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Sesquicentenary of the BELFAST MEDICAL SCHOOL

SYMPOSIUM

held on 16 May 1986

THE ULSTER MEDICAL JOURNAL

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SESQUICENTENARY OF THE BELFAST MEDICAL SCHOOL

Symposium to mark the 150th anniversary of
the foundation of the Medical School in Belfast,
held on 16 May 1986
in the Postgraduate Medical Centre, Belfast City Hospital.

Supplement Editor

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The Ulster Medical Journal, Volume 56, Supplement, August 1987.

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Programme

Friday 16 May 1986

Postgraduate Medical Centre, Belfast City Hospital

Morning Session

Historical aspects of the Belfast medical school

Chairman : *Professor Desmond Montgomery*

The Belfast medical school	*Sir Peter Froggatt*
Personalities and problems of sixty years ago . .	*Sir Ian Fraser*
The 'wild geese'	*Dr John Weaver*
The Ulster Hospital	*Mr Hume Logan*
The Mater Infirmorum Hospital	*Mr Joe Verzin*

Afternoon Session

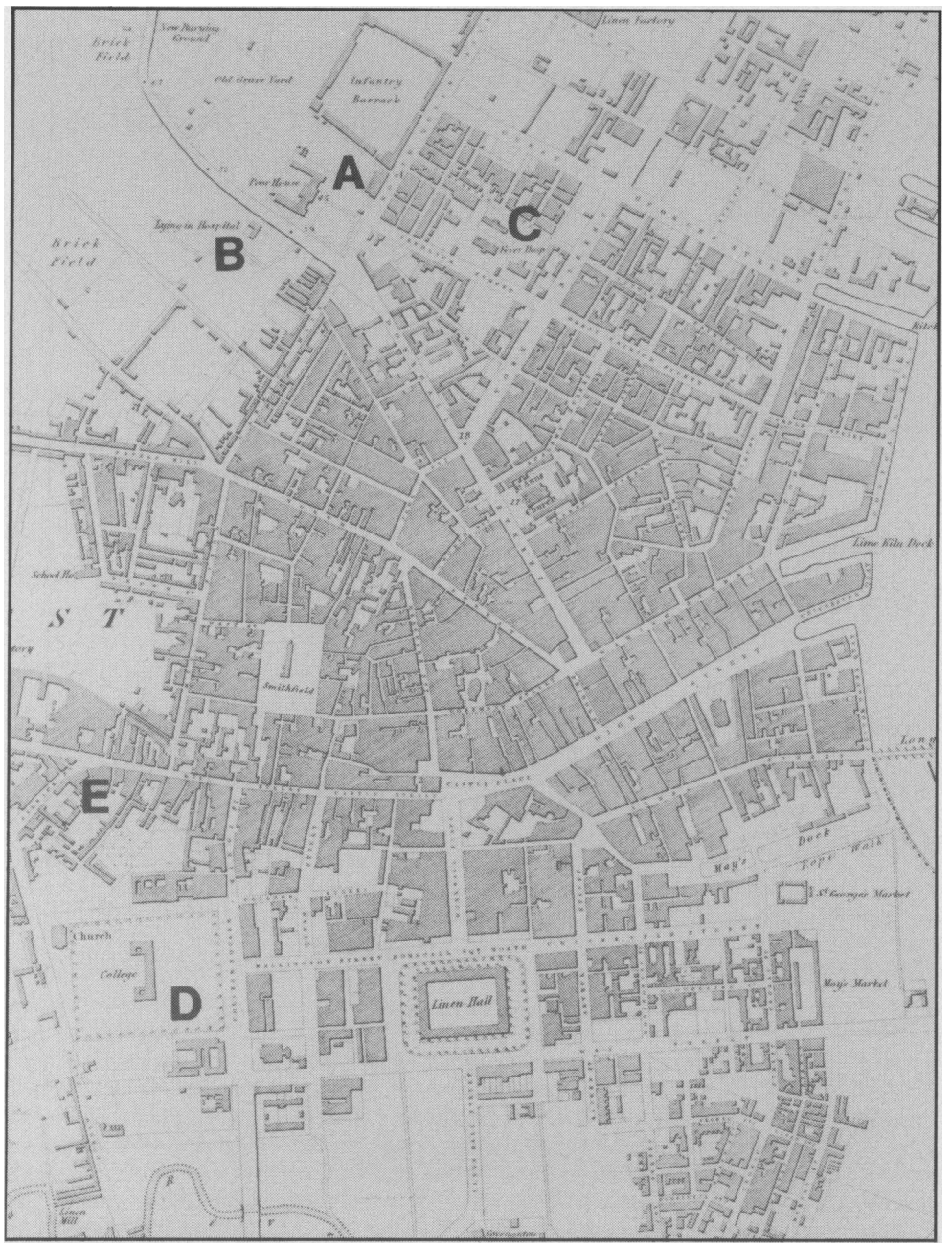
Moving points in medicine

Chairman : *Professor Gary Love*

A view from the United States	*Dr John Shepherd*
Transplantation	*Dr Mollie McGeown*
Anaesthetics	*Professor John Dundee*
Trauma	*Mr Derek Gordon*
Pre-clinical research	*Professor Ian Roddie*

Closing remarks by the Dean of the Faculty of Medicine.

The titles of the papers and authors' names were printed as above in the programme of the meeting: editorial changes have occurred in the process of publication.



ORDNANCE SURVEY MAP OF BELFAST, FIRST SERIES 1833.
A Belfast Charitable Institute. **B** Lying-In Hospital. **C** Belfast Fever Hospital and General Dispensary. **D** Royal Belfast Academical Institution. **E** The Old Barracks, Barrack Street (later to be the College Hospital). The Union Workhouse and Infirmary, and the Mater Infirmorum Hospital, were not then built.

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Introduction

In the early eighteen hundreds, prominent Belfast citizens decided to found an Academical Institution to school their younger sons and prepare their older ones for a career in medicine, the Presbyterian ministry or just 'useful' life. After many vicissitudes, the 'medical department of the Royal Belfast Academical Institution' was formed and its five-member board of faculty met for the first time on 8 October 1835. It had a detailed published 'plan' including arrangements for clinical instruction agreed with the Belfast Fever Hospital and General Dispensary, a forerunner of the Royal Victoria Hospital, and the full curriculum was eventually in place for 1 May 1836. Since then a recognised medical school with an approved curriculum has been in continuous existence, with Queen's taking the part of 'Inst', and clinical teaching now spread over a wide range of general and specialist teaching hospitals throughout the province but historically and geographically still centred at the Royal Victoria Hospital. With some 150 graduates each year, the Belfast school is among the largest in these islands.

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A sesquicentenary occasion was arranged for 15/16 May 1986, centring on an all-day symposium, though flanked by a reception at Stormont and a dinner in the Whitla Hall, and pleasantly interrupted by lunch in the City Hall generously hosted by the Lord Mayor. Up to 300 attended the social events; somewhat fewer at any one time the symposium. Graduates attended from many countries.

The symposium was in two parts, each of five papers. The first, fittingly, dealt with the origins of the school (Sir Peter Froggatt), some notable graduates who had established their reputations working elsewhere (Dr John Weaver), personal experiences since the first World War (Sir Ian Fraser), and the history of two of our esteemed Belfast general teaching hospitals which had not previously received as much attention as the others (The Ulster Hospital — Mr Hume Logan; the Mater Infirmorum Hospital — Mr Joe Verzin). The second part considered some of the areas of modern research in which the school and its associated hospitals have excelled. Many could be called but few could be chosen. Dr Mollie McGeown dealt with renal transplantation, Professor John Dundee with just one of his many research topics, Mr Derek Gordon mainly with head injuries, and Professor Ian Roddie with pre-clinical personalities and achievements. Dr John Shepherd, one of our most distinguised *émigrés,* opened the session with a characteristically wide view of medical developments as seen from the United States.

The occasion had been foreshadowed in my address on 16 May 1985 to the Ulster Medical Society, made possible by an invitation from the then President (Dr John Weaver), but the organisation and success were due to the drive and enthusiasm of Professor Barry Bridges. Queen's University, the Eastern Health and Social Services Board, the efforts and contributions of many individuals, and other organisations listed elsewhere, made the occasion possible.

A venerable, venerated and 'mother' medical school should have a permanent record of such proceedings for its many and widespread graduates and for posterity, the more so since its centenary went almost unnoticed. The *Ulster Medical Journal* is the appropriate publication since the great majority of its subscribers are products of the school.

Editing the papers has proved a pleasurable task and I am grateful for the invitation from the *Journal*'s editor, Dr David Hadden. I aimed to preserve each author's style and flavour, yet ensure that the content and scholarship of each paper could pass the strictest panel. As always, Miss Ann McKeown's help in sub-editing was invaluable. I hope that the symposium *Proceedings,* the only such in the 150-year history of the school, worthily portray and represent our great heritage.

PETER FROGGATT

Guest Editor.

The Ulster Medical Journal, Volume 56, Supplement, pp. S5 – S14, August 1987.

The early medical school: foundation and first crisis — the 'college hospital' affair

P Froggatt

PROLOGUE

A common problem is to know what to do while not knowing how to do it. Mine is the converse: I know how to do it but not what to do! I could describe the early days of the School but I have already attempted that in somewhat turgid style in publications which some of you may have read, lured by the illustrations![1-3] Or I could describe the ethos and distinctiveness of the School and its influence in shaping the character and practice of its graduates, but I have done that also,[4,5] including in the *History,* written in conjunction with Professor Bridges, which was circulated for this meeting.[6] Or I could describe developments from the clinician's viewpoint introducing a hospital perspective, but far better men than I have written on this, starting with Malcolm in 1853[7] — Simms, Hunter, Marshall, Allison, Strain, Fraser and others. The early days of the School have certainly not lain neglected: indeed the rich vein of primary material — more comprehensive than that of any other early provincial medical school in these islands[2,8] — has been fully mined and even shows signs of being overworked.

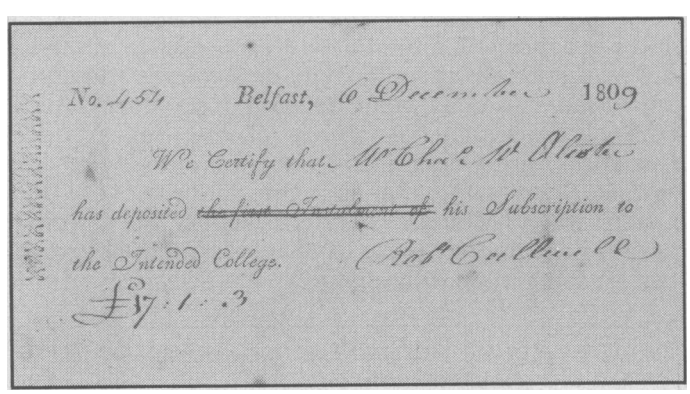
This is a celebratory occasion not to be doused by a torrent of niggling fact, tendentious opinion, or boring repetition. I thought, therefore, that I would consider two topics which are not touched on by other contributors to the symposium and are perhaps not widely known to the local profession: first, the sequence of events which culminated on that auspicious day, 8 October 1835, when 'the Board of the Faculty of the Medical Department' of the Royal Belfast Academical Institution (hereinafter Inst) met for the first time; and second, that strange episode when one of the School's partners — Inst — decided to buy, equip, staff, and run a teaching hospital of 100 beds, not unlike a university hospital today in the United States. Those who wish to drink more deeply at this Pierian spring should start with the publications referenced in the circulated *History.*[6]

A bibliographical note. The primary records of Inst for this period are extensive and are deposited in the Public Record Office of Northern Ireland. They include the minute books of the Faculty of Medicine and of the joint board of managers and visitors (the *de facto* governing authority), the Letter Books, and much miscellaneous material. Those of the Belfast Fever Hospital and General Dispensary are lodged in the RVH Honorary Archivist's office: they include the *Annual Reports* and, thanks to the alertness of the then Archivist (the late Hugh Gault Calwell), also the minute books of the Committee of Management. For brevity I cite none of these in what follows: the provenance of unreferenced facts can be established from my original articles.[1-2]

Sir Peter Froggatt, MA, MD, LLD (Hon), DSc (Hon), PhD, DPH, FRCP, FFCM, FRCPI, FFCMI, FFOMI, MRIA, 3 Strangford Avenue, Belfast BT9 6PG.

THE BACKGROUND TO THE FOUNDATION OF THE SCHOOL

In 1800, Ulster, notably Presbyterian Belfast, needed a university, and one very different from that planned by Primate Robinson in Armagh with a conditional endowment of £5,000 which had been blown away by the guns of the '98.[9] The population was mushrooming in numbers and wealth; the intellectual and political turbulence of the 1790s were giving way to sureness of purpose and civil peace in which industry and commerce were boomimg and the vibrant intellectual energies were being channelled into spreading knowledge, skills and learning. The increasingly prosperous Presbyterians had set most constitutional issues behind them and sought now for their sons' educational advancement beyond field and counting-house. Within Ireland they sought in vain: Trinity was an Anglican bastion which disadvantaged non-conformists in a Dublin culturally inimicable and morally suspect; Maynooth was for 'professing Roman Catholics' (and, presumably, the devil!); while the Belfast Academy was small and not always in favour with *die Graubärte* of the church.[10] Many therefore sent their sons to their convenient and co-religionist original homeland of Scotland — mainly Edinburgh for medicine, Edinburgh and Glasgow for anatomy, and Glasgow for arts and theology — so that the trickle on the Donaghadee to Portpatrick packet had become a modest flood by the early eighteen hundreds.[11] Higher education in Ulster became the watchword, 'in order' said William Drennan, MD, 'to prevent the hard and disgraceful necessity . . . of parents sending their children to seek in other countries, with much risk to their health and morals, for that instruction . . . which might be equally well attained at home with evident advantage to the public interest as well as to that of individuals.'[12] The Belfast merchants, with the commercial benefits of industrialisation and the Union rising like a new sun, quickly took up the challenge. Members 'of the mercantile class' met on 26 May and 6 June 1806 and conceived the idea of a non-denominational 'academical institution', and plans were laid at a public meeting on 1 August 1807. Land was leased (in perpetuity at some £22 sterling p.a.) from the second Marquess of Donegall, subscriptions were invited from a wide constituency including Irish regiments and friends in India, and within a short time £14,000 had been collected, £10,000 in the first fortnight, and on 4 February 1808 detailed regulations were put to a meeting of subscribers.[13-15] On 25 April Sir John Soane, the great classical revivalist architect, agreed out of philanthropy to make drawings without fee: he made two at once (May), four more in December, and two more in February 1809, one of those made in December with suitable (cheaper!) modifications being accepted and Soane rewarded with a seat on the first governing body, a modest enough recompense for the total of 42 drawings he and his office had made![2]


No. 451 Belfast, 6 December 1809

We Certify that Mr Chas Mc Alister has deposited ~~the first Instalment of~~ his Subscription to the Intended College. Rob[t] Corbett

£17:1:3

Fig 1. Receipt in the sum of £17-1-3 to Mr Charles McAlister for his subscription towards the building of Inst.

Inst was incorporated by statute in 1810 (50 Geo. III, c.193) as a part boys' school, part university college, part further and continuing education college to provide 'a complete course of education' which would lead to and include a general certificate — and here was the *coup* and guarantor of success — approved by the Synods in Ulster as equivalent to a Scottish degree and acceptable for theological training. But 'continuing education' and general enlightenment were also objectives and so there were 'popular lectures upon those subjects which are most conducive to the improvement of the Agriculture, Arts, and Manufactures of this country'.[15] In short, in its college function (and put in modern jargon) an immediately relevant degree accredited by the professional body, and an active vocational continuing education role — objectives towards which now, 175 years later, universities are still striving!

But Ulster's sons had emigrated to study medicine as well as prepare for the Ministry and the founders intended that Inst should have a medical faculty: small value if it didn't since the educational haemorrhage of much of the flower of Ulster's youth would continue. The problem was money, so they planned modestly — a foundation chair of natural philosophy to be followed by chairs in chemistry, and in anatomy and physiology combined, with an anatomy suite (dissecting room, lecture room, museum, spare room, and privy!) originally to be 'in that part of the main building most removed from town' though ultimately in a modest free-standing building which, extended, stood until 1982 (block A1) as science classrooms, finally for theatre prop storage, near the present sixth form centre. There was also to be an adjoining botanical garden to meet the requirements of pharmacy. The soon-acquired government grant of £1,500 p.a., reviewable yearly, would guarantee existing and future chairs. I have described elsewhere[1, 2] how this grant was lost for 13 years (1817-1829) with the upshot that the more ambitious plans for medicine were shelved reluctantly, and at a seminal time, because the 1815 Apothecaries' Act effectively brought some uniformity into the existing disparate curricula for those preparing for their diplomas. The moment, however, found the man: James Lawson Drummond from Ballyclare, son of a naval surgeon, an Edinburgh MD of 1814, the year he was appointed attending physician at the Belfast Fever Hospital (ancestor of the RVH), offered to start anatomy and physiology lectures, and after some haggling over stipend he was appointed to the foundation chair of 'anatomy and medical physiology' and started classes in February 1819 in the faculty of arts teaching 'a very wide field of natural history and a good deal of natural theology; there is scarcely a fact in Paley's *Natural theology* that is not explained and illustrated . . . [also] a little human dissection' to students preparing for the ministry but also 'to a number of medical men, apothecaries, apprentices and others'. In 1822 he added classes in botany, and the professor of natural philosophy supplied a course 'in the

Fig 2. James Lawson Drummond, MD, first 'president' (dean) of the board of faculty of the medical school, 1835 – 1837 and 1844.

elements of chemical science' so that by the mid-1820s the components of a pre-clinical course were available.

This, however, was anatomy and the sciences, not medicine, materia medica, midwifery and surgery: the medical school which the founders had planned was no closer, still less the university which was their ultimate dream. Certainly Drummond's courses were a tourniquet, though a loose one, to the haemorrhage of medical aspirants, and by 1827 the number of Irish, mostly Ulster, *anatomy* though not necessarily *medical* students attending Glasgow and Edinburgh universities had fallen noticeably since the early century:[11] as James Jeffray, Professor of Anatomy at Glasgow, deposed that year — 'I should think that the [Irish] medical students have diminished in some respect because more go now to Dublin and Paris etc where they get the [anatomical] subjects much easier than we are able to procure them here', though he then went on to add '*The academy [i.e. Inst] at Belfast has also lessened our numbers*'[16] (my italics). But without the wind of government money the matter was becalmed and what made it all the more frustrating to Inst was that their potential partner, the Belfast Fever Hospital and General Dispensary, was expanding vigorously: their new 100+-bed hospital in Frederick Street was opened in 1817, students were 'walking the wards' since 1821 and being generally useful as clerks and dressers, and the staff were keen for a joint school.

The first whisper of a favourable wind came in 1826. In October 1825 the Commissioners appointed to inquire into Irish education took evidence from Inst.[17] Circumstances were changed from 10 years before: Inst was no longer seen as a nidus of 'democratic' ideas and a seedbed for republicanism. It was clear that the Commissioners would recommend renewal of the grant so peremptorily withdrawn in 1817 — as indeed they did — and on 1 November 1826, nearly four months before the report was published, Drummond, anticipating correctly, made a pre-emptive plea for a joint school in a letter to the Belfast Fever Hospital committee and published in the (Belfast) *News-Letter.* After proposing a joint 'preparatory [i.e. non-degree-giving] school of medicine and surgery, useful and important to the medical youth of Ulster', he continued:

> 'After Anatomy, the next great objects of medical education are Chemistry and Materia Medica . . . [and then] it is of early importance to the students to have an opportunity of observing disease in its various aspects . . . I would therefore suggest the utility of a ward in the hospital being appropriated to the reception of a certain number of patients, to be placed under the care of one or two physicians, and that clinical lectures be delivered twice a week on the cases of said patients . . . A weekly lecture or two on the surgical cases in the hospital by the Surgeons would be of great importance . . . and were medical students entrusted under proper relations with . . . cases in the lying-in hospital it would form to such students a most valuable source of improvement . . . I hope that a time may come when a session or two spent here will be considered equivalent to an equal time spent in Edinburgh or Dublin'.[18]

This initiative was well-timed and warmly received by both partners. But people hear what they want to hear, and while Inst heard only voices conjuring up a joint school under their control, the hospital staff heard a more loosely bound association without loss of their own autonomy. When they learnt of Inst's assumptions they were to say the least lukewarm, not for frivolous reasons or naked self-interest, but for reasons which struck at the heart of 'college' and

'hospital' relations generally and which lie close beneath the surface even today, or sometimes on it! They are worth repeating (below).

The hospital staff had three objections. The first, though hedged about with principle, came down to money. Under 47 Geo. III, c.40 (1807), grand juries could vote up to £100 at each assize to any fever hospital in Ireland. This money was strictly for *fever* patients but this constraint was not observed until much later in practice; *all* the patients *and* the hospital benefited. In 1826 it represented 27 per cent of the Belfast Fever Hospital's income, too important to be jeopardised by forming any other association 'with any Public Body'. The second was a matter of control over teaching: in a joint school run by Inst, staff appointed to Inst would have *entrée* to the Fever Hospital to give clinical lectures on clinical material 'in no degree responsible to the Committee of the Hospital'. This would clearly never do. The third was the perennial problem of beds. Drummond's proposals called for a 'teaching ward' on the Edinburgh pattern — a form of professorial teaching unit — which for adequate clinical material would need to cater largely for non-fever patients, who were rarely more than about 25 per cent of all patients: the rest of the staff would have to deal mainly with fever cases. Furthermore, it was an implicit corollary that the physician in charge would be the Professor of Medicine at Inst, i.e., an appointee by an outside autonomous body. As if these were not bad enough, in addition Inst professors enjoyed five-year tenure renewable (in practice virtually lifetime), while hospital staff were annually appointed: the Fever Hospital would not countenance placing patients 'under the charge of a Physician or Surgeon appointed by a different body who is entitled *ex officio* to exercise his function at the Hospital for life be he who he might'. The grounds for the objections were clear but the mood was amicable, especially among the staff, where there was much sympathy for Inst and even more for a joint school (several hospital staff were Inst proprietors, managers or 'visitors'); the hospital staff therefore 'agreed to concur with the . . . Institution in any measure necessary for carrying it [the joint medical school] into effect', the hospital committee adding the practical caveat that any agreement should be 'consistent with the welfare and the interests of the Hospital'. It was clear to all that agreement would ultimately be reached and meanwhile Inst pressed, successfully, for the renewal of the government grant and planned to raise money for a medical school building, while the Fever Hospital started clinical lectures by its own staff and in other ways 'facilitated the attendance of pupils', and on 3 June 1827 the 65-year-old James MacDonnell gave the first in a continuing if irregular series of lectures on the hospital premises joined soon by Dr W M Wilson (attending physician) and Mr D Moore (attending surgeon).

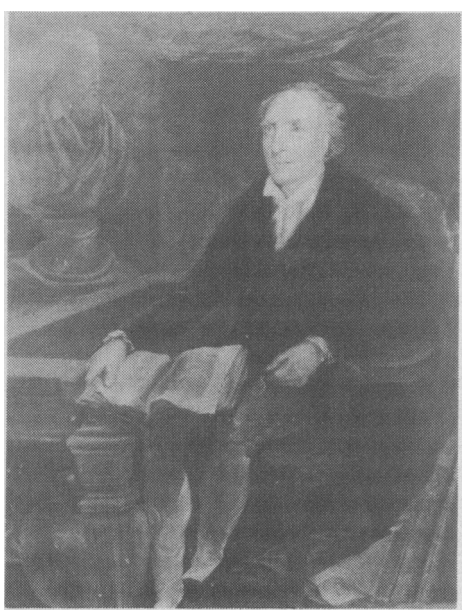


Fig 3. James MacDonnell, MD, doyen of the Belfast medical school. (An unsigned portrait in possession of his great-great-granddaughter Mrs Louisa Shorter of Kilsharvan, Co. Meath, and reproduced with her kind permission).

