space to have covered what most authors would have put in to a volume three times that size. I.F.

HISTORY OF MEDICINE: 1. Primitive and Archaic Medicine. By Henry E. Sigerist. (Pp. XXI+564; figs. 104. 24s). New York and London: Oxford University Press (Galaxy Books), 1967.

HENRY SIGERIST was a product of the finest German scholarship and later and for fifteen years professor of the history of medicine at Johns Hopkins University. In 1947 he retired to the lake hamlet of Pura on Lake Lugano to write his long projected history of medicine. This was to place medicine in the broad setting of general history and give some indication of the vast role played by the medical sciences among the forces which have determined the progress of mankind. This volume, first published in 1951, was the only one of the eight projected to be published before he died in 1957. It is a well established classic. It deals only with medicine in prehistoric times, in Ancient Egypt, and in the Mesopotamian civilization. It well deserves a wider audience and anyone interested in the dawn of medicine, folklore and primitive thought should read it.

This edition is a paper back one and unfortunately is bound in single sheets. This will make for premature disintegration and makes the book difficult to open fully. Again, with the narrow margin next to the spine the format is not a pleasant one. Such an important and serious study deserves a better production as a reprint and the book is expensive for this format. J.E.M.

THE PSYCHOANALYTIC REVOLUTION: Sigmund Freud's Life and Achievement by Marthe Robert, translated by Kenneth Morgan. (Pp. 396. 50s). London: George Allen & Unwin, 1966.

[IN the review of this book in the last issue (vol. xxxvi, page 72) some words were omitted from the first paragraph. This paragraph is now given as in the reviewer's manuscript.]

This is a very readable translation from the French of the birth and development of psychoanalysis. Naturally Freud is at its centre, but other key figures, such as Jung, Rank, Ferenczi, Adler and Putnam, enter and leave the narrative with only a few staunch adherents such as Pfister and Jones remaining loyal to the basic tenets postulated by their teacher.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND AND ITS MEDICAL SCHOOL 1784-1966. By J. D. H. Widdess, M.A., LittlD.(Dubl.), L.R.C.P. and S.I., M.C.Path. (Pp. 152; plates XXI. 35s). Edinburgh and London: E. & S. Livingstone, 1967.

PROFESSOR WIDDESS in the small compass of 130 pages has covered the Surgery of Dublin and of Ireland in general, dealing particularly with that exciting period of the last 200 years. He deals with the schools of surgery of Dublin which, like their famous counterparts in London, The Hunterian and other schools, were the forenames of their more organised successor The Royal College of Surgeons in Ireland.

Dublin at that time was the second capital in the British Empire, and with its famous hospitals and more famous teachers, was the mecca for all enterprising doctors of that period. This book covers the details of these 200 years in a clear, readable and attractive style. It is a book which should be in every surgeon's hands and particularly with those who are interested in the history of progress of surgery during this time. Well printed, compact and well illustrated, the second edition of this book brings us right up to date with modern times.

As Librarian of the Royal College of Surgeons Professor Widdess has had all the material available; his book seems to have covered every facet in the progress of that institution. I cannot recommend too highly this excellent book which seems in a small space to have covered what most authors would have put in to a volume three times that size. I.F.

HISTORY OF MEDICINE: 1. Primitive and Archaic Medicine. By Henry E. Sigerist. (Pp. XXI+564; figs. 104. 24s). New York and London: Oxford University Press (Galaxy Books), 1967.

HENRY SIGERIST was a product of the finest German scholarship and later and for fifteen years professor of the history of medicine at Johns Hopkins University. In 1947 he retired to the lake hamlet of Pura on Lake Lugano to write his long projected history of medicine. This was to place medicine in the broad setting of general history and give some indication of the vast role played by the medical sciences among the forces which have determined the progress of mankind. This volume, first published in 1951, was the only one of the eight projected to be published before he died in 1957. It is a well established classic. It deals only with medicine in prehistoric times, in Ancient Egypt, and in the Mesopotamian civilization. It well deserves a wider audience and anyone interested in the dawn of medicine, folklore and primitive thought should read it.

This edition is a paper back one and unfortunately is bound in single sheets. This will make for premature disintegration and makes the book difficult to open fully. Again, with the narrow margin next to the spine the format is not a pleasant one. Such an important and serious study deserves a better production as a reprint and the book is expensive for this format. J.E.M.