But there was a long way to go: the concerns of the hospital staff and committee were fundamental ones and in Inst they found a body strong on principle, even self-righteousness, but short on any will to bargain away what they saw as their constitutional rights under their Act of Incorporation of 1810. The early amicability and heady visions of Drummond and the staff faded somewhat in front of the stern realities. Nor could money oil the wheels: there was very little and that was that. The negotiations of the next four years — actually from October 1829, the government grant had been received that spring — with its forcing bids, threats of unilateral action, and even the creation by the hospital staff of a *soi-disant* 'Faculty of the Belfast School of Medicine and Surgery' and the continued failure of Inst to acknowledge, perhaps even to see, the problems which the hospital faced, make intriguing reading with lessons for today.[1,2] Eventually, after some false dawns, Inst was in a position by September 1835 to advertise the first chairs to start courses in the joint school in November, *viz,* materia medica and pharmacy, theory and practice of medicine, midwifery, surgery, chemistry and botany, and also 'hospital attendance and clinical instruction at the Dispensary and Fever Hospital [as part of] the system, and additional classes to be established when deemed expedient'. During the autumn the appointments were made: Drummond, already Professor of Anatomy and Physiology, also to the Chair of Botany (actually on 30 June); John MacDonnell, James MacDonnell's second son, to the Chair of Surgery; Thomas Andrews to the Chair of Chemistry; J D Marshall to the Chair of Materia Medica and Pharmacy; and Robert Little to the Chair of Midwifery and Diseases of Women and Children. The Chairs of Physic (originally planned as two — 'Theory' and 'Practice') were amalgamated and not filled until Henry MacCormac was appointed two years later.

Para 15 of the 1835 *Plan*[19] — 'As soon as three Medical Professors are elected they shall constitute a separate faculty' — was now fulfilled. The Faculty Board of the five professors in post met on 8 October and elected Drummond as 'president' (dean), Marshall as honorary secretary, and Little as honorary treasurer, all for one year, and transacted its main business, namely that anatomy and midwifery lectures would start on 9 November 1835 and 'other courses' on 1 May 1836 because 'the laboratory and other rooms . . . . were not yet completed', though in the event they were ready by December with an adjoining enclosed 'botanical garden' by April 1836. The unique enterprise had begun.

THE ROYAL INSTITUTION (OR COLLEGE) HOSPITAL

Early attempts at Inst/Fever Hospital partnership had formulated important questions (see above), not all of which were answered — most particularly the question of Inst clinical professors being appointed (or rather *not* appointed!) to the hospital staff *ex officio,* a problem incidentally only resolved after World War II and not to universal satisfaction! There was no immediate difficulty: of the first clinical professors, Little and Coffey (who succeeded Ferrar — who never turned up — who in turn succeeded John MacDonnell who had joined the Richmond Hospital staff) were already members of the Fever Hospital staff and Marshall was to become so in 1838, while Andrews (chemistry) and Mateer (who succeeded Drummond to the Chair of Botany) were, from 1837 and 1834 respectively, staff members also. But difficulties soon arose concerning career prospects for the dispensary district medical officers — who normally progressed to the attending staff and who might now be blocked — and these became acute as the annual

staff elections approached; and this was but the tip of the unresolved iceberg to which blind eyes had been deliberately turned earlier. It now floated into full view. Inst, bubbling with confidence in themselves and in the righteousness of their mission, had looked upon the arrangements with the Fever Hospital as a means to allow the joint school to start; they considered the issues at stake to be insoluble in the longer term. They took to heart the stark options put bluntly by Dr Robert Stephenson (who had succeeded Drummond in 1818 as attending physician to the Fever Hospital) who in 1830 wrote: 'The Managers of the Institution [Inst] may either found a new hospital in immediate connection with their School, or avail themselves of the present Hospital establishment'. Whatever anyone else thought, Inst favoured the first option; indeed they had always favoured it in principle but necessity had forced them towards collaboration with the Fever Hospital — the only 'general' hospital in town. And so it was that only five days after the first medical faculty board meeting on 8 October 1835 Inst were writing to the Lord Lieutenant seeking a Government grant to enable them to purchase from the Board of Ordnance a disused military barracks in Barrack Street for use as a hospital which they, Inst, would own, staff, and run as a teaching hospital, ultimately to be their exclusive one. This was a 'management' decision; the five-day-old faculty board of medicine were not consulted!

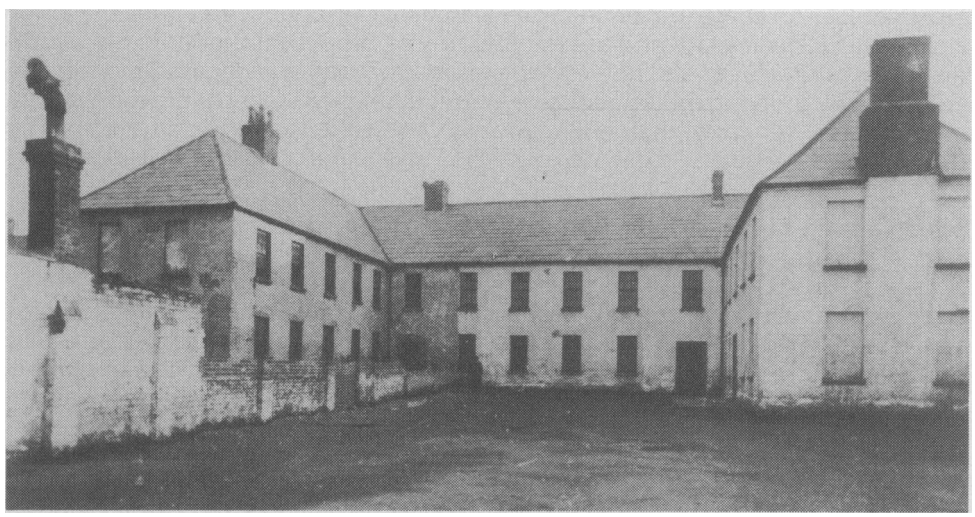


Fig 4. The Old Barracks, Barrack Street, which was the 'Belfast Institution Hospital' during 1837. (From the Welch collection of January 1894, the year it was leased to Messrs Grant, and reproduced by courtesy of the Ulster Museum Trustees).

To Inst the property was ideal and seemed to evidence the hand of a benign providence. It was spacious — two storeys high, brick built, well slated, and with an accompanying officers' quarters and guard house, all on a rectangular site with 156 foot frontage, 130 foot deep, and the main building set back 75 feet from the street, the whole protected by a high wall with an iron-framed and sheeted double gate.[20] It was convenient, only a few minutes walk from the north wall of Inst fronting College Square North where a gate could be built which would also allow cadavers into the medical building without offending the groups of schoolboys at the front door! It was timely — the first session was just starting.

It seemed assured of patients — the Fever Hospital was forever bewailing its inadequacy to serve the burgeoning population of Belfast. Inst pressed negotiations with the Board of Ordnance and by Christmas that year (1835) Government had agreed to meet half the purchase price of £1,750 provided Inst met the rest. By June 1836 Inst's share had been raised as loan from the Belfast Bank (at 5% p.a.) underwritten by 60 Inst proprietors, the first moiety was paid, the Government grant arrived on 10 October, and possession was procured on 19 October 1836. Two days before legal possession enthusiastic members of the joint board at Inst inspected the property. They were optimistic: with some repairs and refurbishing the south wing and half of the main building could be 'immediately available' for patients, an opinion confirmed by architects' reports within a week. Within a further week it was established that two wings and the entire centre could be at once repaired and basically fitted out as a hospital at a cost of some £200, and only a few days later this work and the proposed gate in the north wall of Inst were put out to tender, that of Campbell and Ross at £148.7.0 (plus £81.0.0 for the gate) being accepted on 15 November and the work completed by March 1837. The impetus continued: Little, Coffey and Andrews were to staff a dispensary in the building for one hour each per day while money was being sought for inpatient equipment, and with a careful look over their shoulder at the Fever Hospital, their present partners, Inst considered this reasonable: 'As these gentlemen are at present in connection with the Fever Hospital and Dispensary and are entitled to prescribe for the poor in any part of the town, they [Inst] do not consider that they will be departing from their privileges by ordering medicine for the poor of the town in any of the rooms of the New Hospital . . . [and] their attendance . . . will draw . . . public attention . . . in this second Hospital'. Inst could run fast and indulge self-justification when following its star!

What did the Fever Hospital committee and staff make of all this? They were, after all, Inst's partners in the medical school and here was Inst trying to change horses at the starting line! In fact they were in a weak position, or thought they were: they had no formal agreement with Inst, were themselves pressed for funds for general ('non-fever') patients, and were still reeling from the cholera epidemic and were shortly to be engulfed in a 'fever' one. Furthermore, the unresolved problems were as much problems for them as for Inst. Their honorary treasurer, John Clarke, discussed the matter with Inst on 21 September 1836 and on his report the hospital committee 'expressed a desire to form a junction . . . which would be highly valuable' with the proposed new hospital: perhaps a watching brief, perhaps a bid for a strategic positioning from which they could jump as events unfolded, perhaps a genuine sentiment — it's not easy to tell. It didn't much matter; the very month (March 1837) that Inst decided on the preliminary step of a dispensary at the Old Barracks, fever (mainly typhus) 'almost unprecedented in severity' struck Belfast. Admissions to the Fever Hospital reached 95 per week by June and remained above 40 until January 1838. Emergency overflow premises were urgently sought and the eye of the hospital committee fell on the Old Barracks lying repaired but unfurbished and empty. On 18 May Inst readily agreed to the committee's request to bring it into temporary use — the grand jury presentments, Inst didn't fail to notice, would now pay for the refurbishing and equipment which Inst could buy later for a knock-down price — and appointed Andrews, Mateer and Marshall as medical attendants (Mateer was also on the Fever Hospital staff and Andrews would be elected in July), and readily agreed to pay the wages of a porter — the only running expense they agreed to meet!

Within a fortnight the building had been equipped for 100 beds in 'well-aired wards' at a cost of £481.11.0 staffed with a house-steward, nurses and servants, and by 2 June was open for business taking 162 fever patients by mid-month. On 6 June it was grandly christened The Royal Institution Hospital: it remained colloquially the 'Old Barracks', briefly The College Hospital, until the end of its short days.

After the June peak, the fever subsided and the hospital closed on 1 November. Inst now continued to push their luck by seeking to keep the furniture and equipment on trust and were able to quote recent precedent in the use of the old lock-ward house at the rear of the Fever Hospital pressed into use during the recent cholera. This time they pushed too far, or nearly so; the goods were returned to the Fever Hospital all right but only in 1842 when the College Hospital idea was dead. More importantly all personnel left at once (excluding the widow of the porter retained by Inst at 2/6 per week plus room), there was no money for running expenses, the hospital closed down and the buildings were put up for rent. There were enquiries, the Chapel Lane Dispensary the main one, but Inst tried to drive such a hard bargain with the lessees that they came to nothing. Then in 1839 Inst's star seemed to rise again: Government now decided to apply strictly the terms of the 1807 Act for support of fever patients, which had been widely abused in that monies had been used also for non-fever cases. Faculty now thought that the Fever Hospital would need to squeeze out its (non-supported) 'general' cases which would perforce come to rest in the College Hospital, still furnished if fundless; in fact they would be better teaching material than an exclusively fever clientèle, and, who knows, the College Hospital might rise again. But even pauper sick need food; a building needs staff; Inst had no money, the loan for the building was still outstanding, and that was that. There was a last kick in 1841 when Faculty raised the spectre of falling student enrolments if there were no assured teaching beds under their control, but it was a turnip ghost and the commercial lettings continued: a room as a gymnasium; to the military as a base during Daniel O'Connell's visit in January 1841; as a business store in 1842; to Boomer and Campbell, flax merchants; and to various small businesses. It briefly reverted to a hospital under the Board of Health during the typhus epidemics of 1840 and 1847 (eight months at £2 per week). So long as hope remained the leases were short-term but by the mid-1840s the infirmary at the workhouse was started and the future of collegiate Inst itself was uncertain with the University Bill of 1845. Long-term lettings were now sought: to the Poor Law Guardians 1847-1849 and then again 1852-1891 at £60 p.a., over five times the ground rent, and 1891-1892 at £110 p.a., then for part occupation to Barrack Street National School until leased for 10,000 years at £120 p.a. to Messrs Grant in 1894. It finally became a Christian Brothers School.

So ended in forced lettings, disappointment and decay, an important if ill-conceived humanitarian and educational experiment. The College Hospital was planned to be an accredited 100-bed teaching hospital owned and run by Inst, in concept not unlike a USA university hospital. But it was unviable and not only in retrospect. Inst wished to preserve their autonomies on appointments, courses and affairs, and thought these worth the gamble; the Fever Hospital committee wished to keep *their* autonomy on staff appointments, teaching methods, and clinical curricula with some healthy patronage thrown in. The lessons were well-learned by Queen's, at first by the continued expedient of appointing to clinical chairs only members of staff of the Fever Hospital (later the General Hospital and

RVH), an expedient which Inst would not countenance, and after 1948 by various joint arrangements. No college tried again to go it alone. How all this influenced the subsequent development of clinical teaching and of our medical school itself is described elsewhere.[1, 2]

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The personalities and problems of 60 years ago

Ian Fraser

PERSONALITIES

World War I was just finishing when in 1918 I went up to Queen's. Returning ex-servicemen made this the largest year there had ever been, as it was in most universities in the UK. This made many problems for those seeking appointments later on: I myself applied for 20 posts in London as a house surgeon, but I was turned down for them all. In the anatomy department, for instance, with shortage of bodies, there would be at least 28 people round each cadaver, so that teaching was very difficult. Most of the ex-service people were keen, perhaps some too keen: 'O's the observant, intelligent student
Exposing the patient just more than is prudent'.

I remember in a botany lecture my neighbour saying 'I am not at all interested in this xylem and phloem stuff — I want to know when the pubs open'. Today I see this man's name on vans throughout Ulster successfully selling Frigidaires — so xylem and phloem really did not matter! In addition we also got back more senior people who were to become our teachers and mentors. Two of these, Andrew Fullerton and W W D Thomson, were later to become, respectively, professors of surgery and medicine. There were also many changes in staff due to either death or retirement, so that I look on my period at Queen's very much as a watershed with almost a completely new staff with modern ideas taking over. The professoriate was no exception: between 1918 and 1923 — my years at Queen's — Professor Sinclair retired and was replaced by Andy Fullerton; Professor Lindsay retired and was replaced by W W D Thomson; Professor Sir John Byers died and was replaced by C G Lowry (Midwifery) and R J Johnstone (Gynaecology); Sir William Whitla retired and was replaced by J E MacIlwaine, with Dr V G L Fielden acting in the interval for three years; Professor Johnson Symington, FRS, had a stroke and was replaced by Professor Thomas Walmsley, with Mr P T Crymble and Dr Margaret Purce filling in the gap for one year (Table).

Young men appeared on the corridors. H P (Harry) Malcolm came back from France: he had been trained by Meurice Sinclair in the use of the Thomas' splint, which he introduced into many of the wards. He wrote his MCh thesis on its use, with my help. My help, I should say, consisted in carrying enormous crates each weighing to me about one ton, containing X-ray plates, 15″ × 12″ each, of fractured femurs, all of which he had brought back from France. I think I could say that all of these glass plates were broken, some into small pieces!

'M is for Malcolm, the elegant Harry
So eager to work but so willing to tarry'.

— this last a reference to the fact that Harry Malcolm had a tendency to be slightly lazy. Before leaving him, a small personal incident is worth mentioning. When the

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TABLE

Heads of departments at end of World War I

Years of office	*Subject*	*Holder*	*No. of years*	*Temporary 'bridging' staff*	*Successor and period*
1886 – 1923	Surgery	Professor T Sinclair	37		Andrew Fullerton (1923 – 1933)
1899 – 1923	Medicine	Professor J A Lindsay	24		W W D Thomson (1923 – 1950)
1893 – 1920	Midwifery	Professor Sir John Byers	27		*Gynaecology:* Sir Robert Johnstone (1920 – 1937) *Midwifery:* C G Lowry (1920 – 1937) (1937 – 1951)
1893 – 1918	Anatomy	Professor J Symington	25	P T Crymble Margaret Purce	Thomas Walmsley (1919 – 1951)
1902 – 1935	Physiology	Professor T H Milroy	33		Henry Barcroft (1935 – 1948)
1909 – 1934	Biochemistry	'Brother John' (J A Milroy: Lecturer 1909 – 1925; Chair 1925 – 1934)*	25		D C Harrison (1935 – 1967)
1904 – 1929	Pathology	Professor W St C Symmers	25		A M Drennan (1929 – 1931)
1890 – 1919	Materia Medica	Professor Sir William Whitla	29	V G L Fielden	J E McIlwaine (Professor of Materia Medica and Therapeutics, 1921 – 1928)
—	Radiology	Dr J C Rankin (Nominal)			Dr R M Beath Dr F P M Montgomery (later Sir Frank Montgomery) Mr Ralph Leman

* 'Brother John' came to Queen's in 1902 as an assistant in physiology when his brother T H was appointed to the chair.

great day came for me to screw my brass plate to the railings of No. 1 University Square, I had to promise not to keep a monkey — not that I had any intention of doing so. I was taking over Malcolm's rooms and he had kept a monkey in the drawing room which at times had become 'free range': passers-by often wondered about this face at the first floor window, as it did not closely resemble either of the other inhabitants!

Symington was one of the leading anatomists in the UK at that time. He was also Registrar to Queen's and lived in the south wing of the main building which includes the old staff common room. He had had a stroke and had retired. For a year P T Crymble and Margaret Purce did the teaching, the former doing the skeletal and the latter the visceral anatomy — a bad arrangement. P T had come back from France where he had been not only a surgeon but also a radiologist; when he later became Professor of Surgery he still retained his interest in radiology and kept an X-ray apparatus in his own home.

'P's Percy Crymble, once Symington's student
An applied anatomical surgeon most prudent'.

As a demonstrator of anatomy he had produced the famous 'Man 50' — an anonymous dead body which had been put into a wooden coffin-like box, the box then filled with water, and the whole frozen and cut into 1" sections from the head to the knees. These cross-sections were used at every examination. It was thought that in a war this would be a help in tracing the course of the bullet from entrance to exit; today the CT scan does this for you.

P T and Miss Purce gave regular lectures but did not work much in the dissecting room, and this was why we all got to know Richard (Dickie) Hunter so well. Dickie had tried many things: formerly a student of art in Paris, at the outbreak of World War I he went off for a while to France as a stretcher-bearer with the Tyrone Red Cross Ambulance, and this of course entitled him to a grant to train as a medical student and he entered Queen's in 1915 and graduated in 1920. He then became an anatomist, an anthropologist, an expert in comparative anatomy and much else. He wrote a thesis on the tendo-achilles, tracing it from the lower animals on four feet through the monkeys until he reached *Homo sapiens*; in fact he hardly wrote anything at all because the whole thesis was a series of most beautiful hand-done artistic pen and ink drawings. He then wrote another thesis, this time on the inguinal canal, again tracing it from the lower animals to the humans, a most interesting thesis with marvellous illustrations. He had become attached to the zoo in Belfast and was able to get all the post-mortem material available. From this he got an interest in the circus, and when it was decided to have a Christmas circus in Belfast he was the obvious choice for ringmaster. He refused any actual payment, but each summer he went abroad, with expenses paid, searching out artists — a tight-rope walker from Hungary, a loose-rope walker from Norway, a juggler from Yugoslavia, and so on.

Dickie was a gourmet and when a bachelor colleague was getting married there was always a famous dinner before the event. I remember well going to the dinner for Cecil Calvert in the old Carlton Tea Room. It consisted of a hollow square, the four tables covered with scarlet linen tablecloths, a white skull at each corner, while the waiters were dressed up in operating gowns, masks and rubber gloves.

I saw a great deal of Cecil Calvert, since he and I as registrars were for a time responsible for all the emergency and night operating in RVH. We did this in turn on alternate nights. Sister Dynes the night sister — 'Diana' — had much to put up

with from us! But for all the pranks I admired Calvert greatly and felt he never got the recognition he deserved for his war service or for his pioneer work in neurosurgery in Ulster.

'C is for Calvert who'll debate half the night
Until he is sure he has diagnosed right'.

'D is for Diana — how weary her moan!
She wonders if Calvert will never go home'.

At this period Queen's had the most wonderful concert party of pierrots, mostly men out of my year, and some to become doctors of distinction. Dickie was one of their leaders. From an anatomy point of view, however, his career was less successful. When Thomas Walmsley was appointed in 1919 as a young man of 28, Hunter, who was four years older, was still a student though the next year he was appointed demonstrator in anatomy. It was understood that on the retirement of Professor Bryce in Glasgow, Walmsley would go back to take over the Chair of Anatomy there, leaving an opportunity for Hunter, but in the intervening three years a local young man called Nicholl with a great reputation came on the scene in Glasgow and Walmsley was passed over and remained at Queen's. Dickie now saw that he had no future in anatomy in Belfast. He did apply for Barts, and, I think, Charing Cross (and for a year had been demonstrator in anatomy at UCL), but unsuccessfully. He then decided to switch his interests and in 1937 he was appointed Secretary to Queen's. I think everyone would agree that he was the worst Secretary Queen's has ever had. I say this with all sincerity, having been a great friend and admirer of his. His portrait by James Gunn shows Dickie Hunter as we all knew him.

I should say in passing that poor Thomas Walmsley had a very rough time in his first two years here. The returning ex-servicemen resented him since he was not ex-service, and at one BMSA dinner, when the alcohol had been flowing freely, I saw him pushed against the wall and get a really brutal pummelling from some who had imbibed too liberally.

After 37 years in the Chair of Surgery, Professor Thomas Sinclair retired in 1923:

'S is for Sinclair, professor profound,
If once set agoing he'll talk the day round'.

It is true that after 37 years his lectures had become somewhat fossilised. He looked to me to be a very old man but this was misleading because he lived for another 17 years during which time he did much useful work, which included being Westminster MP for the University and a Northern Ireland senator. In his last years before retiring he would sit before an operation for a long time with his eyes closed. None of us knew why: some thought he was praying, others that he was revising his anatomy, and others again that he was just having a snooze, but when he came to do the job he did it meticulously. He enjoyed his time in France as a consultant surgeon and, although he never looked the army type, he rather enjoyed being addressed later as Colonel Sinclair. He had been appointed to this post on the advice of the Royal College of Surgeons of England — Fullerton incidentally had been selected at the same time by the Royal College of Surgeons in Ireland, when the War Office wrote to Dublin asking them for a nomination. One of Sinclair's incidents, which he often quoted, was when he did the post-mortem on Baron Manfred von Richthofen, the 'Red Baron', who, the Germans claimed, had made a forced landing behind our lines and had then been shot while he was still in the cockpit. Sinclair, with the help of Captain N C Graham

of Antrim — known to many of you as 'Koch' — was able to prove that Richthofen had been shot while the plane was still in the air. It is interesting that this is still denied 60 years later — in fact the incorrect version appeared in a German paper only two years ago.

Fig 1. Andrew Fullerton, CB, CMG, Professor of Surgery, 1923-1933, and President of the Royal College of Surgeons in Ireland, 1926-1928.

Although Fullerton had only a possible ten years in the chair, he was appointed as Sinclair's successor (Fig 1). The war had given him a reputation. He used to describe wonderful clinical meetings in the Boulogne area in which the cream of American medicine as well as the top French surgeons and physicians took part. This enabled Fullerton to make famous friends on both sides of the Atlantic, and it was a great honour when the Mayo brothers, Harvey Cushing, Percy Sergeant, Ernest Myles and many others later visited our school. One of these was Hugh Hampton Young of Baltimore to whom Queen's gave an honorary degree for his invention of the operation of perineal prostatectomy — the most dangerous, the most difficult and the most unsatisfactory method of prostate removal ever devised. We did two cases after he left: one died and the other did not survive. We abandoned the operation as did the rest of the world but it was too late to recall Young's honorary degree!

Andy Fullerton pioneered urological surgery in Belfast. Everything before the discovery of intravenous pyelograms had to be done through the cystoscope.

'A is for Andy of cystoscope fame,
Away in Coleraine they have now heard his name'.

He was an incredibly honourable man. He had a very small practice, possibly because his rather snappy manner did not ingratiate him to the general practitioners, but by and large he was much respected by the students and his junior staff.

Many of the Royal staff enjoyed their game of golf on Saturday at Newcastle, Co. Down. They foregathered for the noon train at the Belfast and County Down Railway Station; a game of bridge and a drink on the way down, lunch in the clubhouse, a round of golf, tea, back to Belfast between five and six o'clock to be collected by their drivers. The station was as crowded with Royal staff on a Saturday as the High Court is today on a Monday! They all did a quick ward round on Saturday morning in plus-fours, but no real problems were shown to the great men: these could be dealt with by the house surgeons and registrar after they had gone. Fullerton was captain of Royal County Down Club the year of the Prince of Wales' visit, had an historic round of golf with him, and was photographed with the Prince, both in plus-fours, on the steps of the clubhouse.

When Professor Lindsay retired, to be succeeded by W W D Thomson, a new atmosphere developed:

'L is for Lindsay our boss ausculator
At spotting a murmur there's no one is nater'.

Jimmy Lindsay was a tiny little bachelor. He wrote a book called *Medical axioms, aphorisms and clinical memoranda* (published 1923) and these must certainly always be produced by the candidate at an examination. If we did not know that a heart murmur was 'rough', rumbling and ingravescent' we need not appear before the examiner! Lindsay always insisted that the patient with pneumonia lies 'like a log in bed'. At one examination he is said to have asked the student 'How does the patient with pneumonia lie in bed?' The student replied 'Motionless, still [etc, etc]', but finally Lindsay could stand it no longer: 'No, the patient lies like a log in bed', to which the student replied, 'But, Sir, I have never seen a log in bed'.

One of the surgeons who was very much out on his own was Thomas Sinclair Kirk, a man with many original ideas, sadly not backed by any scientific support. He had a theory that a long-lived animal must have had some humoral protective power and so used to go down to the abattoir and collect blood from the slaughtered animals. The serum could then be drunk, which was rather nauseating, or dried into pellets.

'K's Tommy Kirk, students gather to hear him
Proclaiming the virtue of normal horse serum'.

As his house surgeon I have had the pleasure of drinking his serum and also eating the pellets, and all I can say is that it has done me no harm — so far! His wounds often went septic, as did many others at that time, so he filled the wound with one or two tablespoonsful of urea crystals with ample drainage. There was a profuse discharge for several days, the idea being that this urea would wash the wound free from sepsis. On one occasion, many months after a large breast operation, we found a series of nodules down the scar. These were thought to be secondary deposits, but on removing one or two we found they contained pieces of glass. It turned out that the theatre nurse had broken a bottle of urea and, being of a saving nature, she poured the contents into another bottle, including the broken pieces of glass!

Kirk held that wounds drained best downhill, and so the patients with a drain in their abdominal cavity had to lie on their face, which they did — so long as he was in the ward! There was, however, a very good spy system and so they were never caught out. He was a great person for non-absorbable material, silkworm gut, which we all disapproved of: burying this, we thought, was very dangerous. Today with antibiotics of course it is no longer a problem. On one occasion the ward was visited by a group of American surgeons. Kirk did a prostatectomy which, on this occasion, went off beautifully. The gland was enucleated with almost no loss of blood. The Americans produced their notebooks and their pencils and one of them said, 'Professor, we did admire your work very much. Could we have the name of the technique that you employed?' Kirk replied modestly, 'Oh, I always do a Horner's operation', and they said, 'Well, Sir, that is a new name to us, we have never heard of Dr Horner', to which Kirk replied, 'He put in his thumb and pulled out a plum'. The Americans folded their notebooks and slipped quietly away.

W W D Thomson, when he took over from Lindsay, certainly brought a breath of fresh air to the Department of Medicine:

'W's W W D,
An echo of Osler, his students agree'.

He was appointed on the same day as Fullerton, and the students gave a well-remembered rag in their honour. Unfortunately, in his first few years he suffered from a chronic illness called in those days 'mucous colitis'. I remember when Mr Lockhart-Mummery, the leading rectal surgeon in London, was brought over to operate on him. He did an appendicostomy, the only one I have ever heard of. The appendix was brought to the surface, the tip was cut off and through the open appendix a catheter was inserted each day and the bowel was irrigated with a dilute solution of albargin, which I think was a very mild silver solution. This was carried out each evening by either Harry Malcolm or Ted Lewis. Despite this, he later made a full recovery.

Although Sir William Whitla had retired before I went up to Queen's he was still living in great style at Lennoxvale though very crippled with an arthritis of the hip. I remember him well at a graduation ceremony when he came dressed as a Deputy Lieutenant — brass buttons, coat, knee breeches, tricorn hat, and at the same time a Queen's hood around his neck. He was always very fond of regalia and decorations, a contrast to his wife who frequently dressed in her sober Salvation Army uniform — which she once wore to a garden party at Buckingham Palace.

SIR WILLIAM WHITLA, M.D., J.P.

Fig 2. Sir William Whitla, JP, Professor of Materia Medica, 1890–1919, and general benefactor.

Sir William was a very interesting man (Fig 2). His daily readings were the Book of Daniel and the stock market — this allowed him to keep his options open for both worlds. He produced several books. His *Dictionary of Treatment* (published 1892), which was really a compilation with not much original work, was a best-seller. It went through twelve or more editions, including one in Chinese. It was a compulsory book for every sea-going captain in the Merchant Navy to have at his bedside – of almost equal importance to the Bible. Another book, *Elements of Pharmacy, Materia Medica and Therapeutics* (published 1881), was a great success in its early stages, but its last (14th edition, 1943) was a complete flop because modern pharmacy was just beginning to take over. No longer did we give 'Pot lod. and trust to God'. I cannot stress too much his enormous generosity to the medical and academic professions — the Whitla Medical Institute, the Whitla Hall at Queen's, the Sir William Whitla Hall at Methodist College, the Vice-Chancellor's Lodge in Lennoxvale, endowment of Queen's pharmacology, to name only a few. In 1909, when he was elected

President of the British Medical Association, every doctor in Ulster on his breakfast table that morning received a free copy of his books — I still have the ones that were given to my father. Whitla was also a Pro-Chancellor of the University as well as our political representative at Westminster (1918-1923) — a man indeed with many sides to his character.

'W's our Whitla, who taketh the bun—
Writer, preacher and medico, rolled into one'.

Radiology in Belfast I always thought got off to a poor start. The first specialist was Dr J C (Johnny) Rankin: a brilliant man but a dabbler. He had too many interests — bacteriology, venereology and others — and the result was that this important specialty never got the start it deserved.

'R's Johnny Rankin who worked with X-rays
Not long after Roentgen discovered their ways'.

In my day, Maitland Beath was in charge with Frank Montgomery, after World War I, second in the department; but the really important person was Ralph Leman, the radiographer. This young Englishman had been discovered by Fullerton in France and brought to Belfast. He was an enthusiast and an expert. He used to put flowers into a solution containing iodine and then X-ray them, getting wonderful pictures of the sap rising up. He used to X-ray hens' eggs as they were being incubated under a hen which he kept in the department. He X-rayed a box of Dunlop golfballs showing that the central nucleus was not always dead centre. He also had some X-rays of old oil paintings, one showing how Cromwell with his austere garments had been overpainted on the lovely lace work and embroidery of Charles I: on X-ray, however, the elegant lace work could still be seen coming through on the picture. This well known lecture, which I heard on several occasions, was widely appreciated. Leman was the backbone of the X-ray department until modern radiology took over.

Maitland Beath was a very charming person. He was a very heavy smoker, and his terminal illness is of interest. He developed jaundice, and on a particular Saturday when his wife and family were out he decided he would X-ray himself. He summoned the maid and told her that in 10 minutes she was to come into the X-ray room, press a certain button, and then walk out. He then prepared himself on the table. The maid came in, did what she had been asked to do, and disappeared. He then developed the film, and saw a very large cancer of his lung. He destroyed the plate and then got back into bed and no one knew anything about it until much later. Sir Robert Johnstone had a very similar illness. He had his chest X-rayed, asked to see the film, and then said, 'I would say that from this I have got about nine months to live. I will go down to County Down as I want to die looking at the Mourne mountains'. And so he retired there and then and spent the last few months of his life at his bungalow at Newcastle.

The laboratory at the Royal, in the King Edward Building, was a very small affair, with Professor Symmers in charge of the morbid anatomy and Sir Thomas Houston in charge of bacteriology. Sir Thomas would work there into the small hours, gathering around him a lot of very faithful retainers:

'H is for Houston, Sir Thomas,the knight
Who wars with bacilli from dusk to daylight'.

In those days, as everyone was voluntary, totally unpaid by the Hospital, the physicians had to make a livelihood outside. They had little to offer except

experience, and they all to a man were general practitioners in addition to being consultants. With advances taking place in the laboratory a new appointment was made of 'clinical pathologist'. This was a man who could give a clinical opinion and at the same time take back to the laboratory the necessary material for his tests. This post was unpopular with the consultants — because the incumbent was able to do what they were not able to do — but popular with the general practitioners — because the clinical pathologist could come, see the case, carry out all the *necessary* tests (his critics would go so far as to say somewhat *un*necessary tests) and give the practitioners an answer the next day. The first incumbent was Dr J A Smith. Jack Smith had gone off to the war as a corporal, and qualified soon after his return. I can well remember him demonstrating insulin to us all for the first time. He had a series of rabbits, eight or ten, which scampered along the polished floor in the King Edward Building. He chased after them and gave them an injection of insulin. They all collapsed in a semi-coma. He then collected and injected each with a large dose of glucose, and the rabbits were soon able to amble or stagger quietly along the floor. That was in 1923 very shortly after Banting and Best had made their momentous discovery. Before that there was nothing to offer the young diabetic.

Soon after this I saw raw liver introduced for pernicious anaemia. I remember the first patient I treated, a man from Islandmagee who had been in hospital some eight or ten times and each time had had a blood transfusion. I was finally told by my chief to tell his wife that we had nothing more to offer. However, on the Sunday before he was due to go home I read in that week's *British Medical Journal* that if we gave raw liver, ground it up with some HP sauce as a flavour, then put it in a coloured tumbler (so that the patient would not see what he was getting) we might achieve some sort of success. We decided to give it a trial. After a few days he seemed somewhat better and after a few weeks he was able to go home on his liver diet and never needed to come back to hospital again.

When the Chair of Midwifery became vacant on the death of Sir John Byers (in 1920) it was decided to divide it into Chairs of Gynaecology and Midwifery, R J Johnstone taking the former and C G Lowry the latter. Sir John had a habit — a very good one — of bringing to his class the fresh specimens of an operation he had carried out that day, rather like a fisherman showing off his morning catch. His bag with the specimens was taken by his chauffeur to the classroom before the lecture. On one occasion, having described an enormous ovarian cyst which he had removed, he opened his bag but found that the students had replaced the cyst with an old pair of rugby boots. After that he brought the bag into class himself!

Dividing the Chair was a bad system, since the two subjects are so closely knit together, and the two teachers had at times conflicting ideas. They were very different men. Johnstone was born with all of nature's blessings — good looks, good manners, a quick brain, a brilliant speaker, a large private income. We can see now how easy it was in later life for so many honours to come his way: President of the British Medical Association, Member of Parliament at Stormont, to mention only two. By contrast, Lowry had a simple background — selfmade — but he got down to the nitty-gritty of any problem. It was he who was responsible for the Royal Maternity Hospital: this ensured that the students no longer needed to go to the Rotunda Hospital in Dublin for their midwifery. We cannot thank

Lowry enough for what he did for Belfast. He was pioneer of all that was good in the department:

'L is for Lowry — the women's Professor,
Balloonist and Tenter and Father Confessor'.

His lectures were a model for all to copy. Johnstone's lectures by contrast never lasted more than forty minutes. He considered that neither the cerebral cortex nor, indeed, the gluteus maximus, could stand a longer one! Johnstone retired in 1937 and Lowry was able to reunite the two branches under his professorship. It has remained a combined chair ever since. (Fig 3).

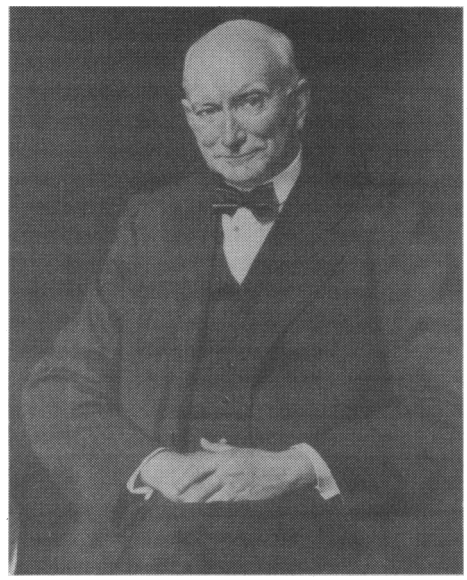

Fig 3. Charles Gibson Lowry, Professor of Midwifery, 1920 – 1937, and of Midwifery and Gynaecology, 1937 – 1951.

PROBLEMS

In surgery there were many problems. My operating list in the Children's Hospital every week had three or four cases of TB glands mainly in the neck — hard discrete lumps which we could dissect out leaving an almost invisible scar, or else broken down with discharging sinuses and no matter what we did a very disfiguring scar remained. I am always glad that one of our leading Ulster politicians, who appears regularly on the 'box', always shows the right side of his neck because I am responsible for some very ugly scars on the other side which I did when he was a young boy of five years!

I saw at least one new case of poliomyelitis a fortnight. Sometimes they would come in epidemics. It is incredible to think that today a drop of fluid on a lump of sugar means the disease is now never seen. We all became quite skilful at doing a tracheotomy because diphtheria was so frequent. Again, immunisation has been the answer. Phthisis, the hunchback, and TB glands have all virtually disappeared, now that there is a cure for TB. This work liberated beds in Forster Green Hospital, Musgrave Park, and the Whiteabbey Sanatorium. It was here that Harry Malcolm had a splendid clinic for bone tuberculosis in children, something he had learnt in France at Wimereux. Without these free beds the long-stay orthopaedic cases would have had great difficulty in finding accommodation. With the cure of so many infectious diseases, Purdysburn Fever Hospital is now able to give over one of its pavilions to be the headquarters for the radiological and chemotherapeutic treatment of cancer.

In those days we saw unsatisfactory treatment for cancer with much radium, radon and X-rays. Radium needles were terrible. For cancer of the tongue, some dozen rather stout short needles were stuck into the tongue for five days with a thread attached to the face. Radium we saw little of: this had to be brought from London. The radon tube (or seeds) only lasted at most 48 – 72 hours and sadly in the first 24 hours it lost half of its strength. One of my jobs was to meet the Liverpool boat in the morning and collect from the captain a radon tube in a heavy lead container. This was delivered from the Radium Institute in London,

put on the train at Euston and transferred by the guard to the captain of the Liverpool boat and hence via myself to Professor Lowry for use in cancer of the body of the uterus. The correct timing was essential. I would ring up to find if the Liverpool boat would be up to time. Professor Lowry then had his patient on the table so that when I reached the nursing home I had just to hand over the tube for immediate use. After she had had her full treatment the tube was removed and used on a non-paying patient at the Royal Victoria Hospital: the irony is that the main radiation was lost in transit from London to Belfast, so that neither the public nor the private patient got the maximum value! I also saw radium needles used in my own home when my father was advised to have a plaque containing them put on the palm of his hand, which he did, wearing it daily for six to seven hours for several days. He had a Dupuytren's contracture; the cause was thought to be young fibroblasts which could be killed by radiation.

It is easy to be cynical today, but we were all the mirrors of our time. I myself did many cases of lumbar sympathectomy for Hirschsprung's disease, which was complete nonsense. We tied off the blood supply to the stomach for peptic ulcer; the idea was to cut the sympathetic supply and so reduce the excess acid, as advocated by Hey of Manchester. It was not realised that it was the para-sympathetic and not the sympathetic that should have been cut!

Anaesthesia was rag-and-bottle. Induction by chloroform was followed by ether or sometimes a chloroform and ether mixture, or in some cases an ACE mixture — alcohol, chloroform and ether. Dr Fielden, the lecturer on anaesthesia, was experimenting with gas and oxygen, but many of us preferred the old-fashioned method because often the gas and oxygen did not give a very relaxed patient or, indeed, a very relaxed surgeon. Rectal anaesthesia was very successful for a time, supplemented by ether or chloroform, but Mr Kirk increased the dose so much that he was able to use rectal anaesthesia as a total anaesthetic for major operations which I am afraid most of us thought was very dangerous.

I have always thought that blood transfusion was very slow in being made available. Although the major blood groups were first recognised in 1901, it was still an experimental tool in World War I. To the house surgeon, a blood transfusion was almost as troublesome as the operation: he did the typing, collected a suitable relative to be a donor, and bled the donor into a flask containing a glass rod with some spikes on it. He gently rotated the flask for half-an-hour or so while the blood was being taken and until a yellow spindle of fibrin appeared around the glass rod, leaving defibrinated blood which of course could not clot. We used to rotate the flask on a gramophone turntable to save time! Other methods tried out in World War I were the Kimpton tube and the use of sodium citrate (rejected at first) which later became the accepted method. Another method was the Bazett-Fullerton tube. Bazett was a Canadian and Fullerton was our own Andy. This was a very simple method; a needle is put into the donor's artery and connected to the recipient's vein, and the donor's heart does all the work. The only thing that was missing was any form of measurement: one went on until the donor got pale and the recipient got pink! It was the Spanish Civil War that brought blood transfusion to the point which allowed us to start the National Blood Transfusion Service in 1939 under the care of Brigadier Sir Lionel Whitby with Dr Jack Beattie his No. 2, a man of my year at Queen's. This relationship sadly broke down after some months.

In my day, one surgical unit (of two wards) in the Royal was for males only and the predominant operation was a hernia. Howard Stevenson also went to the Throne

Hospital twice a week to do a further hernia list. I wonder if this operation is as common today — with better food, is the average workman a fitter man or has the forklift replaced the man's biceps and abdominal muscles? Another operation that has certainly decreased is the perforated duodenal ulcer. As a registrar I have done three cases in one night. In children, intussusception is less frequent than it was; better nutrition, I think, is responsible, as in the old days in that operation one nearly always found a mass of abdominal glands.

Venereal disease was an unsatisfactory condition to treat. Syphilis we treated with 914 (neo-salvarsan), a tedious and large intravenous injection, but there was nothing specific for gonorrhoea and so we used sometimes rather excessive irrigation and many of the complications were as much the result of treatment as of the disease itself. There used to be, every Sunday morning at the Royal, a group of 30 – 40 men all sitting waiting to have their urethral strictures dealt with, caused either by gonorrhoea or more often by its treatment. They were called 'the Sunday School class'. Almost overnight, in 1943, gonorrhoea was killed by virtually one massive injection of penicillin.

Fractures were a problem. One was inclined to make the limb fit the wooden splint rather than put the limb into plaster of Paris and make the splint to fit the fracture. The eponymous splints were a regular question in the final oral MB examination. The Thomas' splint was much used in Belfast, popularised by Harry Malcolm who had been trained by the great man in France. It was an awkward splint and often required twice-daily medical attention. It was used for fractures of the upper arm as well as of the lower limb. However, with the arrival of antibiotics, the nail, the pin, and either internal or external fixation could be used with safety, and so these splints gradually disappeared. Fractures of the neck of the femur were in many cases fatal. In Mr Kirk's ward the splint used was the long Liston splint which ran from the armpit to he heel. This dated, I may say, from the Crimea: it was not until the beginning of World War II that pinning of the neck of the femur became an everyday procedure.

The present magnificent Belfast City Hospital was in my day the Belfast Infirmary. It was a Poor Law institution and had to admit any case which came its way. I always thought it was unfairly dealt with and felt ashamed when asked by my chief to transfer to the infirmary the inoperable and hopeless cases. It became a dump and relationships between the two hospitals were never very amicable though these improved in 1948 with the arrival of the National Health Service.

With the easy treatment of syphilis, GPI has virtually disappeared. I remember a dramatic example of it in my day. He was one of our leading Belfast artists whose work was mundane until he developed the grandiose delusions of GPI when his pictures suddenly developed a new artistic flare. Today these fetch a large price. Sadly his artistic period lasted only a short time and he finally died in Purdysburn Hospital. Dickie Hunter was a close personal friend and it was he who sold his pictures to us. After World War I, malaria treatment for GPI was suggested: a troopship returning from the Dardanelles had several soldiers on board with GPI and it was found that those who had contracted malaria improved. When I was a house surgeon I remember taking one GPI patient from the Royal to Purdysburn Fever Hospital where there was a case of active malaria. We injected our patient with blood from the malarial donor at the height of a rigor. I brought him back to hospital in my motorbike and side-car. On the third day he took a rigor, as expected, but unfortunately he died. This treatment was advocated by a well-known Queen's graduate, an eminent neurologist in Harley Street at that time,

J Purdon Martin, who received an honorary degree from us four years ago, and who died two years ago in London aged about 90.

It is hard to realise that 60 years ago *acute sepsis* was virtually uncontrollable. I remember my father early one morning standing at the bottom of my bed before I got up, to tell me that a few hours earlier we had lost a very close personal friend. This doctor, who had brought me into the world, was a senior surgeon at the Samaritan Hospital. He had pricked his finger at an operation three days before — the red lines ran up his forearm and he was dead in 72 hours. This was almost an occupational hazard with surgeons and even more so with pathologists. One could do nothing: some tried multiple slashes in the arm hoping that the infected lymph would escape, but with no success. Occasionally one removed the arm with the same negative result. About that time London's most brilliant young thoracic surgeon developed this condition and allowed his arm to be removed knowing that he was forfeiting his career, but again to no avail. With *chronic sepsis* the result was much the same. In the Royal there was a tragic ward called 'Septics' rather hidden away from the main stream. It was a living mortuary: young and old all dying from amyloid or other complications of chronic sepsis — large discharging sinuses from chest, abdomen, bone, or joint, foul-smelling, from which the pus collected in either basins or dressings. Every ward tried to send its hopeless cases to 'Septics' from which no one ever came out alive. I little thought as I did my daily visit to that ward — the chiefs rarely went — that 20 years later I should be involved in the MRC team responsible for the first field trials of penicillin in Forward Surgery. Today with 'double-blind trials' I am afraid my technique for testing its efficacy in the field would not stand up to close scrutiny! However, with the wounded soldier, as far as I was concerned there could be no placebo. I am sure it is only those involved in surgery in pre-penicillin days who can genuinely say that it is without doubt the 'wonder drug' of this century.