THE PSYCHOANALYTIC REVOLUTION: Sigmund Freud's Life and Achievement by Marthe Robert, translated by Kenneth Morgan. (Pp. 396. 50s). London: George Allen & Unwin, 1966.

[IN the review of this book in the last issue (vol. xxxvi, page 72) some words were omitted from the first paragraph. This paragraph is now given as in the reviewer's manuscript.]

This is a very readable translation from the French of the birth and development of psychoanalysis. Naturally Freud is at its centre, but other key figures, such as Jung, Rank, Ferenczi, Adler and Putnam, enter and leave the narrative with only a few staunch adherents such as Pfister and Jones remaining loyal to the basic tenets postulated by their teacher.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND AND ITS MEDICAL SCHOOL 1784-1966. By J. D. H. Widdess, M.A., LittlD.(Dubl.), L.R.C.P. and S.I., M.C.Path. (Pp. 152; plates XXI. 35s). Edinburgh and London: E. & S. Livingstone, 1967.

PROFESSOR WIDDESS in the small compass of 130 pages has covered the Surgery of Dublin and of Ireland in general, dealing particularly with that exciting period of the last 200 years. He deals with the schools of surgery of Dublin which, like their famous counterparts in London, The Hunterian and other schools, were the forenames of their more organised successor The Royal College of Surgeons in Ireland.

Dublin at that time was the second capital in the British Empire, and with its famous hospitals and more famous teachers, was the mecca for all enterprising doctors of that period. This book covers the details of these 200 years in a clear, readable and attractive style. It is a book which should be in every surgeon's hands and particularly with those who are interested in the history of progress of surgery during this time. Well printed, compact and well illustrated, the second edition of this book brings us right up to date with modern times.

As Librarian of the Royal College of Surgeons Professor Widdess has had all the material available; his book seems to have covered every facet in the progress of that institution. I cannot recommend too highly this excellent book which seems in a small space to have covered what most authors would have put in to a volume three times that size. I.F.

HISTORY OF MEDICINE: 1. Primitive and Archaic Medicine. By Henry E. Sigerist. (Pp. XXI+564; figs. 104. 24s). New York and London: Oxford University Press (Galaxy Books), 1967.

HENRY SIGERIST was a product of the finest German scholarship and later and for fifteen years professor of the history of medicine at Johns Hopkins University. In 1947 he retired to the lake hamlet of Pura on Lake Lugano to write his long projected history of medicine. This was to place medicine in the broad setting of general history and give some indication of the vast role played by the medical sciences among the forces which have determined the progress of mankind. This volume, first published in 1951, was the only one of the eight projected to be published before he died in 1957. It is a well established classic. It deals only with medicine in prehistoric times, in Ancient Egypt, and in the Mesopotamian civilization. It well deserves a wider audience and anyone interested in the dawn of medicine, folklore and primitive thought should read it.

This edition is a paper back one and unfortunately is bound in single sheets. This will make for premature disintegration and makes the book difficult to open fully. Again, with the narrow margin next to the spine the format is not a pleasant one. Such an important and serious study deserves a better production as a reprint and the book is expensive for this format. J.E.M.

THE PSYCHOANALYTIC REVOLUTION: Sigmund Freud's Life and Achievement by Marthe Robert, translated by Kenneth Morgan. (Pp. 396. 50s). London: George Allen & Unwin, 1966.

[IN the review of this book in the last issue (vol. xxxvi, page 72) some words were omitted from the first paragraph. This paragraph is now given as in the reviewer's manuscript.]

This is a very readable translation from the French of the birth and development of psychoanalysis. Naturally Freud is at its centre, but other key figures, such as Jung, Rank, Ferenczi, Adler and Putnam, enter and leave the narrative with only a few staunch adherents such as Pfister and Jones remaining loyal to the basic tenets postulated by their teacher.

PSYCHOLOGY IN RELATION TO MEDICINE. By R. M. Mowbray and T. Ferguson Rodgers. Second Edition. (Pp. VII+412; figs. 30. 36s). Edinburgh and London: E. & S. Livingstone, 1967.

THE first edition of this book was reviewed in the Ulster Medical Journal. Additions to the text have added to its value for medical students. The chapter dealing with emotion has been rearranged and in part re-written to include a fuller discussion of some aspects of the work described. Also a brief account of controlled clinical trials of drugs and some of the elementary statistics involved is included. Modern psychology is faithfully presented in its many aspects. The text will be a useful guide not only to the beginner, but also could be re-read with profit when the student is doing his clerkship in phychiatry. J.G.G.

MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John Glaister, J.P., D.Sc., M.D., F.R.S.E., F.R.C.P.(Glasg.), and Edgar Rentoul, M.B.E., J.P., M.A., LLB., M.B., B.Ch., M.C.Path. Twelfth Edition. (Pp. XI+724; figs. 286. 80s). Edinburgh and London: E. & S. Livingstone, 1966.

THE popularity of this textbook, particularly amongst medical students, can be measured by the fact that over the last three decades, a new edition has appeared about every four years. The present edition is very little different from the last volume. A note on the Human Tissue Act, 1961, has replaced that on the now-repealed Corneal Grafting Act. Notes have been inserted on 'battered babies', on 'cot deaths' and the Drugs (Prevention of Misuse) Act, 1964. The law concerning dangerous drugs and therapeutic substances has been brought up to date. Most of the text is the same, however, and this volume, with only four more pages than formerly, is more in the nature of a reprint. In the next edition, the authors should attempt a more drastic revision; the book would benefit, for instance, by a more up-to-date interpretation of the process of fresh and salt-water drowning, a description of the electric mark caused by a low-tension current and of the cavitation effects of high-velocity missiles.

T.K.M.

THE EYE IN GENERAL PRACTICE. By C. R. S. Jackson, M.A., B.M., B.Ch.(Oxon.), D.O.M.S., F.R.C.S.Ed. Fourth Edition. (Pp. VIII+174; figs. 45. 27s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

IT is not surprising that the publishers of this epitome of opthalmology, first issued ten years ago, have been called on to issue a fourth edition. The manner in which it presents the subject is acceptable where it is desired that the essence be presented briefly, clearly and elegantly. Two of this book's features are outstanding—its typescript and its illustrations, many of the latter being photographs and drawings in colour. The drawings in black and white make their point with a minimum of fuss. As a result the book is a pleasure to handle and read and it can be recommended to the medical student or to the busy practitioner anxious to refresh his knowledge of some particular point dealing with the eye or vision.

J.A.C.

LIVINGSTONE BOOKS 1967: Complete Catalogue. (Pp. 96; free on request). Edinburgh and London: E. & S. Livingstone, 1967.

TITLES are grouped under subjects and by authors, and both books published by Livingstone in this country and those published by their associate in the United States are included. A wide range of subjects and authors are listed and this is a valuable classified list.

PSYCHOLOGY IN RELATION TO MEDICINE. By R. M. Mowbray and T. Ferguson Rodgers. Second Edition. (Pp. VII+412; figs. 30. 36s). Edinburgh and London: E. & S. Livingstone, 1967.

THE first edition of this book was reviewed in the Ulster Medical Journal. Additions to the text have added to its value for medical students. The chapter dealing with emotion has been rearranged and in part re-written to include a fuller discussion of some aspects of the work described. Also a brief account of controlled clinical trials of drugs and some of the elementary statistics involved is included. Modern psychology is faithfully presented in its many aspects. The text will be a useful guide not only to the beginner, but also could be re-read with profit when the student is doing his clerkship in phychiatry. J.G.G.

MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John Glaister, J.P., D.Sc., M.D., F.R.S.E., F.R.C.P.(Glasg.), and Edgar Rentoul, M.B.E., J.P., M.A., LLB., M.B., B.Ch., M.C.Path. Twelfth Edition. (Pp. XI+724; figs. 286. 80s). Edinburgh and London: E. & S. Livingstone, 1966.

THE popularity of this textbook, particularly amongst medical students, can be measured by the fact that over the last three decades, a new edition has appeared about every four years. The present edition is very little different from the last volume. A note on the Human Tissue Act, 1961, has replaced that on the now-repealed Corneal Grafting Act. Notes have been inserted on 'battered babies', on 'cot deaths' and the Drugs (Prevention of Misuse) Act, 1964. The law concerning dangerous drugs and therapeutic substances has been brought up to date. Most of the text is the same, however, and this volume, with only four more pages than formerly, is more in the nature of a reprint. In the next edition, the authors should attempt a more drastic revision; the book would benefit, for instance, by a more up-to-date interpretation of the process of fresh and salt-water drowning, a description of the electric mark caused by a low-tension current and of the cavitation effects of high-velocity missiles.