Appointments to the Royal were made by the Board of Management — a group of some 30 people, but with only two or three medical staff representatives. Some were wealthy, conscientious and well-informed; some were wealthy but never turned up except to vote for a certain candidate whom they had been pressurised to support; some were of the Working Men's Committee, conscientious or otherwise — mostly from the shipyard, Mackie's, or one of the other heavy industries. The Board took a great interest in the hospital conditions and had a representative who visited regularly to whom complaints could be made — sometimes genuine, sometimes rather exaggerated. One of these gentlemen was called by us Mr 'Bedpan' Lavery: his usual report was that the patients had complained that the bedpan did not always arrive on time! All had to be canvassed, from the Lord Mayor living in splendour in Greenisland to the shipyard worker in Dee Street. I remember complaining of the selection methods to Professor Sinclair and suggesting that the medical profession knew more about one's abilities than the lay person. He was not very sympathetic. He said, 'You are lucky you have had to visit 30, I had to visit 60 in my day and, remember', he said, 'perhaps the broader the electorate the fairer the election' — something I have never forgotten. It was expensive getting 30 copies of one's testimonial printed and then hiring a cab to go to the outlying people.

The chief having to write testimonials for a large year must have found this a great nuisance. Some went to great pains and wrote a long personal letter; R J Johnstone, on the other hand, had a typed proforma made out in three grades — A, B and C — the grade you got depending on what he thought of you.

Mr Kirk had one which could mean anything, 'Dr So-and-So has qualified MB BCh — I am very glad. T.S. Kirk'. Influence *did* count, and many strings were pulled. One of the senior physicians to the Royal got his appointment because, when Lord Pirrie was recovering from an attack of typhoid fever, he was advised to go on a world cruise provided he took his personal physician with him, which he did. Later when there was a staff vacancy at the Royal Victoria Hospital Lord Pirrie insisted that this young man be appointed although many better qualified were available.

There were two grades of consultant — an *honorary* surgeon in charge of wards, and an *honorary assistant* surgeon in charge of outpatients, with no personal beds. There were five full and three assistant surgeons: these latter did two days each in the extern so that the week was fully covered. The junior surgeon had a loose attachment to one or more of the surgeons, for whom he did duty, and for whom he did the emergency and night operations. For this he was given four 'courtesy' beds in his own name but, in fact, he had operated on probably about half of the patients in the unit, since emergency work was then so frequent. The system was a bad one. The assistant surgeons with large outpatient clinics made contact with general practitioners from all over Ulster, and so developed large consulting practices: when they saw a patient who required surgery their problem was where he or she could be taken. At that time there were some 35 nursing homes in Belfast, admittedly some rather doubtful and some with no more than six beds but adequate: however, since the patients were from all over Ulster, home operating became a feature. I have memories of an appendicectomy in an elegant home in Holywood, a strangulated hernia in a cottage just off the beach at Whitehead, an extra-uterine pregnancy in Pomeroy, a suprapubic in Fivemiletown, an amputation of a leg in Maghera — and one could go on. While still a junior I had frequently gone with one of the assistant surgeons, and had learnt the technique. I should explain that the junior was quite an important person. Firstly, it was very useful if he could drive the car: this allowed the surgeon to sleep on the way home. Secondly, while the surgeon was examining the patient with the family doctor the junior could fix the scene for the operation — move the furniture, clear the ornaments off the piano and so on. (Usually it was decided not to move the carpet because it raised too much dust!). Thirdly, the junior could either assist at the operation or give the anaesthetic, depending on which the family doctor preferred. At times the family doctor could be rather a problem. One surgeon had a particularly long retractor which, as soon as the operation started, he put into the doctor's hand and said 'Hold that and don't move', thus ensuring that the family doctor was immobilised at a safe distance from the open wound! Some family doctors asked to give the anaesthetic but were somewhat incompetent, rather reminding one of 'the lady from the provinces' in Gilbert and Sullivan, 'who doesn't think she dances but would rather like to try'. I wonder if operating today in our ivory towers has lost some of the glamour of the olden days.

As a surgeon one had to buy one's own instruments and we were visited regularly by representatives of instrument manufacturers. I remember one saying to me, 'Sir, you are now doing better; don't you think you could afford to buy stainless steel artery forceps rather than those old chromium-plated ones you have been using?' Our expendable goods like catgut and silkworm gut we also bought at the door: the latter came in limited lengths because it was the total product of the unfortunate silkworm's parotid gland; the former we bought either in hanks or in

tubes. 'Throw-away' instruments had not yet been invented, and so scalpels, scissors, and other sharp instruments, even needles, had to be re-sharpened regularly. A retired police sergeant at Shaftesbury Square did most of this work for the Royal and for most of the surgeons.

I bought my first cystoscope when abroad. I told the supplier that I lived in Belfast and he said, 'That is very unfortunate, it will be £24 due to the 50% tax, but if you had lived in Dublin it would only cost £16', so I rapidly decided that I lived in Dublin, and asked him to deliver it to the College of Surgeons in Dublin, which he did. At that time my house surgeon, who was playing rugby for Queen's and was an Irish rugby international, would, I knew, have no trouble in smuggling it back on a Saturday evening among his dirty rugby football gear after a match in Dublin. This he did but it wasn't as easy as we thought.

Gloves, now expendable, in those days were used over and over again; in fact one day per week a side ward in hospital smelt like a cyclists' repair shop with the nurses sitting patching scores of rubber gloves. The best were mostly kept for the chiefs and the patched ones for the assistants. These patches had a tendency to fall off and sometimes at the end of the operation there was quite an exciting search in the open wound for these small pieces of rubber.

Administration in my day was very simple. The Hospital was run by two men and a boy — the boy in fact was a lady, Miss Lutton, and she was the link between the student and the university. There was no physical department of surgery or of any clinical science; it was all done from the Professor's house, so Miss Lutton had to keep all payments and class rolls in perfect order. She was indeed the students' friend. The two men were the secretary and the financial adviser. In addition there was a medical superintendent — in my day an old retired IMS colonel — a 'dug out': firstly Colonel Dean and later Colonel Forrest. There was an Assistant Professor of Surgery, a post which I held for three years. My main job was to collect the professor at his home in University Square, escort him across the road to the lecture theatre which was in the old Anatomy Department, install him and close the door. But it was not always as easy as that: I always had to have a lecture in my pocket for fear the great man was called away for clinical duties at the last moment. I remember on one occasion when I arrived he said, 'Tell me, what is your treatment for a strangulated hernia?' I said, 'Immediate operation'. He said, 'Yes, I must go at once, will you please carry on', so I went to the classroom and delivered a lecture that I had waited a long time to give.

Another of my duties for my £200 per year (the Professor got £500) was to arrange the clinical cases for the final examination twice per year. The Royal was easy, the Mater was most helpful and co-operative, but the Infirmary often made difficulties as they felt we were making use of them again! And there were other chores since in those days administration was so small. They say in the coal industry that there are 14 men behind the man at the coal face — I suppose in surgery it is now much the same, but fortunately we have not reached the stage of affairs as in America, if that statement I saw the other day is correct: 'We make progress when the administrators are asleep'.

OPINION

If I have described some of the problems of 60 years ago too much as a personal saga I must apologise, but this is as I saw it, and when one talks of the bad old days I sometimes wonder whether that is true. Science has advanced: the patient is clearly benefiting from modern technology. At times I wonder, however,

whether personal relationships are as happy as they were in my day. Surgery is undoubtedly much safer but at times I feel medicine is more dangerous. Advances bring success but also dangers. The drug firms send out the indications for the use of a certain drug. This occupies perhaps one line, but often there are three lines telling us what the dangers and contraindications are. When I look back at the discards in my own surgical lifetime I feel that the remarks of that famous Bostonian should be remembered:

> 'Do not forget that of the advances of today: fifty percent will be discarded in ten years time but sadly our problem today is to know what half to discard'.

Talking of 60 years ago, I am sure many of you will think a lot of this is 'old hat' but others may accept the remarks of Cicero:-

> 'Not to know what happened before you were born is ever to remain a child'.

If I have painted my teachers, colleagues and friends, warts and all, it was to show that these men had personality and originality as well as leadership. They taught us humanity at the bedside, they taught us technology on the blackboard, and by their example they taught the imponderable assets of good manners and integrity. To my teachers and to my father I owe a debt I can never hope to repay. Today it is often forgotten that the teacher of those days gave his time and his skill free of charge — he was a voluntary consultant; the only exceptions were the professors who had a small salary — not much more than a pittance — from the University.

I should explain that the scurrilous couplets that appear from time to time above come from three 'alphabets' dealing with the Royal staff. The first one was made at the turn of the century by R J (later Sir Robert) Johnstone. The second was 30 years later by Dr Hugh Calwell, late archivist to the Royal Victoria Hospital, and the third came some thirty years after that. With the law of libel as it stands today the author of this one will remain anonymous until after my death.

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The 'wild geese'

J A Weaver, P Froggatt

PROLOGUE

On 3 October 1691 the Treaty of Limerick was signed by William III's commander in the field (Ginkle) and the Lords Justices, and Patrick Sarsfield, James II's Lieutenant. It provided for the transport to France of any Jacobite forces who wished to go, in all some 11,000 officers and men, including Sarsfield who followed on 22 December. These, and later recruits from the sons of the old Irish nation, were the 'wild geese', ever hopeful of returning but destined for permanent exile and whose professional talents were placed with great effect at the service of their adopted countries. This chapter in Irish history made us think of 'wild geese' in our own profession. There have been many, partly because Ireland has for long produced more doctors that it can employ; others, however, have left from choice to take advantage of medical global opportunities. Some became eminent; some were to be found among the moderately or even the least successful. This paper deals with members of the first group.

It is imposible to list all these worthies; some choice must be made and ours is eclectic, though all are Queen's graduates in medicine and all have passed on. Many could be called but few can be chosen. We have in best medical style adopted a classification, though a crude one. The *first group* includes doctors who reached eminence mainly through imperial service — a common vocation for many Irishmen of their time; the *second,* those whose fame rests mainly on their science and academic distinction; and the *third,* contemporaries of precocious achievement and high promise in any branch of medicine whose untimely death robbed them of fulfilment. A fourth group, namely those happily still with us, could have been added but necessary choice here would have been invidious.

The biographical sketches are nothing more than detailed *vignettes* but we have done our best to preserve balance and accuracy. Some warrant far fuller treatment which we hope they will some day get. The bibliography for each is confined to crucial references: Sinton and Smyth, for example, each wrote over 200 articles, and McCarrison nearly as many as well as nine books, so it could be nothing else!

Finally, for coherence of narrative we refer simply just to 'Queen's', to embrace Queen's College Belfast (1849 – 1909) and Queen's University Belfast (from 1909). Between 1849 and 1881 Queen's graduates were those of the Queen's University in Ireland of which Queen's College Belfast, with sister colleges at Cork and Galway, were constituent colleges, but from 1882 – 1909 such graduates

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were of the Royal University of Ireland, and from 1910 of Queen's University Belfast. It should be noted that, in medicine, a number of Queen's College Belfast students between 1881 and 1908 did not qualify at the ill-fated RUI, but, by choice, through non-university licensing bodies and this has further reduced our choice.

GROUP 1

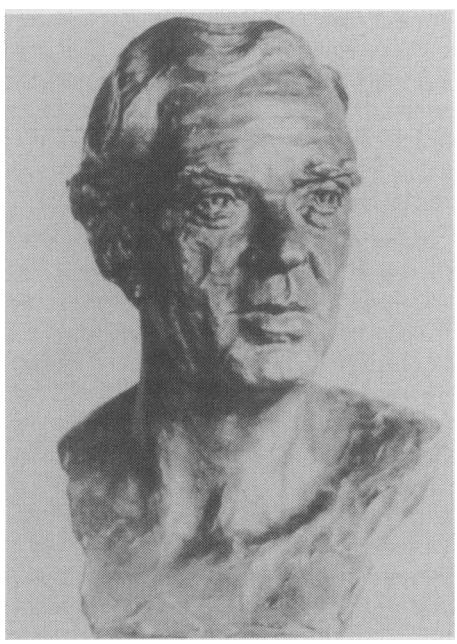
Sir John Megaw, KCIE, DSc (h.c.), MB (1874 – 1958).

John Wallace Dick Megaw was born at Ballyboyland on 8 February 1874, son of a prominent north Antrim farmer (John Megaw, JP), who had played a leading part in various civil campaigns associated with tenant rights. He attended Inst and Queen's Belfast, graduating BA in 1895 and MB with first-class honours in 1899, after a prize-studded student career: these were the last degrees he took by examination being doubtful of the value of the time spent in their acquisition! He entered the Indian Medical Service (IMS) in 1900, saw action in China, but in 1903 transferred to the civil side as a district medical officer in Bengal and later became resident medical officer at the Medical College Hospital at Calcutta where he started his long association with Leonard (later Sir Leonard) Rogers. This initiated him into research when they together studied the effects of hypertonic intravenous saline in cholera[1] and the connection between epidemic dropsy and beri-beri, into authorship (their joint book was *Tropical Medicine*),[2] and in 1921 led him to be Professor of Pathology and Director of the new Calcutta School of Tropical Medicine and Hygiene, a product of Rogers's success in persuasion among the moneyed merchant princes of the city, and ultimately to retirement posts in London.

Megaw started to publish medical observations in 1905,[3] and he furthered his interests by studying bacteriology and pathology during furloughs in Europe. In 1917 he was appointed Professor of Pathology and one (of three) clinical physicians to the King George V Medical College at the University of Lucknow, and that same year became its Principal. His interests had widened to include dengue and sandfly fever and, when bitten by an insect while on hoiday in the Kumaon Hills, he recorded his illness (of fever and petechial rash) as tick typhus and his paper was the starting-point of modern work in Asia on the rickettsial diseases.[4, 5] During the 1920s he took wider responsibilities, though retaining his post at Lucknow, but in 1928 resigned to become Inspector-General of Civil Hospitals in the Punjab (1928 – 29), then Surgeon-General with the government of Madras (1929 – 30) with the rank of major-general, and in 1930 Director-General of the IMS. He returned to London in 1933 and succeeded his mentor,

Rogers, as medical adviser to the Secretary of State for India and as president of the India Office medical board and held also a part-time lectureship at the London School of Hygiene and Tropical Medicine, finally retiring in 1939 aged 65. Queen's awarded him the DSc (*honoris causa*) in 1934 and he was Honorary Physician to the King (1930 – 34) and a Commandant de l'Ordre de Léopold II.

Megaw's interests covered administration, environmental health improvement, the diseases of India, and editorship: he edited the *Indian Medical Gazette* (1921 – 29) and in retirement reviewed papers for the *Tropical Diseases Bulletin* until the year before his death, and the *Bulletin of War Medicine.* He was highly regarded, especially in India, was a generous humanitarian, inspired harmony, and prepared Indian nationals for higher responsibility. To the end he retained many of his dissenters' principles and views: 'He heartily disliked pomp and protocol and could never be induced to be photographed in full-dress uniform. Fully sympathising with constitutional advance in India he constantly emphasised the urgent need to train our Indian successors',[6] and was not afraid to promulgate neo-Malthusian views. He died as an active manager of his retirement farm at Hawkhurst in Kent on 24 October 1958. In 1912 he married Helen Esmée Ward: there were no children.[7] Dr Robin McElderry and Dr William Ramsay are among his medical relatives.



Sir Robert McCarrison, KB, CIE, MA (Oxon), MD (QUB), DSc (QUB), LLD (h.c. QUB), FRCP, MD (RUI). *(1878 – 1960).*

Robert McCarrison was born on 15 March 1878, the second son of Robert McCarrison of Lisburn, and was brought up in an atmosphere of strict evangelical piety and remained a regular churchgoer all his life. He studied at Queen's, then gained his clinical experience at the Richmond Hospital in Dublin and graduated MB (RUI) with first-class honours in 1900. Unlike Megaw, McCarrison considered further qualifications worth the time and he proceeded MD, MRCP, in 1909 (FRCP in 1914) and DSc in 1915. He joined the IMS in 1901 and 'on my twenty-third birthday, fresh from the medical schools and but a child in knowledge'[8] sailed for India. His first posting was in the remote and desolate, but strategic and romantic regions of Chitral and Gilgit at the extreme north-western boundary of the then Indian Empire, first as regimental medical officer to a small garrison of Indian troops (1902 – 4), and then as the Gilgit Agency Surgeon (1904 – 11). 'To the north are the Pamirs, with the source of the Oxus; to the west, Chitral; to the east Baltistan and western Tibet; to the south the great Himalayan range and the passes to Kashmir'.[8] Confining the rugged beauty to lyrical prose, he started investigative work into what was to be the first of the five

research topics which occupied his life (fever, goitre and cretinism, deficiency diseases, renal calculus, and human diets) and which formed the bulk of his nine books and 159 articles and other publications.[9] 'Fever' in this case was enteric fever[10] and in the famed description of 'the three-day fever of Chitral'[11] he was the first to attribute the sand-fly as vector, which was confirmed by Doerr[12] in 1908. But soon his interest turned to endemic goitre and, until joined by deficiency disease in 1919,[13] diet in 1921[14] and stone in 1927,[15] it was to be his exclusive line of research.

In 1911 McCarrison left Gilgit with the Kaiser-i-Hind gold medal (first class) for public medical services and in 1912 was posted to Kasauli in the outer Himalayas (1912 – 14), and then on active service to a large Indian general hospital in Egypt. His health, however, broke down and he was transferred to England to take charge of the Malaria Investigation Hospital, but 1918 found him in the Pasteur Institute of Southern India at Coonoor in the Nilgiris or Blue Mountains with only an empty room and an untrained assistant. When he resigned the directorship, on retirement in 1935, he had built it into the famed Nutrition Research Laboratories, the leading such unit in the Far East. But he paid a price: in 1920 his health again broke down and he spent a period in Sherrington's laboratory accompanied by his Sikh factotum, Mula Singh, who studied histology at McCarrison's expense. On his return he found his unit suspended on the ground of economy and this forced his resignation in 1923; a still empty room met him on his reappointment in 1925, and there was no firm funding until after the visit in 1926 of the Royal Commission on Agriculture under Lord Linlithgow (later to be Viceroy), who were deeply impressed. Indeed the first two research posts — the Parlakimedi Research Fellowships — were funded from a lakh of rupees (100,000 rupees, or £7,000), which the Rajah of that name, a member of the Commission, handed across the table to McCarrison!

McCarrison and his wife (Helen Stella, née Johnston) settled in Oxford in 1935. Honours continued: Honorary Physician to the King; the Arnold Flinker and Julius Wagner-Jauregg Foundation Prize — the first ever to a foreigner; the Arnott Memorial Gold Medal; the Silver Medal of the Royal Society of Arts; the Stewart Prize of the BMA; the Cantor, Lloyd Roberts, Gabriele Howard, Sanderson-Wells, Mellon, Mary Scott Newbold, Hanna, de Lamar, Mayo Foundation, and Milroy lectures; Prix Amussat of the Paris Academy of Medicine; and much more besides. In 1945 – 55 he was director of postgraduate education at Oxford having been regional adviser to the Emergency Medical Service. He was a man of stern self-discipline, self-reliant, and at times aloof, but kind and courteous, and, like Megaw, had a great love for India which was reciprocated; a fine orator, and a man of commanding presence and fine good looks which were caught in bust by Kathleen Scott, widow of Captain Scott, RN, who married Lord Kennet in 1922. His working text at Coonoor Nutrition Research Laboratories was: 'Hearken diligently unto me and eat ye that which is good' (*Isaiah,* LV, 2), and until advanced age he was a church warden at St Andrew's Parish Church in Oxford. He died in his sleep at his home in Linton Road, Oxford, on 18 May 1960.[16, 17]

In memoriam, 'RP' wrote in the *Lancet*: 'His work on nutrition ranks with that of Ross, Christophers, and Sinton on malaria, of Rogers on cholera, and of Megaw on typhus'. McCarrison, Sinton and Megaw were all Queen's men.

Sir William MacArthur, KCB, DSO, OBE, MD, DSc (h.c. QUB and Oxon), FRCP, FRCPI, DPH, DTM&H.
(1884 – 1964)

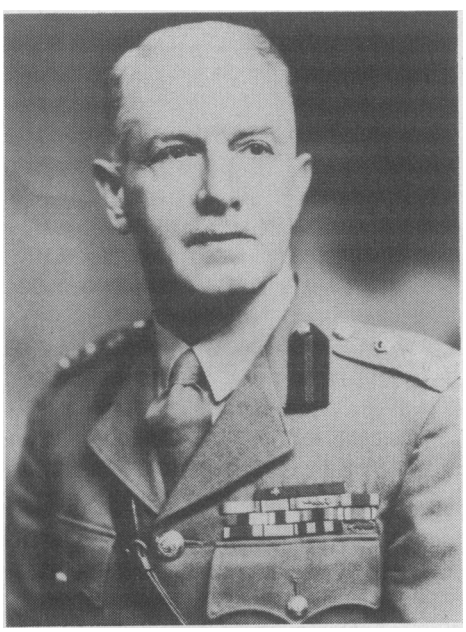
William Porter MacArthur was born at Belmont on 11 March 1884, son of J P MacArthur, who was prominent in Belfast and who had strong affinities with the Scottish highlands, the provenance of his forebears, which his son inherited, and of Margaret (née Baird). After graduating MB (RUI) in 1908, MacArthur took a house post at RVH before joining the RAMC in 1909. He took the MD (QUB) and MRCPI in 1911 (FRCPI 1913) and was posted to Mauritius where he was twice blessed, first in meeting Eugénie Thérèse Antelme whom he married in 1914, and second, as a specialist 'sanitary officer', in early beginning the study of tropical diseases which became an important part of his remarkably varied life's work.[18-20] Returning from service in France in 1918 with a DSO (1916), he was appointed Commandant of the Army School of Hygiene, which he had helped to establish, was awarded the OBE (Military Division) in 1919, and became Professor of Tropical Medicine at the Royal Army Medical College, Millbank 1922 – 1929, and again in 1932 – 1934, and, with further promotion, in 1935 Commandant and Director of Studies while, from 1929 to 1934, he was Consultant Physician to the British Army. In 1934 he became Deputy Director-General of the Army Medical Service and in 1938 Director-General with the rank of Lieutenant-General, and was appointed CB and KCB in 1939. He was elected FRCP in 1937.

MacArthur retired in 1941 aged 57. But retirement did not mean inaction: indeed it was a rebirth, since he could now return to teaching and historical scholarship from his administrative duties, which he had found uncongenial. He became university clinical lecturer in tropical medicine and additional member of the Faculty of Medicine at Oxford and associated himself also with the affairs of the Royal Society of Tropical Medicine and Hygiene as editor of its *Transactions,* and President 1959 – 61. From 1951 he was also advisory editor of the *British Medical Bulletin* as well as being variously an examiner to the Universities of Cambridge, London and Liverpool, the Royal College of Surgeons, and referee in tropical medicine at London University. These, however, were merely bases from which he forayed frequently and memorably into, most notably, the classic descriptions and reinterpretations of infectious disease epidemics from the plague of Athens (430 BC) in Thucydides' description[21] through malaria and mediaeval fevers in England and Ireland,[22, 23] and syphilis (or not, as he argued) in the returning seamen of Christopher Columbus to spread the disease among the troops of Charles besieging Naples in 1495 as is usually taught.[24] His brilliant contribution on the medical history of the Irish famine after 30 years is

unsuperseded, a contribution owing as much to his scrupulous scholarship and mastery of the Irish language as to his incomparable knowledge of the diseases concerned.[25] In 1952 he first published his researches on the Appin murder,[26, 27] long a mystery in Scottish highland history but which he helped to clarify, though not solve, from the unresearched depositions ('precognitions') of the witnesses in which again his knowledge of the Gaelic and its dialects was invaluable; while the year before he died his unrivalled scholarship in the history of mediaeval pestilences was fully acknowledged by Bonser who even published an article by MacArthur[28] as an appendix in the original draft of his authoritative book.[29]

But it is as a lecturer that he will be best remembered; indeed his talks were unforgettable. Delivered in beautifully constructed, rhythmic yet precise prose and with a clear enunciation, they were masterpieces of narrative and were delivered entirely without notes whether to small groups of students or to large audiences in public lectures; and, what is more were, on repeat, *verbatim.* This could lead to problems. Professor L C Witts has written: 'Sir William MacArthur, who was a superb orator, had this gift of memory [total recall]. He had given three lectures in Canada and was asked to give a fourth and . . . . it was suggested that he should repeat a previous lecture which had been published. He read the journal to refresh his memory and when he spoke he found that both the original manuscript and the journal pages appeared in his mind, jostling and competing with each other'. Belfast audiences have, since 1950, heard him on smallpox, syphilis, the diseases of the Irish famine, and the Appin murder. Understandably he was in demand worldwide as a public lecturer, and he was Thomas Vicary Lecturer at RCS in 1931, Chadwick Lecturer in 1935, gave the opening oration at the Welsh National School of Medicine in 1938, and at home was Campbell Orator in 1953,[30] but these were only the tip of a large iceberg.[31, 32]

MacArthur died at Oxford on 30 July 1964. One of his sons researches in Irish history from his County Donegal home.



John Alexander Sinton, VC, OBE, MD (h.c. QUB), DSc, FRS *(1884 – 1956).*

John Sinton, the only holder of the Victoria Cross who was also a Fellow of the Royal Society, was born of Ulster parents (Walter Lyon Sinton and Isabella Mary, née Pringle) on 2 December 1884 in British Columbia, the third of seven children. The family returned to Belfast in 1890 and Sinton attended Nicholson Memorial School, Lisburn, and the Faculty of Arts at Queen's College in 1902 as an exhibitioner. After a year he transferred to medicine and graduated MB (RUI) with first class honours in 1908 in medicine and midwifery, and second class honours in surgery though taking first place, as he had done in every examination. He held house appointments in the RVH and then was Riddell demonstrator in pathology and

bacteriology and clinical pathologist to the Benn and Mater Hospitals during which time he published one article[33] and took the DPH (Belfast and Cambridge 1910), and in 1911 DTM (Liverpool) and on 24 July the competitive entrance examination to the IMS. In all these examinations he was again placed first. On 29 July he was gazetted Lieutenant IMS and was seconded to Liverpool (1911 – 1912), where, aided by a grant from Queen's, he started research into human parasites[34] which was to become, as regards malaria, his life's work. In 1912 he was posted as Medical Officer to the 31st (later 13th) Duke of Connaught's Own (Bengal) Lancers and at outbreak of World War I he was acting as Civil Surgeon, Kohat, in the North-West Frontier Province where, typically, he was collecting material for a further series of papers[35] some of which would be published later. In October 1915 he was posted to the Indian Expeditionary Force D (Mesopotamia) as regimental medical officer to the 37 Dogra Regiment which sailed from Karachi in December.

The campaign in which Sinton earned his VC culminated in a major battle 100 miles south of Baghdad early in 1916. The Indian regiments suffered heavily, attacking the Turkish positions astride the Tigris at Shaikh Saad, and Sinton, though shot in both arms and side, remained on duty tending the wounded under heavy fire on the several days of battle, his citation (gazetted 20 June 1916) reading: 'For most conspicious bravery and devotion to duty. Although shot through both arms and through the side, he refused to go to hospital, and remained, as long as daylight lasted, attending to his duties under very heavy fire. In three previous actions Capt. Sinton displayed the utmost bravery'. He was also mentioned in despatches four times and awarded the (Russian) Order of St George. He was invalided to India later in 1916 and had several postings in the north-west where he again saw action and was twice mentioned in despatches, was appointed OBE (Military Division), and awarded the Indian General Service ribbon with three clasps. In 1919 Queen's made him MD (*honoris causa*) in recognition of 'his early academic distinctions and his valour in the field'. In 1921 he joined the Civil Branch after home leave and was taken onto the staff of the Medical Research Department at the Pasteur Institute, Kesauli, near Simla, on 8 February, and on 20 July transferred to take charge of the so-called 'quinine and malaria enquiry' (financed by the Research Fund Association of India), also at Kesauli where he remained as Director, under its various changes of title, until he retired in 1936. It was here that his great work on malaria and kala-azar was conducted, which earned him the distinction of FRS in 1946.

Sinton returned to England in 1936 with the rank of Lieutenant-Colonel, a totally inadequate recognition of his work and prowess which was attributable to his comparatively late age of entry to the IMS (26) and a forthrightness of attitude which did not court favour. He became Manson Fellow at the London School of Hygiene and Tropical Medicine, Adviser to the Ministry of Health, and researcher at the Horton Malaria Laboratory, Epsom. In 1939 he was recalled to duty and commanded a hospital in India but in 1940 was retired, joined the Home Guard as a private, was rescued by the War Office, and for the rest of the war was a peripatetic adviser on malaria control with the rank of Brigadier. In 1945 he finally retired to a remote holding near Cookstown, turned his back on the IMS and army (though not on research), and entered a new career of civil duty: Pro-Chancellor of Queen's, Honorary Colonel of Queen's OTC, High Sheriff (1953) and Deputy Lieutenant (1954) for Tyrone, and much more besides. He died on 25 March 1956 and was buried with full military honours among the mountains near Cookstown.

By any standards, Sinton was remarkable: physically, morally and intellectually courageous he had many of the characteristics of the martinet but he was in fact a disciplined intellectual, warm-hearted if exacting, a rigorous scientist and a glutton for work. He wrote over 200 scientific papers — bound chronologically in 12 volumes in the Thomson Room, QUB Medical Library — and ranks with the great names of malariology, an interest which inspired his first paper on the subject in 1921,[36] while the last which he wrote, received in August 1955 just seven months before his death, was on the same topic.[37] Honours were showered on him: malaria agencies and bodies vied with each other to bestow awards and he was also Campbell Orator (1946),[38] Arnott medallist (1917), Chalmers medallist (1929), Bissett-Hawkins medallist (1944), Mary Kingsley medallist (1949), and Anti-Gambia memorial medallist of Egypt (1950). He received the DSc from Queen's in 1927 for his work on *Phlebotomus.*[39] On 21 June 1956 the Manson Medal of the Royal Society of Tropical Medicine and Hygiene was awarded posthumously and accepted by his widow;[40] also that day the Laveran Gold Medal was presented to Professor Leonard Rogers, FRS, the mentor of Dick Megaw (*q.v.*). He was survived by his wife, Edith Seymour Stewart (née Martin), whom he had married on 19 September 1923, and a daughter (born 9 December 1924), married to a medical researcher in West Africa.[41-43]

Sir William Tyrrell, KBE, DSO, MC, LLD (h.c. QUB), MB, DPH (1885 – 1968)

William Tyrrell (back row on right).

William Tyrrell ('Billy' as he was ubiquitously called) was born in Belfast on 20 November 1885, son of John Tyrrell of Belfast and Bangor, was educated at Inst, and enrolled at Queen's in 1903 finally graduating in 1913 after an undergraduate career memorable alike for his prowess as an athlete, swimmer and rugby player and for his energetic espousing of every good cause and involvement in every social activity 'which tended to retard his conquest of the medical curriculum'.[44] He gained international caps in swimming and water-polo and representative honours on the track, but it was as a rugby forward and captain of the Queen's University side that he is best remembered, gaining nine full caps (*v* France 1910, and all countries in 1913 and 1914) and being a member of Dr Tom Smyth's XV which toured South Africa in 1910. No one in Queen's and few in many Belfast circles did not know and like the popular and warm-hearted Billy Tyrrell.

After graduating Tyrrell sought a commission in the RAMC but was rejected because of a slight refraction error and was consigned to the special reserve, while he held a house-post at the RVH and was Assistant Medical Officer of Health for Belfast. He was incorporated into the full RAMC at the outbreak of World War I and his vigour and innate ability found scope as Regimental Medical Officer with the 2nd Lancashire Fusiliers, DADMS of the VIII Corps of the BEF,

OC the 7th Field Ambulance, and finally OC the RAMC School of Instruction. His courage earned him the DSO and bar, the MC, the Belgian Croix de Guerre, and he was no less than six times mentioned in despatches. Like his compatriot and fellow rugby international of the later war, Blair Mayne (DSO and three bars), he was perhaps unfortunate not to have been awarded a VC. At war's end he became Principal Medical Officer in the newly formed (April 1918) RAF with the army of occupation, then served with the Z expedition in Somaliland, and in 1920 became permanent in the RAF. His postings included Basrah, Palestine, Iraq and Cranwell, and in 1935, now Group-Captain, he was appointed Principal Medical Officer of Training and Technical Training Commands and promoted Air-Commodore, being gazetted Air Vice-Marshal in 1939. He retired in 1944 and for the next three years was Director of Medical Services of BOAC. He obtained the DPH in 1922, was appointed CBE in 1942, KBE in 1944; was honorary surgeon to the King 1939 – 1943, and was conferred with the LLD (*honoris causa*) by Queen's in 1947. In 1929 he married Barbara Colclough of Romsey, Hants, and had two sons and a daughter. He died on 29 April 1968 after a long illness.[45]

Unlike McCarrison, MacArthur, Sinton and Megaw, who also reached high rank, Tyrrell was neither intellectual nor academic: he was a vigorous man of action, not tall but of outstanding physique, and a leader, rugged and determined but good-natured and approachable, and of great personal charm; warm-hearted, he made fast friends — all of which qualities made him a successful administrator. A P Foster, former headmaster of Belfast Royal Academy and a team member with Tyrrell of four Irish rugby teams, has summed him up: 'For ten years he impressed his personality on Queen's. In any student activity, whether it was a fête to raise money for the Union, a students' night at the Opera House or a protest against Christian Science, he was the life and soul of the occasion . . . . He had many gifts, but one of these surpassed all the rest, the gift of making and keeping friends. If you were his friend, you were his friend for life'.

Hugh Gault Calwell, BA, MD, DSc (h.c. QUB), DTM&H *(1901 – 1986).*

Hugh Calwell was born on 13 December 1901 in Duncairn Gardens, where his father William Calwell (who practised in York Street) was one of the Calwell medical dynasty of South Antrim where their forebears had farmed. Hugh attended Inst where he showed a remarkable linguistic and literary ability and proclivity, and it was as a multiple prizeman in classics, modern languages and English literature, including the entrance and Porter scholarships and the Drennan exhibition, and as head of school, that he entered Queen's to read classics in 1920. He graduated BA in 1924 with first class honours, having been, amongst other things, President of the Students' Union Society with an *ex-officio* seat on the Queen's governing body, the Senate. The Calwell medical diathesis now surfaced and he transferred to read medicine, thereby following his great-uncle, his father, his three uncles, his aunt, his two sisters and a brother — a diathesis which his two sons and other later Calwells and collaterals were to inherit. In 1929 his career was decided: 'Some time during my final year Sir John

Megaw [*q.v.*], Director-General of the IMS, visited Queen's and addressed Professor Andrew Fullerton's class. He painted such an attractive picture of his service that I spoke with him later about it. Before sending my application to the India Office I chanced to meet the late Dr Peter Clearkin [later medical secretary, Faculty of Medicine, QUB] who was on leave from Tanganyika. He suggested that I would have a better career in the Colonial Medical Service'.[46] And so it was, after graduating MB with second class honours in 1929 (Hamilton *q.v.* got first honours that year) he joined that service and after secondment in London to take the DTM & H he was posted to East Africa as a medical specialist in trypanosomiasis where he found himself 'in Dar-es-Salaam . . . . as assistant bacteriologist in Clearkin's laboratory. On the wall of his office was a brass plate commemorating (in German) Robert Koch who had worked there on malaria in 1897 – 98 when Tanganyika was a German colony'.[46] This work led to scientific publications[47] and to the MD (QUB) in 1935.[48]

At the outbreak of World War II, Calwell was in charge of the trypanosomiasis programme for the whole colony but he joined the King's African Rifles before transfer to the East African Army Medical Corps and finally to the RAMC with the rank of major. At war's end he retired from the service; after a year as a special lecturer at the Liverpool School of Hygiene and Tropical Medicine, he re-settled in Northern Ireland, taking up duties first as a physician with the Northern Ireland Tuberculosis Authority and medical referee at the Ministry of Health. In 1952 he became director of the BCG vaccination service and in 1959 physician-in-charge of the yellow fever and BCG clinics in Belfast.

Calwell retired from active medicine in 1966 but not from creative work: his medical knowledge, sense of history, local involvement (he was an active member of several local historical societies), innate scholarship, and literary abilities combined to produce a flow of important local medical historical works, including a history of the Royal Belfast Hospital for Sick Children[49] based on his MA thesis[50] and his invaluable biography of Andrew Malcolm.[51] But there were other publications including his translation from the Latin of Vincentins Ketalaer's *Medical commentary on thrush in the Netherlands,* and he was a natural successor in 1978 to Sydney Allison as Honorary Archivist to the RVH, a post he occupied with skill and enthusiasm until his death. It should be recorded that during his incumbency his alertness saved from the dump the long missing minute books of the Committee of Management of the Fever Hospital and General Dispensary for 1820 – 40, the crucial years after the move to Frederick Street. Queen's conferred on him the DSc (*honoris causa*) in 1984. He died at home in Whitehead on 28 February 1986 after a two-year illness bravely and philosophically borne.[52] He had married a former student colleague, Margaret Earls, and had two sons (both doctors) and a daughter, all of whom survived him.

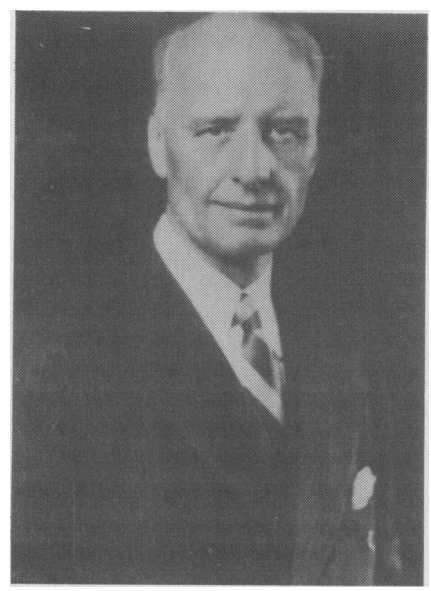
Hugh Calwell was a scholar and a gentleman and a doctor of ability and high principles. His work in Africa would not rank him with our other colonial 'wild geese': his interests were scholarly rather than experimental or administrative and he was too philosophical to pursue single-mindedly a defined goal. Small in stature, shy in company, careless often in appearance, he did not immediately impress until one confronted his intellect and then things were very different; but his career abroad and the value of his contribution to Ulster medicine and local history will grow in importance with the years.

***Sir William MacCormac, Bart, KCB, KCVO, MA, MD, MCh, DSc (h.c. RUI), FRCS, FRCSI, MD and MCh (h.c. TCD)** (1836 – 1901).*

Sir William MacCormac was perhaps the most successful of our 'wild geese' but atypical of the group since he found distinction close to home (in England). He gets only this brief nod because he (and his father Henry MacCormac, MD) have already been brilliantly portrayed by Sir Ian Fraser in this journal[53] and in the Thomas Vicary Lecture of the RCS in October 1982.[54] As an Irishman his greatest achievement was to capture the presidency of the English college (1896 – 1900), the first Irishman to do so. His painting by Count Pierre Troublestoi hangs in Lincoln's Inn Fields; that by Harris Brown is in the Great Hall of Queen's.

GROUP 2

***Robert Foster Kennedy, MC, MD, DSc (h.c. QUB), FRSEd.** (1884 – 1952).*



Robert Foster Kennedy was born on 7 February 1884, the youngest of the five children of William Archer Kennedy and Hessie Dill, daughter of Robert Foster Dill (1811 – 1893), Professor of Midwifery at Queen's College, Belfast, and City Coroner, and of the same family as Sir Samuel Dill, Professor of Greek at Queen's (1890 – 1923), and Field-Marshal Sir John Dill, a wartime Chief of the Imperial General Staff. While a child he moved with his parents to live in Czestochowa in Poland where his father was manager of a linen firm, but, on his mother's death from scarlet fever at the age of 34, the children returned to Ulster where Kennedy stayed with his maternal grandparents at 3 Fisherwick Place. When Dill died in 1893, the household moved to Bangor, sending Kennedy in 1894 to board at the Royal School Dungannon where a cousin, Robert Dill, was Headmaster. Kennedy entered Queen's in 1901, graduated in 1906 (RUI) already determined on a career in neurology, and that autumn, having previously impressed both Sir James Purves-Stewart and Sir Victor Horsley, he became resident medical officer at the National Hospital for Nervous Diseases, Queen Square (then the National Hospital for the Paralysed and Epileptic). Four years later, unable to find a suitable post in the British Isles, even though that year elected FRS Edinburgh, he accepted the position of chief of clinic at the fledgling Neurological Institute in New York on the invitation of one of the founders, Pearce Bailey.

Kennedy soon made his mark in a city receptive to ability, independence, charm and energy, and he had these in abundance. In September 1911, when only 27, he published his first paper on what later became known as the Foster Kennedy

syndrome,[55-57] and he was becoming well-established when he joined the RAMC in April 1915. He served in France with the Harvard Surgical Unit General Hospital No. 22, and with a field ambulance unit at the front where he won the Military Cross and became Chevalier de la Légion d'Honneur. Shortly after his return to New York at Christmas 1918 he was promoted from Attending Physician and Assistant Professor to succeed Charles Dana as Professor of Neurology at Cornell and head of the neurological service at Bellevue Hospital. His career as clinician, observer, and neurologist to the great and good blossomed: many distinguished people from politics, the business world, and particularly the arts (Kennedy in youth had contemplated a stage career) were his patients and often his friends — he attended Churchill in December 1931 after WSC had been knocked down by a taxi in New York and they corresponded thereafter. He made frequent visits to Europe and throughout America and, despite the financial problems of 1929 – 30, he was an undisputed leader in neurology when in 1939 he was forced through intermittent ill-health to move to the wings of the stage. He continued to write and practice (21 of his medical papers were published after his illness, a massive nasal haemorrhage leading to tying of his right external carotid artery), but in 1951 he became mortally ill with polyarteritis nodosa and in the first days of 1952 entered his old ward at Bellevue as a patient and died there of intestinal haemorrhage on 7 January 1952. He is buried at Pendleton Hill, Rhode Island.

Kennedy, a former president of the American Neurological Society, was an able, energetic, and remarkably perceptive clinical neurologist, and a man of fine good looks, imposing presence and great stamina. He was also attracted to the exciting whirl of the between-wars USA and was the friend and *confidant* of many socialites and household names and one of the leading medical personalities in the United States. He was a precocious observer: the first three of his over 100 scientific articles were written (with Gordon Holmes) when he was just 24,[58-60] the first on the syndrome which now bears his eponym when he was 27,[55] and he made important observations in other fields — on shell-shock during World War I when barely 30[61, 62] and on encephalitis in the 1919 pandemic.[63] He was prominent in promulgating through his teachings and writings the best of British neurology, disentangling it in America from psychiatry. In 1910 he took the MD (QUB) by thesis with high commendation. In 1912 he married Isabel McCann of the Belfast publican family and they had two daughters: one is Isabel, wife of Sir John Butterfield, Regius Professor of Physic at Cambridge and Master of Downing College. After divorce in 1938 he married a young medical student, Katherine Caragol y San Abria and had a third daughter, Hessie. He returned more than once to Belfast after World War II, and had conferred on him the DSc (*honoris causa*) of Queen's in 1951, when he dined with the late R S Allison and other colleagues: a lengthy note by Allison of the conversation is in the Vice-Chancellor's files. In 1986 Lady Butterfield presented Queen's with her father's consulting chair from Bellevue which had also been used in 3 Fisherwick Place by his grandfather, R F Dill. Her biographical sketch and editing of her father's letters done with objectivity yet feeling is our best source[64] to augment the obituaries in the medical press.[65, 66] The Foster Kennedy syndrome has been well discussed by Massey and Schonberg.[67]

Thomas Porter McMurray, CBE, MCh, FRCS, FRCSEd. *(1887–1949).*

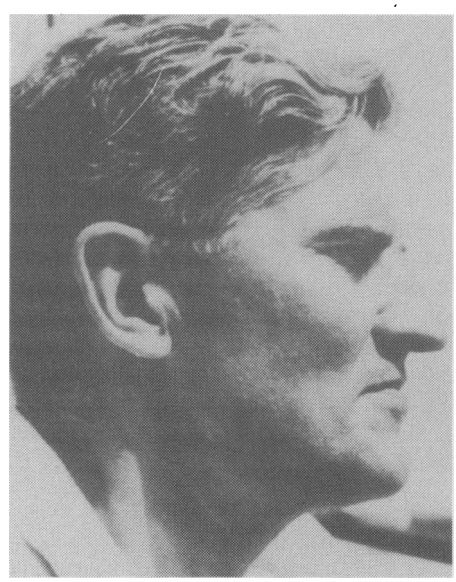
McMurray was born in Belfast on 5 December 1887 one of four sons of Samuel McMurray, headmaster of St Enoch's School, and of Elizabeth, née Boden. He was educated at Belfast Royal Academy and entered Queen's in 1905 graduating MB in 1910 when, it is said, he was given £5 by his father with the injunction 'You are on your own now'. In 1911 he was appointed house surgeon (and later tutor and surgical registrar) at the Royal Southern Hospital, Liverpool, and at once came under the influence and instruction of Sir Robert Jones and thereafter decided to specialise in orthopaedics. Though lacking a further diploma, he was appointed Honorary Orthopaedic Surgeon to the David Lewis Northern Hospital in Liverpool in 1913 and Honorary Surgeon to the Royal Liverpool Children's Hospital in 1914 just before being commissioned in the RAMC. After a short time in France he was recalled to work with his old chief, Robert Jones, at the (Military) Orthopaedic Centre at Alder Hey, and also acted as inspector of orthopaedic hospitals in Ireland. In 1919 he obtained his MCh by thesis[68] and was appointed *orthopaedic* surgeon to the RLCH. He became lecturer in orthopaedic surgery at the University of Liverpool in 1924, succeeded Robert Jones as director of orthopaedic studies in 1933 — the year he became orthopaedic consultant to the Lancashire County Council — and became Foundation Professor in 1939. During World War II he played a full role in the Emergency Medical Service and instruction in the surgery of trauma and suffered professional loss in May 1941 when his rooms at 11 Nelson Street (which had been those of his mentors, Robert Jones and Hugh Owen Thomas) were destroyed in the blitz. He was President of the British Orthopaedic Association in 1940–41, President of the Liverpool Medical Institution in 1948, and was President-Elect of the British Medical Association at the time of his death. He took the FRCSEd in 1923, was elected FRCS England in 1948, and awarded the CBE in 1946. He retired in 1947 to Ystrad Cottage at Denbigh, though he continued part-time work at the Northern Hospital and operated there the day before his death. On 16 November 1949 while staying with his married daughter in London, preparatory to visiting his son in South Africa, he collapsed and died at Ealing Broadway station. His first wife, Dorothy, née Hill, daughter of Squire Hill of Jordanstown, whom he had married in 1915, died in 1936 leaving a son and daughter. He married Winefred, née Evershed, from Brighton, in 1944.