T.K.M.

THE EYE IN GENERAL PRACTICE. By C. R. S. Jackson, M.A., B.M., B.Ch.(Oxon.), D.O.M.S., F.R.C.S.Ed. Fourth Edition. (Pp. VIII+174; figs. 45. 27s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

IT is not surprising that the publishers of this epitome of opthalmology, first issued ten years ago, have been called on to issue a fourth edition. The manner in which it presents the subject is acceptable where it is desired that the essence be presented briefly, clearly and elegantly. Two of this book's features are outstanding—its typescript and its illustrations, many of the latter being photographs and drawings in colour. The drawings in black and white make their point with a minimum of fuss. As a result the book is a pleasure to handle and read and it can be recommended to the medical student or to the busy practitioner anxious to refresh his knowledge of some particular point dealing with the eye or vision.

J.A.C.

LIVINGSTONE BOOKS 1967: Complete Catalogue. (Pp. 96; free on request). Edinburgh and London: E. & S. Livingstone, 1967.

TITLES are grouped under subjects and by authors, and both books published by Livingstone in this country and those published by their associate in the United States are included. A wide range of subjects and authors are listed and this is a valuable classified list.

PSYCHOLOGY IN RELATION TO MEDICINE. By R. M. Mowbray and T. Ferguson Rodgers. Second Edition. (Pp. VII+412; figs. 30. 36s). Edinburgh and London: E. & S. Livingstone, 1967.

THE first edition of this book was reviewed in the Ulster Medical Journal. Additions to the text have added to its value for medical students. The chapter dealing with emotion has been rearranged and in part re-written to include a fuller discussion of some aspects of the work described. Also a brief account of controlled clinical trials of drugs and some of the elementary statistics involved is included. Modern psychology is faithfully presented in its many aspects. The text will be a useful guide not only to the beginner, but also could be re-read with profit when the student is doing his clerkship in phychiatry. J.G.G.

MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John Glaister, J.P., D.Sc., M.D., F.R.S.E., F.R.C.P.(Glasg.), and Edgar Rentoul, M.B.E., J.P., M.A., LLB., M.B., B.Ch., M.C.Path. Twelfth Edition. (Pp. XI+724; figs. 286. 80s). Edinburgh and London: E. & S. Livingstone, 1966.

THE popularity of this textbook, particularly amongst medical students, can be measured by the fact that over the last three decades, a new edition has appeared about every four years. The present edition is very little different from the last volume. A note on the Human Tissue Act, 1961, has replaced that on the now-repealed Corneal Grafting Act. Notes have been inserted on 'battered babies', on 'cot deaths' and the Drugs (Prevention of Misuse) Act, 1964. The law concerning dangerous drugs and therapeutic substances has been brought up to date. Most of the text is the same, however, and this volume, with only four more pages than formerly, is more in the nature of a reprint. In the next edition, the authors should attempt a more drastic revision; the book would benefit, for instance, by a more up-to-date interpretation of the process of fresh and salt-water drowning, a description of the electric mark caused by a low-tension current and of the cavitation effects of high-velocity missiles.

T.K.M.

THE EYE IN GENERAL PRACTICE. By C. R. S. Jackson, M.A., B.M., B.Ch.(Oxon.), D.O.M.S., F.R.C.S.Ed. Fourth Edition. (Pp. VIII+174; figs. 45. 27s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

IT is not surprising that the publishers of this epitome of opthalmology, first issued ten years ago, have been called on to issue a fourth edition. The manner in which it presents the subject is acceptable where it is desired that the essence be presented briefly, clearly and elegantly. Two of this book's features are outstanding—its typescript and its illustrations, many of the latter being photographs and drawings in colour. The drawings in black and white make their point with a minimum of fuss. As a result the book is a pleasure to handle and read and it can be recommended to the medical student or to the busy practitioner anxious to refresh his knowledge of some particular point dealing with the eye or vision.

J.A.C.

LIVINGSTONE BOOKS 1967: Complete Catalogue. (Pp. 96; free on request). Edinburgh and London: E. & S. Livingstone, 1967.