McMurray ranks with Robert Jones, Hugh Owen Thomas and McCrae Aitken in the quartet of great orthopaedic surgeons which made Liverpool the leading British and an internationally rated unit. A superb diagnostician and operative technician, he was conservative rather than innovative and his fame rests on his inspiring example and teaching ability during the years he was the leader of the Liverpool school. But there was a paradox: he was shy among students almost to the point of being inarticulate, wrote little, rarely spoke at meetings and shunned

publicity. His teaching method was didactic and pragmatic — as Lord Cohen has written 'it favoured the dogmatic, and [he] was somewhat impatient of the Socratic'[69] — and he became an uncritical and uncompromising proselytiser of the views and doctrines of H O Thomas, even to the point of opposing true surgical advance. Despite this, he stood at the highest peak in his profession and helped to train generations of orthopaedic surgeons who took their skills to all corners of the world. When he did speak he could be wise if outspoken, because there was no dissembling in his forthright character, and his bluntness could be taken amiss, but there lurked beneath it all a sense of humour. No-one doubted his pre-eminence, sincerity, transcendent skill, and total commitment to the patients' good, and he was delightful and warm-hearted. Honours and praise were received with modesty, even seeming disinterest, and although colleagues remarked on the antimonies in his character, to those familiar with Ulster he was a very recognisable type, almost a prototype in fact.[69, 70]

McMurray was a steady if unprolific writer (barely a dozen articles between the wars) and is known eponymously only in orthopaedic circles mainly for 'McMurray's osteotomy'. He also wrote a short textbook.[71] His epitaph is the skill of his students and the postgraduate school of orthopaedics in Liverpool.[72]

James Dixon Boyd, MA, MD, DSc, FRCOG. *(1907 – 1968).*



Dixon Boyd was born on 29 September 1907 in Brooklyn, New Jersey. His father, also James Dixon Boyd, had left his home, Straid Farm in Co Down, at the age of 17 to emigrate to the United States, selling his bicycle to buy his ticket; his mother, Grace Helen Smythe, was a third USA generation of Smythe emigrants from Enniskillen living in Brooklyn. In 1914 Boyd's mother died of tuberculosis and the family lived peripatetically with their travelling salesman father from boarding house to small hotel until 1915 when Boyd attended the Louisa M Alcott day school in Chicago for most of a year and impressed all with his high IQ. But mostly he read in Carnegie libraries until 1917 when his father returned to Larne and Boyd attended Larne Grammar School, then Inst, before going up to Queen's in 1924 with an entrance scholarship. He took the BSc (Anatomy) with first class honours in 1927, and the MB in 1930, again with honours, and collected many prizes along the way including the Gold Medal in Surgery and the Adami Medal. House appointments at the RVH followed, but in 1931 he became a demonstrator in the Department of Anatomy, proceeded to MSc in 1932[73] and to MD (with gold medal) in 1934,[74] the year he won a Rockefeller Fellowship at the Carnegie Institution in Baltimore under G L Streeter. In 1935 he was appointed Lecturer in Anatomy at Cambridge; in 1937 fellow of Clare College (later Professorial Fellow) and in 1938, when barely 31, he was appointed to the Chair of Anatomy in the London Hospital Medical School. In

1951 he returned to Cambridge as Professor of Anatomy and died at his home there on 7 February 1968 after a prolonged and incapacitating illness. In 1933 he married a fellow-student, Dr Amelie Loewenthal, and subsequently had four sons.

Dixon Boyd, like William Hamilton (*q.v.*) and others, was one of Walmsley's remarkably gifted pupils. He was unquestionably one of the great anatomists of the day, concentrating mainly on neurology and embryology: and his early work on the carotid body and sympathetic nervous system and his work on the human placenta were embodied in his authoritative book with Hamilton, *Human Embryology,* first published in 1945 and now in its fourth edition.[75] His writings were numerous and at his death he had almost completed another book with Hamilton on the human placenta: the book was published posthumously.[76] His teaching and scientific rectitude were equally impressive: possessed of a phenomenal memory and a wide scientific and cultural perspective, he was most impressive with postgraduate students and junior staff whose research problems he could usually solve and whom he could stimulate scientifically and intellectually, imparting something of his sheer joy in the subject. He was a kind man, of warm affection and fast friendship: in youth attracted to the communist ideologies, as were many contemporaries, he was quick to see the intellectual bondage of these philosophies. Though his students' science and culture were his main interests, he did not confine himself to the laboratory but took a keen interest in the affairs of the university: his great abilities, however, were clouded somewhat by the harrowing circumstances of his protracted final illness, chronic pulmonary disease.

Professional honours came his way. He was variously President of the Anatomical Society of Great Britain and Ireland (1951), editor of the *Journal of Anatomy* (as was Jack Pritchard later), Fellow of the International Institute of Embryology, honorary member of the Anatomische Gesellschaft, Professor of Anatomy at the Royal Academy of Arts, Woodward Lecturer at Yale, and Vice-President of the Zoological Society. In 1961 Queen's conferred on him the DSc (*honoris causa*) and in 1963 he became a Fellow of the Royal College of Obstetricians and Gynaecologists under bye-law 10A.[77, 78] His widow has been most helpful with confirming much of the above information.

William James Hamilton, MSc, MD, DSc, FRCS, FRCOG, FRCSEd. *(1903 – 1975).*

William James Hamilton was born at Whitehead on 21 July 1903, son of Andrew, a ship's captain, and Emmeline Hamilton. He completed a prize-studded career at Queen's by taking a BSc in physiology with first class honours in 1926 and similar honours and first place in the MB in 1929. He proceeded to MSc in 1931[79] and at once went as a lecturer in anatomy to Glasgow to work under Thomas Hastie Bryce where he was awarded the Struthers Prize and Gold Medal in 1932 and the DSc in 1934, being elected that year FRCSEd. In 1935 he moved to St Thomas's Hospital Medical School as

Deputy Director of Anatomy under A B Appleton, and became Professor of Anatomy at the University of London in 1936, holding this chair at St Bartholomew's Hospital. That same year he was awarded the Queen's MD with high commendation,[80] and in 1938 he was Neill prizeman of the Royal Society of Edinburgh. In 1945 he went back to Glasgow to the Regius Chair but soon returned to London in 1947, to be Foundation Professor at Charing Cross Hospital Medical School until he retired in 1970. As Dean of that School from 1956 to 1962, his ability and forcefulness allied to foresight laid the foundations for its expansion and ultimate move to the Fulham Road. In 1933 he married Maimie, only daughter of Samuel Young of Myrtlefield Park, Belfast. All four sons became doctors and his daughter a dentist.

Hamilton was an able man of great drive and determination and a prodigious writer especially of books and of chapters in composite books, the best known being *Human Embryology* with Boyd (*q.v.*) and *Surface and Radiological Anatomy.*[81] A contemporary and close friend of Dixon Boyd's, he lacked something of Boyd's critical ability and breadth of culture, but his energy and facility in the technique of book-writing ensured the success of their collaboration, especially latterly when Boyd's health failed and their last further joint production, on the human placenta, was published after Boyd's death.[76] Hamilton was an innovator in teaching methods and a successful planner but, though much admired and respected, he was not the first Ulsterman to appear to his English colleagues as forceful, direct, perhaps abrasive, even though all this covered a basic warmth and shyness.

As with Boyd, anatomical honours came his way. He followed Boyd as president of the Anatomical Society (1953 – 55), was elected FRCOG in 1959 and FRCS in 1963 under relevant bye-laws, became DSc (*honoris causa,* QUB) also in 1963, and won the John Hunter medal and triennial prize of the RCS in 1973. Also like Boyd, he was onetime Professor of Anatomy at the Royal Academy of Arts. In retirement he continued to research and write, basing himself at the Institute of Basic Medical Sciences in Lincoln's Inn Fields, and continued to hold his post as Professor of Anatomy at the Royal Academy. He died suddenly and unexpectedly during sleep at his home in Northwood, Middlesex, in the early hours of 3 May 1975, having worked through the previous day.[82-84] We are indebted to Professor T W Glenister for supplying some of the above information.

David Henry Smyth, MD, DSc, PhD, FRS. *(1908 – 1979).*

David Smyth was born at 25 Seymour Street in Lisburn on 9 February 1908, third son of Joseph Smyth who was headmaster of the Nicholson Memorial School, and of Mary Jane Brown, née Spence, of Dromore, Co Down. After schooling at Nicholson, Smyth went to Inst and entered Queen's in 1926 with the Hyndman, Tennant and Packenham Scholarships, graduating BSc with first class honours (Physiology) in 1929, and MB also with honours and second place in the year in 1932. After a year's house post in the RVH he returned to the Department of Physiology as a

demonstrator working on the neurological control of respiration, proceeded to MSc in 1934[85] and to MD with Gold Medal in 1935,[86] spent a year (1936 – 37) with Rein in Göttingen as a Musgrave student and in 1937 was appointed to a lectureship at University College London under Sir Charles Lovatt Evans, working mainly on carbohydrate metabolism and brain perfusion. At the start of World War II, the second MB women at UCL were evacuated to Sheffield together with Smyth, who worked there with Hans Krebs; in October 1940, however, they rejoined the men at Fetcham Park, Leatherhead, to form the wartime pre-clinical UCL centre. At Leatherhead Smyth was acting Head of Physiology (1944 – 45), which involved some administration; up to then he had worked on problems of alimentary function for the Ministry of Supply and had found time to present his work on respiration for a PhD at London University in 1940. In 1945 the Fetcham Park evacuees returned to Gower Street and Smyth was appointed to the Chair at Sheffield from December 1946 where he continued his work on respiration for which he was awarded the FRS in 1967 — apart from Sinton (*q.v.*), the only medical Queen's man to be so honoured (Thomas Andrews, elected FRS in 1849, predated Queen's and was a graduate of Edinburgh).

At Sheffield, Smyth energetically built up his department so that it twice outgrew its accommodation, and a memorial takes the form of the largest redbrick building, mostly housing physiology, in any redbrick university in the country! In 1948 he was approached by Sir Samuel Irwin to apply for the Belfast Chair on Barcroft's retirement but he graciously declined. He retired in 1973 but this only opened doors of opportunity which he enthusiastically entered: research continued at the MRC Psychiatry Research Unit at Middlewood Hospital; the 'personal view' column in the *BMJ*; Leverhulme Emeritus Fellow (1973 – 75); Chairmanship of the Research Defence Society (1977); Foreign Secretary to the Physiological Society; Chairman of the British National Committee for Physiology (1974) and, with his wife Mary (née Hoyle) whom he married in 1942, breeding *keeshonds* (Dutch barge-dogs), as well as some physiology.[87]

Smyth was small in stature with a slight speech impediment but large in heart and intellect. His science was impeccable and of complete integrity, and his wide culture — he was well versed in German, French, Russian and Italian, and a competent pianist — led to a philosophical bent. He was much exercised in particular by animal experimentation, and put forward his views in 1978 in a book *Alternatives to animal experiments.*[88] He was more gregarious than many of our 'wild geese': loving company he had a sparkling if acerbic wit, was a gourmet and a fine after-dinner speaker who was on everyone's guest-list and could converse with knowledge and humour on a catholic range of subjects. He did not seek professional or other honours and gave wholeheartedly to Sheffield University — where he was a Pro-Vice-Chancellor (1962 – 66) — but he kept links with Ulster and the Queen's department, was awarded the DSc (*honoris causa,* QUB) in 1976, and was Campbell Orator in 1968.[89] He was a writer of accurate scientific prose and had been on the editorial board of the *Journal of Physiology* (1961 – 68). He died after a serious operation, at his home at Foolow, Derbyshire, on 10 September 1979, and was buried in Eyam Parish churchyard.[90-92]

James Purdon Martin, MA, MD, DSc, FRCP.
(1893 – 1984).

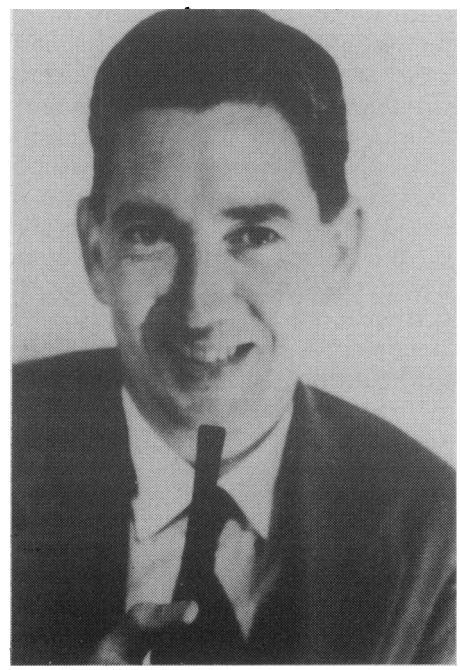
James Purdon Martin was born on 11 June 1893 on a farm at Jordanstown whose lands now accommodate part of the University of Ulster. He was intellectually talented and precocious and entered Queen's from Inst in 1912 with an exhibition to read modern languages but graduated BA (first class honours) in mathematics in 1915, being a Purser student that year; MA in 1918, MB in 1920 with honours, and MD (by examination) and MRCP in 1922 (FRCP, 1930). Against parental wishes he moved to a house post in Liverpool and in 1922 to London where his Liverpool experience with encephalitis lethargica helped him to obtain a resident post at the National Hospital, Queen Square, where in 1925 he was appointed Consultant. Recognition and honours came rapidly: though fundamentally a clinician he was always interested in research and in 1927 established the association between hemiballismus and partial lesion of the corpus luyisi.[93] Most of his work, however, was recorded through sound clinical observation and treatment, embodied as a corpus of experience in his contributions to the 8th and 9th editions of Price's *Textbook of Medicine.* He was neurologist to the British Postgraduate Medical School (1935 – 57), and to the Seaman's Hospital, Greenwich, the Bolingbroke Hospital, Whipp's Cross Hospital and to Eastern Command during World War II. He was Dean of the Medical School in Queen Square (1944 – 48) and the first Dean of the Institute of Neurology in 1948, the year he first reported the therapeutic effect of penicillin on neurosyphilis.[94] After retirement he reviewed the surviving post-encephalitic Parkonsonism patients who had been inpatients at Highlands Hospital, Winchmore Hill, and in 1967 recorded the findings in an important book,[95] which was in fact better received on the continent than at home. He enjoyed the respectable doyen status which the Europeans gave him, as he did also an association with Jonathan Miller over programme notes for *The turn of the screw.* He kept himself busy: though he was physically impaired by a broken hip in 1978, he refused to allow this to stop his visits abroad or participation in his 90th birthday parties. He died in Queen Square on 7 May 1984. He had married a neurological colleague, Marjorie Blandy, in 1923 — the first woman registrar at Queen Square — and they had two sons. She died in 1937. In 1974 he married Janet Ferguson who had been a mathematics student with him at Queen's: she died in 1978.[96, 97] Among his Ulster relatives are his niece Dr Diana Hadden and his nephew Professor Craig Martin.

Martin did not receive the civil, or perhaps medical, recognition he so patently deserved for 60 years of outstanding service at Queen Square and nearly that in the forefront of British neurology, though he was Lumleian Lecturer in 1947, Arris and Gale Lecturer, 1963, President of the Neurological Section of the RSM 1945 – 46, and an honorary member of national neurological societies in France, USA and Canada. His perceived personality was partly to blame: rugged

independence, a certain aloofness, an undoubtedly uncompromising make-up which could be disconcerting and which, allied with some strongly held personal prejudices, masked at first his high intelligence, compassion, intellectual tolerance and unfailing basic courtesy. As with others among our 'wild geese', Martin's Ulster personality and sense of values were not always understood by our English neighbours. In 1982, when he was 89, the Senate of Queen's at long last decided that the University should honour him with the DSc (*honoris causa*), the distinction he prized above all others; and few will forget the noble bearing, the thinning white mane, the patrician visage and the easy dignity of his platform appearance (though physically he was much hampered) which belied the 66 years which separated this tardy decision of the Senate from his own membership of that self-same body as Graduate President of the Students' Representative Council, 1916–17.

GROUP 3

Robert Ford Whelan, MD, DSc, PhD, FRCP, FRACP, FACE, FAA.
(1922–1984).



Robert Whelan, 'Bob' as he was universally and affectionately known, was born in Belfast on 22 December 1922, son of Robert Henry and Dorothy Ivy Whelan, attended Belfast Royal Academy, and entered Queen's in 1940, graduating in 1946. He was a houseman at the Belfast City Hospital, and his subsequent work with the Glen Line (Alfred Holt & Co) as a ship's surgeon and senior ship's surgeon, took him to the Far East and Australia. On his return, he decided at first on a career in surgery, but he soon abandoned this in favour of physiology. He was Junior, then Assistant Lecturer, and took the MD in 1951,[98] and the PhD in 1955,[99] and after a year (1951–52) with Barcroft at the Sherrington School of Physiology at St Thomas's he was appointed Lecturer in the Department of Physiology at Queen's, where he became a key member of Greenfield's remarkable team working on vascular physiology, in company with John Shepherd, Ian Roddie, Gary Love, Darty Glover, and others. In 1958 he became Professor of Physiology and Pharmacology at the University of Adelaide and at once transformed the Department, building it into one of the most important in Australia. He personally led research and was awarded the DSc at Queen's in 1961.[100] The Associate Deanship (1960) and Deanship (1964) followed, but it was clear that higher office would soon call and in 1971 he went to the University of Western Australia as Vice-Chancellor and, as in Adelaide, transformed what he found. Very shortly he was being mentioned for vice-chancellorships in the United Kingdom or university presidencies in North America. In 1976, under heavy

persuasion, he accepted the Vice-Chancellorship of Liverpool, and took up office on 1 January 1977.

He soon made his mark locally and nationally. He ran the university efficiently and with style and foresight, was liked and admired by all grades of staff, and his Madison Avenue-style office suite with its well-ordered luxury, private lunch/committee room, and desk devoid of paper would have been a model for any textbook chief executive and the envy of most. All strings were firmly in his hands. On 21 November 1984 (an NUS-organised national 'day of action'), while attending a committee meeting, he was asked to persuade students on a temporary 'sit-in' to disperse. Characteristically he at once agreed but collapsed and died while addressing them.

Whelan's great ability was as an organiser, inspirer of efficiency and effectiveness in everything from a laboratory experiment to the running of a university, and as a problem-solver so infectious that even to the cynic and pessimist everything seemed possible, and under Whelan it usually was. His early academic career was relatively modest — his role in the physiology team was as experiment-organiser rather than ideas-man, and his early ambitions in surgery were unrealised. His drive and organisational talent, however, led to a further compendium of his work.[101] His precise, well-ordered, and pragmatic mind allied to application, charm, ambition and enthusiasm (but with a strong core of steel though falling short of ruthlessness to back his indomitable will) guaranteed success over almost 30 years. His trade was leadership and administration, and he was a master of its tools, being one of the best-ordered and skilful of chairmen and a frequent on-the-spot visitor to trouble-spots in his empire with the healing word and action. His rise nationally in medical administration and in the Committee of Vice-Chancellors and Principals was meteoric: Chairman of the Postgraduate Medical Education Council for England and Wales in 1980, of the Medical Advisory Committee of CVCP (1980), and of the Clinical Academic Staff Salary Committee (1981) and much else, all in about five years after his return to the United Kingdom; and Vice-Chairman of CVCP (1981) and a probable future Chairman had he lived, while he was a key member of countless working parties, committees, councils and trustee bodies here and in Australia. Personally courteous, a generous host and gracious guest, always impeccably dressed and organised, and gregarious, he was in no way hedonistic and indeed was of extremely temperate personal habits which aided his remorseless drive and sense of duty. He married Betty (née Hepburn), a BCH nurse, in 1951, and there were three children of an idyllic marriage.

Whelan had many honours and professional accolades here and in Australia, including election direct in 1980 to FRCP (he was never MRCP), a rare honour. He was to have been awarded a knighthood (KB) in the New Year's Honours List in January 1985. He inspired the devotion due to a great man: the memorial service in Liverpool (Anglican) Cathedral was attended by most of his fellow vice-chancellors, both bishops, the Lord-Lieutenant, and most of the local civil dignatories who heard Lord Ashby's address, one of the largest such services for many years. He had served Northern Ireland interests again as a member of the Chilver Committee, 1979 – 81.

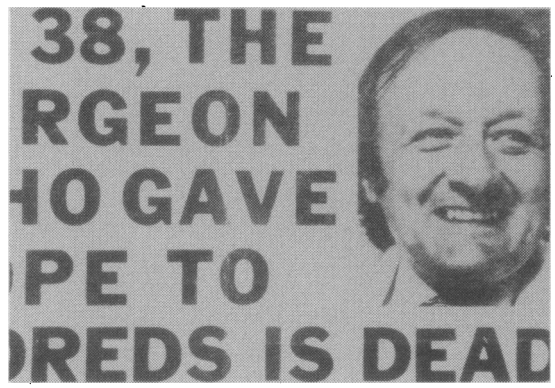
Dinah Kohner, MB, BCh, BAO.
(1936 – 1964)

Dinah Kohner was born in Brux, Czechoslovakia, on 23 March 1936, but her family emigrated to Ulster in 1938 under the imminent Nazi threat. Her father became established in the textile business (Belart, still in the family) and Dinah attended Princess Gardens School (then evacuated to Carrowdore), and later Richmond Lodge where she was head girl and had already demonstrated an international perspective in winning an essay competition on international understanding. She entered Queen's in 1953 where she was amongst other things president of the women's student hall and winner of the Gold Medal at the Ulster Hospital. She graduated in 1959, and after house posts at the RVH and the Royal Maternity Hospital was awarded an International Rotary Club Fellowship at Harvard Medical School in 1960 – 61. She stayed in the United States for a further year (1961 – 62) as Fellow in Medicine at the Children's Hospital Medical Center, Boston, taking a special interest in leukaemia and cystic fibrosis: indeed Sydney Farber was to offer her a post at the tumour therapy service of the hospital after her SS *Hope* mission. In Boston her humanitarian interests combined with her internationalism and interest in childhood diseases, and she made contact with Project HOPE through the offices of the Rotary Club in Washington. After a period as senior registrar in the children's wing of Whittington Hospital, London, she was invited to join SS *Hope* in Guayaquil, Ecuador.

She now showed her immense potential. Accurately recognising that adequate nutrition, hygiene, and infant care were the keys to reducing the appalling child mortality, and that squads of volunteers would be needed to teach and spread this gospel, she quickly learned Spanish, recruited upwards of 300 volunteer assistants, travelled widely in Ecuador addressing relevant groups and individuals, and within a few months could contemplate accompanying SS *Hope* for refitting in New York before proceeding on a similar mission to Conakry in West Africa. A few days before departure she flew on her final scheduled visit to remote mission hospitals in southern Ecuador. On the return flight the plane crashed on take-off. Her injuries seeemed minor, she rejoined the ship, but by the time it reached the Caribbean she was seriously ill. Mr A F Masson (University College Hospital, Jamaica) was taken by helicopter to the ship and removed a subdural clot, but she died shortly afterwards in Kingston on 12 September 1964.[102-103]

It is difficult to talk dispassionately about Dinah and her life. Delightful in every way, bubbling over with enthusiasm and gaiety, of charming appearance and manner, Dinah was effortlessly utterly committed to her vocation; worshipped by her young patients, admired and appreciated by their parents, to her seniors she embodied all the verities and qualities they idealistically looked for and seldom found not even in themselves. She retained to the end her sense of adventure and excitement in life and her engaging athleticism which had led her in university to mountaineering and the international lacrosse team and was to lead her to the SS *Hope* and a tragic early death. We are all enriched by her example.