TITLES are grouped under subjects and by authors, and both books published by Livingstone in this country and those published by their associate in the United States are included. A wide range of subjects and authors are listed and this is a valuable classified list.

PSYCHOLOGY IN RELATION TO MEDICINE. By R. M. Mowbray and T. Ferguson Rodgers. Second Edition. (Pp. VII+412; figs. 30. 36s). Edinburgh and London: E. & S. Livingstone, 1967.

THE first edition of this book was reviewed in the Ulster Medical Journal. Additions to the text have added to its value for medical students. The chapter dealing with emotion has been rearranged and in part re-written to include a fuller discussion of some aspects of the work described. Also a brief account of controlled clinical trials of drugs and some of the elementary statistics involved is included. Modern psychology is faithfully presented in its many aspects. The text will be a useful guide not only to the beginner, but also could be re-read with profit when the student is doing his clerkship in phychiatry. J.G.G.

MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John Glaister, J.P., D.Sc., M.D., F.R.S.E., F.R.C.P.(Glasg.), and Edgar Rentoul, M.B.E., J.P., M.A., LLB., M.B., B.Ch., M.C.Path. Twelfth Edition. (Pp. XI+724; figs. 286. 80s). Edinburgh and London: E. & S. Livingstone, 1966.

THE popularity of this textbook, particularly amongst medical students, can be measured by the fact that over the last three decades, a new edition has appeared about every four years. The present edition is very little different from the last volume. A note on the Human Tissue Act, 1961, has replaced that on the now-repealed Corneal Grafting Act. Notes have been inserted on 'battered babies', on 'cot deaths' and the Drugs (Prevention of Misuse) Act, 1964. The law concerning dangerous drugs and therapeutic substances has been brought up to date. Most of the text is the same, however, and this volume, with only four more pages than formerly, is more in the nature of a reprint. In the next edition, the authors should attempt a more drastic revision; the book would benefit, for instance, by a more up-to-date interpretation of the process of fresh and salt-water drowning, a description of the electric mark caused by a low-tension current and of the cavitation effects of high-velocity missiles.

T.K.M.

THE EYE IN GENERAL PRACTICE. By C. R. S. Jackson, M.A., B.M., B.Ch.(Oxon.), D.O.M.S., F.R.C.S.Ed. Fourth Edition. (Pp. VIII+174; figs. 45. 27s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

IT is not surprising that the publishers of this epitome of opthalmology, first issued ten years ago, have been called on to issue a fourth edition. The manner in which it presents the subject is acceptable where it is desired that the essence be presented briefly, clearly and elegantly. Two of this book's features are outstanding—its typescript and its illustrations, many of the latter being photographs and drawings in colour. The drawings in black and white make their point with a minimum of fuss. As a result the book is a pleasure to handle and read and it can be recommended to the medical student or to the busy practitioner anxious to refresh his knowledge of some particular point dealing with the eye or vision.

J.A.C.

LIVINGSTONE BOOKS 1967: Complete Catalogue. (Pp. 96; free on request). Edinburgh and London: E. & S. Livingstone, 1967.

TITLES are grouped under subjects and by authors, and both books published by Livingstone in this country and those published by their associate in the United States are included. A wide range of subjects and authors are listed and this is a valuable classified list.

EMERGENCY SURGERY OF THE HAND. By Erik Moberg. Translated by W. M. McQuillan. (Pp. 74 ; figs. 38. 10s 6d). Edinburgh and London: E. & S. Livingstone, 1967.

THE speciality of hand surgery owes a lot to Bunnell whose pupil was Prof. Erik Moberg of of Goteborg, the author. This small monograph was originally written in Swedish, it was re-written in German and this is a translation from the German by the senior lecturer in Orthopaedic Surgery in Edinburgh University.

The text loses nothing in translation. The book itself comes half-way in its range between a comprehensive monograph in hand surgery and the basic principles laid down in a standard book of surgery. It is addressed to those who have the responsibility for the primary manage- of the acute hand injury. The standard of hand surgery in recent years has improved greatly where orthopaedic and plastic surgeons have found common ground, but it is not practical for all hand injuries to receive primary treatment by experts. Perusal of this book would ensure that the primary treatment did not jeopardise future expert management.

W.H.E.