Philip Kennedy Caves, MB, FRCS, FRCSEd, DObstRCOG. *(1940 – 1978).*



Philip Caves, Professor of Cardiac Surgery in the University of Glasgow, was born in 1940 and died suddenly while playing squash on 23 July 1978, at the age of 38. Into this short life he packed several lifetimes' achievements and his potential was almost limitless.

Caves was born in Belfast and educated at Inst. Entering Queen's in 1958, he graduated in 1964, undertook general professional training in Belfast and Edinburgh, and took the DObstRCOG in 1966 and FRCS and FRCSEd in 1968. His specialist training was in the Vascular and Thoracic Units at the RVH until 1970 when he moved to the Brompton, and then in 1971 to Shumway's department at Stanford with a research fellowship of the British Cardiac Society and the American Heart Association, staying until July 1974 when he moved to Edinburgh as Senior Lecturer in Cardiac Surgery. In 1975 he was appointed Foundation Professor of Cardiac Surgery in Glasgow.[104]

These bare facts hardly indicate Caves's remarkable abilities and achievements and, indeed, it is still too early for an assessment. It is patently clear, however, that his seminal work with Shumway and his operative brilliance made him one of the most promising yet accomplished of the younger heart surgeons — as a colleague has said: 'He burst like a meteor on the cardiological scene in Scotland a few short years ago and like a meteor the light has suddenly gone out'. He is to be praised not only for his skill but for his application. Utterly committed, he was a zealot, but without the zealot's single-minded fanaticism: courteous, emotional, intensely concerned, loyal to colleagues and inspiring to juniors, he was motivated by a strong sense of professional rectitude and duty fortified by deep Christian belief. In a sense his short life with its achievement, mission, forthright honesty and uprightness was a microcosm of much of the best of the 'wild geese': of Megaw, McCarrison, and the rest, who left these shores but took with them that which they could not leave behind — their humoral inheritance and the lessons of life well earned at home, school, and university.

EPILOGUE

Many 'wild geese' are still adding to their achievements or, their contributions made, are in retirement. Others have retired. It would be invidious to make a selection from such worthies and so the careers of, for example, John Shepherd, who contributed to this symposium; Seán Mullan, the eminent neurosurgeon and neurological scientist; and Ashton Morrison, one of the few Queen's graduates to be known through an eponym — the Verner-Morrison syndrome[105] — must await some future notice. Other 'wild geese' will follow, since Queen's continues to graduate more doctors than the Province can employ — but it would need the gift of prophecy to make a selection from them. One eminent *emigré* who would be

on everyone's list is notably absent: Sir Ivan Magill, doyen of the world's anaesthetists, died aged 95 after this paper was prepared. The later article by John Dundee (*q.v.*) pays tribute to his achievements.

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The Ulster Hospital — a short history

H Logan

PROLOGUE

The Ulster Hospital was founded on the philanthropy of the people of Belfast — a town which, in the second half of the nineteenth century, was undergoing a population explosion resulting from industrial expansion: 97,784 souls in 1851 had become 174,412 in 1871, 255,950 in 1891, and 386,947 in 1911; furthermore, the surrounding districts shared in this expansion. There were many industries, but linen manufacture and shipbuilding were the most important and they brought about growth in many other trades. The results of this success were many — wealth for the owners, over-crowding, long working hours (in often damp, dusty conditions) and consequently ill health for the workers. It was not surprising that there were many hospitals opened to cater for the maladies of the poor and these were provided by the better off. The Ulster Hospital for Children was one of them.

HISTORY

In the Autumn of 1872, Dr John Martin proposed that a hospital be opened to deal exclusively with the diseases of children. Martin, born in 1839 the son of a general practitioner in Newtownards, undertook his medical studies in the Andersonian Institute in Glasgow, obtaining his licence in the Royal College of Surgeons in Ireland in 1858 at the age of 19. He became a dispensary doctor in Fivemiletown and took his medical qualification at the King's & Queen's College of Physicians (now the Royal College of Physicians of Ireland) in 1868 returning shortly afterwards to be Apothecary and later Medical Officer to the Barrack Street Dispensary in Belfast. It took Dr Martin and his supporters some months to raise the money to start the charity and it was not until July – August 1873 that the premises at 12 Chichester Street (Fig 1) were opened. (At the same time, certainly within weeks either before or after this, the Belfast Hospital for Sick Children was opened in King Street.)

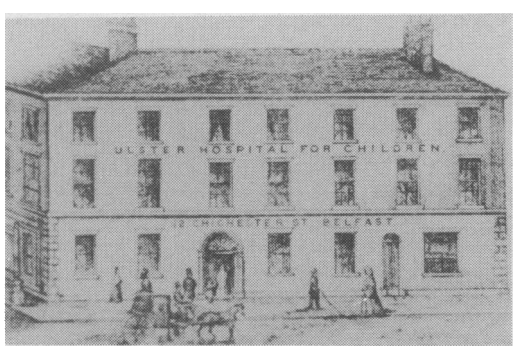

Fig 1. The Hospital in Chichester Street (Arthur Street is at the left end of the building).

The late Dr Hugh Calwell presented the known facts as to why two children's hospitals should open at the same time,[1] but the evidence is not sufficiently complete to allow any firm conclusions to be drawn. However, both hospitals were kept busy and, although several attempts were made to amalgamate them,

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in 1873 and later, the Management Committees could not agree and they both developed in their own ways.

Number 12 Chichester Street, the building chosen for The Ulster Hospital, was on the eastern corner of Chichester Street and Arthur Street. There was accommodation for 14 cots, but most of the work was with outpatients, while some patients were visited in their homes. The hospital was an immediate success and in the first year there were 99 admissions, 6,731 outpatient attendances and 367 home visits. The expenditure for the first year was £379.6s.3d. and despite the careful housekeeping of the Ladies' Management Committee, which ran the charity, this was £35.8s.2d. more than its income. There was also a Ladies' Visiting Committee — a tradition which persists to this day playing much the same role. The Matron was responsible for the internal management of the house and the rules laid down permitted her to be absent from it only from 6.45 p.m. to 9.00 p.m. on Sunday and 7.00 p.m. to 9.00 p.m. on Wednesday. There were also stringent rules for the nurses, the first of which was that they had to be able to read and write.

The work of the hospital increased, and by 1876 it was obvious that the premises in Chichester Street were unsatisfactory and a move was made to 11 Fisherwick Place (Fig 2) which allowed the number of cots to be increased to 22. The house was on the site at present occupied by the ABC Cinema; the Consumptive Hospital was nearby. Professor R F Dill (Professor of Midwifery, QCB, 1868 – 93) lived in no. 3 and Dr Henry MacCormac (Professor of the Theory and Practice of Physic, RBAI, 1837 – 49) lived in no. 7. In the first year on this site medical students attended for the first time and the hospital has therefore been associated with undergraduate education for 110 years. This came about because the students had to have certificates signifying that they had attended classes in the diseases of children. More controversial was a later request that the hospital should admit women, an event which eventually took place in 1882. The *Annual Report* for that year states —

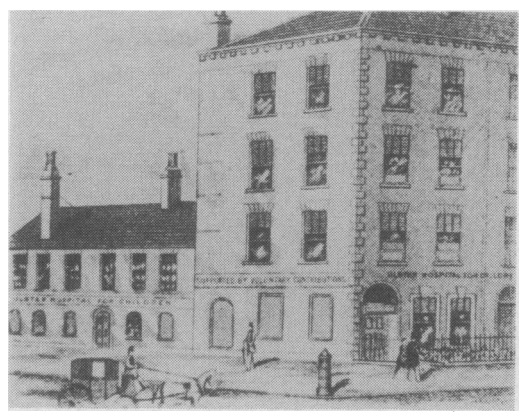

Fig 2. 11 Fisherwick Place.

> 'The Committee were urged to add this department, in the first instance, so as to meet the requirements of the Royal University of Ireland, which will not grant its Degree of Doctor of Medicine [the then primary degree] to a student unless he produce a certificate, given by some Hospital recognised by the University which will show that he has received clinical instruction in Midwifery and in the Special Diseases of Women and Children in addition to the Certificate of Clinical Instruction in General Disease, formerly required by the Queen's University.'

The *Report* also records that they opened the facility only for this reason; however, there was obviously a need in Belfast for such a facility, there being only four gynaecology beds in the General Hospital. Dr Martin disagreed with the idea and he and his wife resigned from the Management Committee because of it.

Ten beds for gynaecology were made available by taking two flats in an adjoining house and there were two evening outpatient sessions in addition to the two morning sessions and three evening sessions for the diseases of children.

The first result of the introduction of gynaecology into the hospital was that the name was changed to The Ulster Hospital for Children and Women. Secondly, the university required there to be a professor on the medical staff and Professor Robert Foster Dill was appointed in 1881 when he was 70. Dill, a member of the famous family of the same name, was a son of the manse and qualified in Glasgow. He was appointed to the Chair of Midwifery in 1868, having joined the staff of the Lying-In Hospital in 1855. However, in 1861 as a result of some difference in opinion with the Ladies' Committee he was not re-appointed but continued to lecture students in his home nearby at 3 Fisherwick Place and take them with him on his domiciliary midwifery calls. Dill was also the City Coroner and occupied this post together with his position on The Ulster Hospital Medical Staff until his death in 1893.

On 1 May 1882 a meeting took place in the hospital between representatives of the Medical Staff (Drs Esler, McFarland and Wheeler) and Medical Officers of the Belfast Dispensary District (Drs Spedding, Coats, Wadsworth and Clements) at which it was agreed

> 'to combine together to form an institution which can grant students a certificate in the three subjects of Midwifery, Diseases of Women and Children such as is required by the Examining Board of the Royal University.'

This led to the domiciliary midwifery service and each dispensary doctor agreed to take two medical students for a series of deliveries. The minutes of this meeting are the first Medical Staff minutes now existing.

It has been suggested that Dill initiated the Ulster Hospital Gold Medal, but the Medical Staff minutes for September 1884 record that a Gold Medal was proposed by Dr Lindsay and seconded by Dr Spedding. Students who attended the hospital during the winter sessions were eligible to sit an examination in gynaecology, midwifery and paediatrics for the Gold Medal, and a Silver Medal was available for those attending the summer session. The first medal (which was provided by Dill) was awarded in 1885 and subsequently each year until it lapsed in 1897 (Fig 3). The Gold Medal was reintroduced in 1922 by Dr Robert Marshall, who was then Medical Staff secretary. There was no special hospital emblem for the first series, but the Praeger Plaque was embossed on the 1922 medal and this is the form which has been used ever since. The Medal again lapsed from 1934 until 1956 since when there has been an annual examination, although the medal has not always been awarded. (See list of winners).

Fig 3. The Ulster Hospital Gold Medal: on the right the first medal awarded (1884 – 1897) and on the left the new medal introduced in 1922.

Despite its success, the hospital was continually beset by financial problems. Like all the other hospitals it was maintained entirely by voluntary subscription, the

money being raised mainly by door-to-door collections, fêtes, sales, and donations from the better-off which, if over twenty guineas, made them Governors for life. The constraints imposed by lack of funds are a recurring theme throughout the Medical Staff minutes: for example in 1880 we read —

> 'More children would have been admitted had all the beds been open, but due to financial considerations the Management Committee permitted only the large ward to be opened.'

How little things have changed — 106 years later, 55 beds lie vacant in the present Ulster Hospital for the same reason. The effects today are similar to those recorded in the Medical Report in 1888 —

> 'A large number of cases had to be refused admission owing to the wards being already fully occupied.'

Despite these problems the number of patients attending the hospital was greater than the facilities could cope with and the Management Committee were faced either with making extensive alterations to the premises in Fisherwick Place or moving to larger accommodation. They chose the latter in 1891 though the *Annual Report* for 1890 and 1891 do not explicitly outline the reasons. Similarly, the Medical Staff minutes record only some vague discussion at the April 1891 meeting, but at a special meeting held in May, rooms were allocated in Roundhill House, Templemore Avenue, Mountpottinger (Fig 4), the new premises chosen for the hospital. The Medical Staff meeting held on 20 October 1891 was in Fisherwick Place; the next was held in College Square on 17 November, and the December meeting took place in Roundhill House. Presumably the move across the Lagan took place some time in November 1891, the building being opened officially on 21 November 1892 by J Blakiston-Houston, Deputy Lieutenant.

Fig 4. Roundhill House, Templemore Avenue, Mountpottinger.

The transfer from Fisherwick Place to Mountpottinger was not without its opponents as the following document, signed by five local doctors, testifies:

> 'We the undersigned Medical Practitioners of Ballymacarrett and neighbourhood hereby promise and agree to refrain from taking any part in connection with the Hospital now proposed to be established in Roundhill House.'

Unfortunately the doctors' reasons for not welcoming the hospital are not made clear: perhaps they were worried by loss of custom! The new premises were larger than those in the town centre — accommodation for maternity, ophthalmic and ear, nose and throat patients were available and there was also an operating theatre. Two local doctors were appointed to the staff, since the other staff members lived across the river and at some distance from the hospital and it was felt that it would be an advantage to have staff who lived nearby. The workload increased yet again and was inevitably accompanied by financial and staffing problems. One suggestion of the Medical Staff was that the hospital should

discontinue the practice of giving free drugs to patients and an arrangement was made with the local chemists whereby the prescriptions written in the hospital would be dispensed cheaply by them, thus saving the hospital £100 per year. Whether this saving was put to the employment of more staff is not known, but at that time the Matron was paid £50 per year and a District Nurse for midwifery £25, both 'with Board and Washing'.

The ambition of the Medical Staff and the Management Committee was to have a purpose-built hospital and in 1906 a fund was opened to raise £10,000. Gustavus Wolff gave £1,000 on condition that the full sum required was collected before building commenced. This showed his wisdom, as fund-raising proved difficult, partly due to the American financial panic of 1907 which had world-wide repercussions. The Jaffé family generously gave the fund £1,000 in 1909, allowing work on the Hospital to start in 1911. During the time of the building the hospital transferred to The Rectory, 225 Albertbridge Road: the facilities were necessarily restricted and a temporary building had to be erected in the garden for the Extern Department.

Exactly 12 months after the foundation-stone was laid, the new buildings were opened by the Countess of Shaftesbury in May 1912 (Fig 5). There was now accommodation for 46 children and six women, and the total cost of construction and equipping the building was £11,890 — tight budgetary control leading to a surplus of £5 when the work was completed!

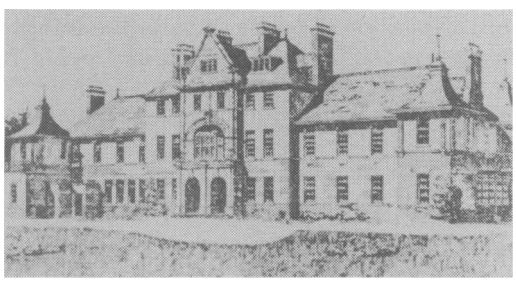

Fig 5. The new hospital in Templemore Avenue, 1912.

The new building led to a considerable increase in the work done, and between the last year in Roundhill House and the first year in the new premises the admissions increased by 50%, extern attendances by 27%, visits by 37% and operations by 34% — impressive figures by any standards. The hospital was popular in Ballymacarrett and was known affectionately as 'the Wee Hospital'. This popularity must have been due, not to the buildings nor to the service provided in them, but to the people associated with the hospital — the Nursing and Medical Staff, the Management Committee, and the Ladies' Committee who visited the hospital on a regular basis and raised much of the money to keep it functioning. The present Medical Staff are well aware of the eminence of their predecessors, some of whom have already been mentioned. Time does not permit more than a brief mention of others like Sir William Whitla, Sir J Walton Browne, Dr Esler and Sir Thomas Houston, each of whom deserves a lecture on his own. However, the names on the salver illustrated in Fig 6 give an idea of the calibre of the staff at one time. It was presented to Mr (later Sir) Samuel Irwin on his retirement from the Hospital in 1931. 'ST' joined the Staff as assistant surgeon in 1908 but was replaced due to illness in 1910, regaining the post in 1912. Two years later he replaced the famous A B Mitchell as a full surgeon. The names of the Medical Staff on the salver include some of the most eminent members of the profession at that time and are remembered with

reverence today. The names are: S Simms, G D T McFadden, R Marshall, F P Montgomery, H Hilton Stewart, R J McConnell, S Geddes, C A Calvert, Isaac Davidson, H Hardy Greer, C H G Macafee and G R B Purce. These were the men who guided the hospital through the years between the wars, with few changes taking place.

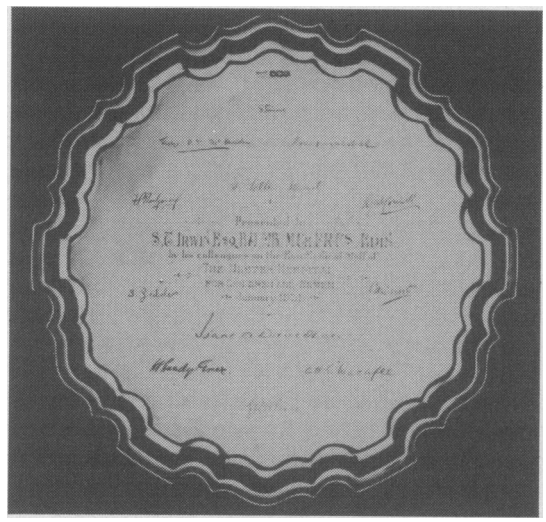

Fig 6. Silver salver presented to Mr S T Irwin, FRCS, on his retirement in 1931.

In 1920, the first X-ray machine was installed and Dr Beath was appointed as radiologist. In 1925 he was replaced by Dr (later Sir) Frank Montgomery who when the war came, was also in charge of fire-watching. His son tells me that when the siren sounded, his father used to grab his tin hat and set off for the Ulster Hospital on the other side of the Lagan. Unfortunately, he was unable to prevent the results of the bombing of 1941. On the night of 7/8 April the hospital was sprayed by incendiary bombs and a week later on the night of 15/16 April a large bomb fell, demolishing the new gynaecological wing built only a few years earlier. On the 4/5 May another bomb landed on the roof and, although badly damaged, the hospital continued to act as a casualty clearing station.

While one of the present Operating Department assistants remembers being in the hospital at the time of one of the air raids and having been taken to Saintfield House the next day, Dr R Marshall recorded that the children had already moved there as the Reverend Canon Blackwood-Price had offered this house to accommodate them during the remainder of the war.[2] A local general practitioner, Dr McKelvey, helped by looking after the patients and visiting them every day. To provide support, the Medical Staff gave Dr McKelvey a rota of consultants upon whom he could call in an emergency. What a change it must have been for a child in a small terrace house in Ballymacarrett to be transferred into the country and the beautiful surroundings of Saintfield House. It was not until November 1941 that the hospital obtained the use of Haypark House, off the Ormeau Road, formerly a school for mentally defective children, for the gynaecological patients. In November 1944, when Saintfield House was restored to its owners, the children came to Haypark, and I well remember going there as a medical student for tuition in paediatrics and to Templemore Avenue to attend the outpatient clinics which had continued there.

In 1943 the Medical Staff decided that the hospital should be rebuilt as a general hospital, and the Management Committee agreed. A site was purchased at Belmont but it was found that because of the Airport at Sydenham only two-storey buildings could be erected. The site was subsequently sold by the Northern Ireland Hospitals Authority (NIHA). Later the present site at Dundonald was purchased and the money which had been raised to rebuild the hospital (£100,000) was handed over to the NIHA and building commenced in 1956. The first plans were

for 300 beds (paediatric, gynaecological and maternity) with the possibility of a further 200 beds for adult medicine and surgery to be added later. The first block was opened in 1963 and the second in 1968.[3] Subsequently a building for the Accident & Emergency Department was erected and later a special 144-bed Geriatric Unit.

EPILOGUE

The original building in Chichester Street housed 14 cots and in Dundonald there are now a total of 687 beds. In the first year there were 99 admissions and in 1985 there were 18,111. Outpatient figures for the two years were 6,731 and 148,841. By any standards this is a phenomenal growth and all those who work at Dundonald are proud of 'their' hospital. We can no longer be referred to as the 'Wee Hospital' but we hope that we are maintaining the friendly atmosphere which apparently existed before our expansion. We are also proud of our 110-year association with this great Medical School and we hope it will continue in the future. We congratulate the Medical School on this its 150th year and wish it every success in the future.

I wish to thank the Medical Staff of The Ulster Hospital for allowing me to study the Medical Staff Minutes of the Hospital and the Unit of Management Committee for allowing me to study the Annual Reports. Sir Ian Fraser kindly allowed his Gold Medal to be photographed. Dr W Maguire, The Ulster Museum, helped by providing access to the Welsh collection, slides from which were used in the lecture. Col. M C Perceval-Price permitted me to visit Saintfield House. Mr S T Irwin, FRCS, loaned his grandfather's salver for photographing. Mr N Ervine did the photographic work and Mrs Carol Gray typed the manuscript. To all of them I extend my sincere thanks.

FINAL YEAR MEDICAL STUDENTS — WINNERS OF MEDAL

1884	J L Livingston	(gold)
	G S Thompson	(silver)
1887	R W Haslett	(gold)
	Mr Love	(silver)
1888	Robt Lyons	(gold)
1889	Jas Taylor	(gold)
	N Morton	(silver)
1890	J Scott	(gold)
1893	Mr Herron	
1894	W H Osborne	
1896	W Paisley	
1897	D McCay	
1922	Miss Ethel Bamford	
1923	Ian Fraser	
1925	J C Davidson	
1926	L C Mayne	
1927	Mr Nevin	
1928	J H Biggart	
1929	H G Calwell	
1930	J H Gillespie	
1931	Miss L V Reilly	
1932	Not Awarded	
1933	Not Awarded	

1956	G W Johnston
1957	Miss Ingrid V Allen
1958	A H G Love
1959	Miss Dinah Kohner
1961	M Khan
1962	Douglas Lee
1963	Michael Scott
1964	Miss Ruth Imrie
1965	R W Stout
1966	F C Stanford
1967	P Kennedy
1969	Mrs Barbara E Golden
1970	Not Awarded
1971	Miss Pamela C Young
1972	Not Awarded
1973	B Atkinson
1974	John N Patten
1975	Ian Taylor
1976	Malcolm Arnold
1977	Patrick Bell
1978	Russell Houston
1979	Not Awarded
1980	Miss Kathleen Bell
1981	Not Awarded
1982	Graham McGeown
1983	G Troughton
1984	A Greer
1985	Miss Suzanne Guy
1986	Miss Jennifer McCabe

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The Mater Infirmorum Hospital

J A Verzin

INTRODUCTION

I feel honoured at having been afforded this opportunity both of giving an outline of the history of the Mater Hospital and of registering the Hospital's just pride at having shared in the teaching of medicine for 90 of the 150 years of the Belfast Medical School. I appreciate that, in the time available, I can only outline the salient points and milestones of the 103-year history of the Mater. I will focus on the main events because, with the exception of R S Casement's account,[1] the Mater has no chronicle in any way to rival the thorough histories of the Royal, City and Ulster Hospitals or of the Medical School.

HISTORY

The Mater Infirmorum Hospital may justifiably be described as the happy inspiration of Mother Mary Magdalen Malone of the Sisters of Mercy. Mother Malone came from the Mater Misericordiae Hospital in Dublin and, with her small band of Sister Nuns, established St Paul's Convent on the Crumlin Road in 1854. In the grounds, the Sisters erected a grotto honouring the apparitions of the Blessed Virgin to Bernadette Soubirous at Lourdes only 18 years previously. In 1876, *The Ulster Examiner* printed a devotional pamphlet on behalf of the Sisters explaining the aims of the grotto, namely the supplication of Our Lady towards the erection of a hospital for the sick poor in Belfast.

Their prayers must have been heard, for soon afterwards Bishop Patrick Dorrian (1814 – 1885) was able to purchase, for £2,300, a private property for conversion into a hospital (Fig 1). Dr Dorrian was a man of vision and energy, tackling the social and spiritual problems of the rapidly expanding population of industrial Belfast, with vigour and skill. The property which he purchased was Bedeque House on the Crumlin Road, near the then boundary of Belfast. Gordon Augustus Thompson had built this house in 1851, in the style of a South American residence, and named it after a small patrimony on Prince Edward Island, Canada. Thompson was born in Castleton in September 1799. As a young man he developed a zest for travel which took him to Africa, Australia, South America, China and Japan,[2] and an equal zest for collecting specimens

Fig 1. Most Reverend Patrick Dorrian (1814 – 1885), Bishop of Down and Connor, 1865 – 1885. Purchaser of Bedeque House for conversion to the Mater Infirmorum Hospital.

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from the four corners of the earth; many specimens of ethnological interest which he donated are still housed in the Ulster Museum.

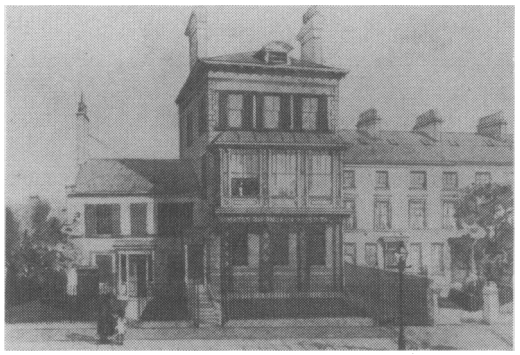

Fig 2. The original Mater Infirmorum Hospital, Crumlin Road, formerly Bedeque House. Opened in 1883, it served until the new hospital was fully commissioned in 1900.

By the time of Dorrian's initiative, the existing hospital accommodation for the sick poor of Belfast was inadequate for the needs of a population which had quadrupled within the preceding 50 years. It was to boost the number of beds and the dispensary facilities that Dr Dorrian, at considerable expense, arranged for the conversion of Bedeque House into a small general hospital of 28 beds with an adjoining dispensary. It was opened on 1 November 1883, under the name of the Mater Infirmorum Hospital, and he placed it in the care of the the Sisters of Mercy of St Paul's Convent (Fig 2). This Order had already proved its worth in the nursing sphere during the Crimean War. The hospital was available to all those in need. In the prospectus of the hospital is the following statement: 'This Institution is established for the relief of the sick and dying poor, without distinction of creed, and is supported by voluntary contributions. Aid is denied to no-one, so far as the funds of the Institution allow. Sickness and destitution will ever be the only necessary passport to the Wards'. The first patient, Catherine Clayton, a weaver suffering from phthisis, was admitted early in November 1883.

The original visiting staff were a reputable, often distinguished, group and included Alexander, later Sir Alexander, Dempsey, MD, LRCSI, LM, Peter O'Connell, MD, MCh, LM, Daniel McDonnell, MA, MD, MCh, MAO, LM, William M Killen, BA, MD, MCh, MAO, LM, R J Murray, MB, BCh, BAO, W McLorinan, LRCSI, LRCPI, and John McStay, LDS, RCSE. Time does not permit me to dwell on the personalities and achievements of these gentlemen or of those who followed them down the years – many leaving their own individual imprint on the hospital. Their workload must have been quite heavy even for a small hospital: thus in 1897, the year before the move to the new buildings, 6,469 patients attended the extern department and over 900 received treatment as in-patients (Fig 3).

DISEASES TREATED IN MATER HOSPITAL.

Diseases of the Nervous System.	
Chorea	8
Delirium tremens	5
Epilepsy	2
Hemiplegia	11
Neuralgia	10
Neuritis	5
Paraplegia	3
Sciatica	9
Vertigo	2
Diseases of the Genito-Urinary System.	
Bright's Disease—Acute	4
" " Chronic	16
Cystitis	3
Varicocele	7
Diseases of the Respiratory System.	
Asthma	3
Bronchitis—Acute	6
" Chronic	27
Influenza	8
Phthisis	40
Pleurisy	9
Pneumonia	6
Diseases of the Circulatory System.	
Aneurism	3
Endocarditis	27
Pericarditis	5
Diseases of the Alimentary System.	
Appendicitis	13
Cancer of stomach	4
Diarrhœa	16
Dyspepsia	20
Fistula in Ano	1
Gastric ulcer	56
Gastritis	64
Hæmorrhoids	6
Hepatic disease	8
Hernia	4
Intestinal obstruction	2
Tonsillitis	16
Diseases of Bones and Joints.	
Necrosis	3
Periostitis	21
Synovitis—Acute	37
" Chronic	14
Tubercular arthritis	30
Diseases of the Skin.	
Eczema	22
Erysipelas	4
Pityriasis rubra	1
Psoriasis	3
Ringworm	4
Ulcer	21
Diseases of Women.	
Cancer of the breast	15
Cervical laceration	5
Endometritis	45
Metrorrhagia	20
Parametritis	10
Prolapse of uterus	3
Retroversion	12
Urethral caruncle	5
Diseases of the Eye.	
Conjunctivitis	2
Keratitis	3
General Diseases.	
Anæmia	46
Rheumatism—Acute	34
" Chronic	23
Septicæmia	12
Typhoid fever	47
Injuries.	
Burns	4
Dislocations	11
Fractures	12
	900

Fig 3. Diagnoses of in-patients at the 28-bed Mater Hospital, 1897, showing the wide spread of illnesses.

Though the 28 beds were welcome additions to the general hospital pool, the total number of beds in Belfast was utterly inadequate in the context of the multitudes requiring admission. Plans, therefore, were soon formulated for a new wing to Bedeque House to accommodate 80 to 100 patients, but eventually, in 1893, this was abandoned in favour of a far more ambitious project, namely the building of an entirely new hospital. A site, described as one of the healthiest in Belfast, was bought for the hospital for £2,600, the entire sum being provided from his private coffers by Dr McAlister, Bishop of Down and Connor. Architects were invited to compete for the hospital contract and, from some 14 designs submitted, those of W J Fennell, MRIAI, were selected. Fennell also designed many other buildings in Belfast, including the Belfast Maternity Hospital and the Whitla Medical Institute, but is said to have been most proud of the Mater Infirmorum Hospital, in whose St John's Nursing Home he was to die.

The 'new' Mater Hospital was designed on the 'pavilion' system, architecturally then still *avant-garde* in relation to the more traditional 'corridor' plan, the former having the advantage of individual ward isolation, better light and maximum ventilation. The west 'pavilion' was reserved strictly for males, the east for females, a segregation which survived until the emergence of a more permissive outlook in the last few years. Some of the roofs are flat and were originally laid out as gardens, with grass plots and flower beds. Early advertisements for the hospital showed bed-ridden and bed-rest patients on the roof (no doubt many with phthisis) in observance of Dr Henry MacCormac's dictum on consumption: 'Pure, fresh, untainted air, at all hours, at all times, and in all places'.

The foundation stone of this 'new' Mater was laid on 8 December 1898. A memorial stone was placed near the west end of the great corridor and in the heart of the stone were placed a commemoration of the Immaculate Conception, the day being such a Feast; a brief history of the Mater Hospital from the erection of the Grotto; a copy of the *Irish News* of the day; 13 small silver medals, and a statue of the Blessed Virgin Mary. The hospital, with a complement of 150 beds, was opened officially on Monday 23 April 1900, although the wards of the west pavilion and the laundry had been in use since 27 August 1898 for the reception of patients who were victims of the typhoid epidemic. The opening ceremony was performed by Sir Robert McConnell, Lord Mayor of Belfast, in the presence of an 'immense assembly', comprising distinguished ecclesiastics, representatives of the nobility and gentry, and prominent citizens belonging to various denominations amongst whom were His Eminence Cardinal Logue, the Marquis of Dufferin and Ava, G W Wolff, MP, and Mrs (later Lady) Pirrie. A *Souvenir* of the occasion relates: 'The unique character of the function, the remarkable spirit of liberality it evoked and the interesting proceedings attending it served to make the occasion a memorable one in the history of Belfast'. Within days of the opening, the beds were in full use.

Bishop McAlister, who had launched the new Mater Hospital project, had died in 1895. His successor as Bishop of Down and Connor, the Most Reverend Dr Henry Henry, was very conscious of the need for a Catholic clinical school, or at least for Catholic clinical teaching. His ambitions for the hospital were linked to this development. The award of a University Charter to Queen's College Belfast provided an opportunity, and, in April 1909, the five Roman Catholics included in the original Senate of Queen's approached the University Commissioners requesting that something should be done to bring the Mater Infirmorum Hospital into touch with the University 'in the interests of the University, as if acted upon

we have reason to believe that they will induce large numbers of students to become members of the University who otherwise may go elsewhere'.[3] The Commissioners left this for resolution by the Senate on the advice of the Faculty of Medicine and, before the year was out, the Mater was included among the hospitals recognised for teaching purposes, and a member of its medical staff was appointed as one of the four University clinical lecturers chosen each year to represent the staffs of each teaching hospital on the Faculty of Medicine and to act as internal examiners in the degree examination. This, of course, was consequent on the Irish Universities Act (1908) which established Queen's as a separate degree-giving institution. In fact, the Mater Hospital had already been recognised for clinical experience by the Royal University of Ireland — its Senate minutes of 28 July 1899 showed the list of recognised medical institutions as being amended by the addition of the Mater Infirmorum Hospital, Belfast, and the minutes of 27 October 1899 record the Lord Lieutenant's sanction to this amendment. Apparently, and quite fortuitously, William J (later Lord) Pirrie, former Lord Mayor of Belfast, upon whom the Degree of LLD (*honoris causa*) was to be conferred that day, was present at the July Senate meeting. Thus the various ambitions of the Bishop of Down and Connor, the medical staff, the Catholic senators at Queen's, the University Commissioners, and Queen's itself were all fulfilled, and the Mater became an important component in the clinical teaching curriculum.

By 1909, Sir William Whitla in his Presidential address to the BMA could record that of the 170,000 patient teaching attendances in the Belfast hospitals, some 60,000 were at the Mater and the various specialist hospitals.[4] But it was less the quantity and more the quality of the Mater teaching which impressed: in size dwarfed by the Royal Victoria and Union Hospitals, it provided traditional general and specialist clinical teaching and introduced its own particular ethos of high principles and service to broaden the spectrum of the Belfast Medical School.

A hospital prospectus of the time guaranteed students ample opportunity for learning 'the practical side of their work': a physician and a surgeon attended daily to demonstrate the different points of each case; gynaecologists attended two days weekly, though only a limited number of students were permitted; a dental session took place weekly, at which students were taught the art of pulling teeth; and pathological and post mortem demonstrations were arranged if possible at an hour suitable to the students — seemingly the staff were amenable as well as skilled.

By the 1920s the Mater had a complement of 200 beds including those at St John's Nursing Home, opened in 1912 on the south side of the Crumlin Road opposite the main hospital. The demands on services and facilities at the Mater, however, always exceeded the resources available and placed space at a premium, and, from the earliest days, plans for structural additions and remodelling were frequently before the Board. One of the important early additions was in 1929, when a new Department of Radiology was built which was soon to be both diagnostic and therapeutic. This was followed by the completion, in 1934, of the Nurses' Home adjacent to the eastern side of the hospital and in architectural harmony with it. This time the architect was F McArdle. A purpose-built extern department was opened in 1936, six years after the land had been acquired from the Government (HM Prison, Crumlin Road) by a special Act of Parliament.

Finally, during the inter-war period, and fulfilling a long-felt want, two, later three, terrace houses situated directly opposite the Nurses' Home were adapted into a Mater Maternity Unit catering for 18/19 patients, the construction and equipment costing £25,000. Opening the Unit on Tuesday, 31 July 1945, Bishop Mageean said that he 'regarded it as an earnest of something greater and finer' and, with heart somewhat ruling head, aspired of its replacement by a 'large maternity unit of 200 beds'! An adequately-sized, high-quality and efficient maternity unit has always been a high priority and the matter was frequently before the Eastern Health and Social Services Board in the 1970s after the Mater joined the NHS in 1972. This never materialised. In 1952, the Neuro-Psychiatry Department was opened. This was unique in that it was the first such Department to be integrated into a general hospital in Northern Ireland.

From its very foundation, the Mater Hospital depended for its survival mainly on the generosity of well-wishers. Worthy of mention is the Great Bazaar in aid of the hospital building fund held in the Ulster Hall from 22 to 30 November 1897, realising the enormous sum of £20,000. The Bazaar was opened by the Lord Mayor, William J Pirrie, and this, incidentally, was his last public mayoral duty. He and his wife were well known benefactors towards public causes in Belfast, and Lady Pirrie (Mrs Pirrie as she then was) had only recently raised £100,000 to build the present Royal Victoria Hospital. Entries of individual munificence punctuate the hospital accounts in the years that followed. But running and keeping up-to-date a teaching hospital purely on voluntary contributions was always difficult, and especially so in the years of rampant unemployment between the wars. For the most part the hospital, receiving no government or local authority direct grant, was maintained, albeit less dramatically and less conspicuously, by humbler but regular contributions — church and street collections, annual subscriptions, life governorships, and, of course, workers' maintenance committees from various contributing firms — all vital sources of annual income.

Following the introduction of the National Health Service in 1948 and of compulsory health insurance contributions from employee and employer, quite understandably these voluntary donations gradually but steadily dwindled. To the rescue came the Young Philanthropists' Association (the YPs as they were widely known). This Association, already existing for some years, consisted of a band of men, mostly young, who devoted time and energy to raising money for the Mater through holding dances, concerts and other social and fund-raising functions. One particularly successful concert (6 April 1954) sponsored by the YPs featured the famous Italian tenor Beniamino Gigli singing to an audience of 6,000 at the King's Hall. The following day, the local papers describing the singing waxed almost as lyrical as had Gigli himself in his rendition of the *Ave Maria, Una furtiva lacrima,* and even *Mother Machree*! The YPs' masterstroke, however, was their founding of the YP Pools, the proceedings of which virtually maintained the Mater through the 1950s and 60s. They were to the Mater what the Irish Hospitals' Sweepstakes were at that time to the Dublin voluntary hospitals. No praise would be too much for the activities of the Young Philanthropists.

When the NHS was introduced, for reasons primarily of Canon Law and the impossibility of guaranteeing that the hospital be run along Catholic ethical principles, the Mater Trustees opted to retain the hospital's voluntary status under existing Catholic Trusteeship. The price was high: no subventions for services

rendered would be forthcoming, since, unlike the situation in Britain, where the policy regarding 'disclaimed' hospitals, mostly small, was different, no such provision was made in the Northern Ireland Health Services Act of 1948. The Mater Hospital was to remain in this precarious financial position for 21 years, during which discussions and negotiations between Government and Hospital Trustees, led by its Chairman, Bishop Philbin, flowed and ebbed, and during which the position of the Mater Hospital was frequently debated in both Houses at Stormont. Matters of high principle were invoked on both sides though these were not untinged by local relationships. Finally, on 1 December 1971, it was announced that agreement between Government and Trustees had been reached and that the Mater would participate fully in the Health Service from 1 January 1972, with terms of settlement safeguarding the 'character and association' of the hospital and about which a defeasance clause was contained in the lease of transfer of the hospital. Ending his speech in the House of Commons at Stormont, the then Minister of Health and Social Services, Mr W K Fitzsimmons, said of the Mater: 'Henceforth, it will shine not as a single star, but as a member of a bright constellation'.

After the first five years of the Mater's integration into the Health Service, the *Irish Times* investigated, albeit light-heartedly, whether the Catholic character of the hospital had been affected. It uncovered no concrete evidence other than of some Protestant staff being somewhat lax in refilling the holy water fonts! It did, however, report a pleasant admixture of Catholic and Protestant staff and felt able to reassure its readers that 'the day Dr Philbin's finger relaxes on the Hospital's pulse will be the day Ian Paisley buys drink all round'.

A plight — if that is the word — which the Mater has suffered from its entry into the NHS is the change in administration, rapid and at times bewildering; from a Hospital Board of Trustees chaired by the Bishop and of ecclesiastical slant, through a lay Hospitals Authority with a Hospital Management Committee, a Health and Social Services Board with hospital cogwheel divisions, to today's General Managers, AETs, and Unit of Management Groups: all within a space of fifteen years. Most will sympathise with the Pavlovian bewilderment that bedevils many of the staff from time to time.

Throughout roughly the same period, the Mater Hospital, like other hospitals in Northern Ireland, has had to deal with victims of 'The Troubles', scoring, unfortunately, some unwelcome 'firsts'. It was the first hospital in Nothern Ireland to care for injured British soldiers in October 1969. In October 1976, it was the first hospital where a patient was murdered in a hospital bed. Medical or, rather, obstetric history was made when, on 2 July 1976, baby Gilmore was shot whilst still *in utero,* the bullet hitting the fetal sacrum. Luckily, baby Gilmore was presenting by the breech otherwise the bullet would have lodged in her brain. Unwelcome as these are, they were not the first casualties of intercommunal and political violence to reach the Mater. Many will remember the German blitzes on Belfast of 1941: in the first, on Easter Tuesday, a landmine exploded in the immediate vicinity of the hospital, and doctors and nurses worked practically without break for 36 hours. The casualties were so numerous that bodies had to be stacked high against the jail wall near the mortuary, simply because there was nowhere else to put them. During war as in peace, the Mater has tried, and I believe successfully, to play its full role as a supplier of medical services within the best traditions of the Christian ethic (Fig 4).

Fig 4. The Mater Infirmorum Hospital as it has stood since 1900.

EPILOGUE

The Mater Hospital is entering a new phase in its proud history. A start has been made on the new block, planned to be finished by 1989, and containing departments of Accident and Emergency and Out-Patients, and of Radiology, an operating theatre suite and a 35-bedded maternity unit in addition to various ancillary facilities. True enough, at present there is little more than just a hole in the ground. Nevertheless, to those working at the Mater it is a most promising and delectable hole.

Some at least of the advantages of being in the Health Service have come about; not all the fears and doubts of some at the time of joining the Health Service have been justified. The special ethos and traditions of the Mater have been largely maintained and its role as a vital component of the clinical teaching resources of the Belfast Medical School is as strong as ever.

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A view from the United States

J T Shepherd

PROLOGUE

As I prepared for this auspicious occasion I must confess to having felt somewhat schizophrenic, torn between the pleasure and privilege and at the same time grappling with the challenge presented by the organisers, namely, how to prepare a talk entitled 'A view from the United States' which would have relevance to the sesquicentennial of the Belfast Medical School. I took comfort, however, from the fact that some wit has said 'Whatever you may say about schizophrenia, it certainly beats living alone!' Perhaps I may serve the same function as a graduation speaker, that is, to fill the interval between the academic processional and the awarding of the degrees. Thus I may provide an interlude between the excellent overviews of key events and personalities in the history of this school given by the distinguished speakers of the morning session, and the examples, by the speakers who will follow, of the continuing advances in medicine by its members. The presence of, and talks by, our colleagues from the Mater and Ulster Hospitals emphasise again the close links between the Medical School and its wide range of teaching hospitals embracing those other than the core general hospitals — the Royal Victoria and Belfast City Hospitals. It is the strength of these links that is a prime determinant of the success of any academic medical centre. In a world divided by competing ideologies and prejudice we in the field of medicine are fortunate in having in whatever country we travel a common bond in service to humanity that transcends the many obstacles and impediments which human foibles continue to place in the way of progress.

The reputations of great medical schools depend, not on quirks and fads in the medical curriculum or charismatic teachers, but on the contributions that the faculties make to leadership in medical affairs and advances in medical knowledge. These contributions encourage ongoing debate on current thinking and provide a continuous infusion of new ideas for tomorrow's medicine. Also, it is the national and international recognition of these advances that provides the graduates of such schools with a degree highly marketable world-wide, and which contributes importantly to their career opportunities. The talks of the subsequent speakers will emphasise that Queen's maintains this long tradition of leadership.

I count myself fortunate to have had the privilege of adventures in medical affairs, first at this Medical School and then at the Mayo Clinic and Foundation in Rochester, Minnesota. I am also pleased with the continuing interchange between these two institutions, and happy to note that 10 current or previous members of the Faculty of Medicine at Queen's and its associated hospitals are alumni of the Mayo Graduate School of Medicine.

Properly this sesquicentennial gives all of the alumni of the Queen's Medical School the opportunity to express our pride in our heritage, and our appreciation

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that the education we received in Belfast indeed served us well as we embarked on our future careers. My own pride in this heritage is reflected by the fine coloured lithograph of Queen's College, drawn on stone by J H Connop, which occupies pride of place in my office.

ODYSSEY

Following my post-doctoral training at the Royal Victoria Hospital I became a tutor in the Department of Physiology at Queen's. Henry Barcroft, then the Dunville Professor of Physiology, persuaded me that the time was ripe for great advances in our knowledge of the cardiovascular system. He also added that physiologists might soon receive a living wage! The eight years which I spent in the Department were indeed memorable and the members of staff have maintained their close ties in the years following, broken only by the untimely and sudden death of Bob Whelan, then Vice-Chancellor of the University of Liverpool, on 21 November 1984 while speaking to students during an episode on their national 'day of action'.

Today's occasion permits each of us, from our different vantage points, to boast a little of the impact that this School has had on medicine at large. I hope I may be forgiven if, from my own admittedly limited perspective, I mention briefly major contributions of members of the Department of Physiology at Queen's to medicine around the world. First, the founding of three medical schools. David Greenfield, who succeeded Henry Barcroft in the Dunville Chair, was founder Dean of the Queen's Medical Centre in the University of Nottingham, the first new medical school in Great Britain in this century (Fig 1). Robert Whelan, when Professor of Physiology and Pharmacology and Dean of the Faculty of Medicine at the University of Adelaide, played a large part in the establishment of the new Flinders University and in particular its medical school, from his position as a member of its council (Fig 2). And, as a member of the Board of Governors and Trustees of the Mayo Clinic and Foundation, I myself would like to claim a modest role in the founding of the Mayo Medical School.

Fig 1. Her Majesty the Queen opening the Queen's Medical Centre of the University of Nottingham on 28 July 1977. Professor David Greenfield, Dean, is in attendance.

Fig 2. Bob Whelan and his wife Betty, in the garden of the Vice-Chancellor's Lodge, University of Liverpool, shortly before his death in November 1984.

Secondly, our group produced six deans of medical schools; for the Universities of Adelaide (Whelan), Nottingham (Greenfield), New South Wales (Glover), at the Mayo Foundation (Shepherd) and two, of course, at Queen's (Roddie and

Love) with a seventh, Professor Robin Shanks, another of our members, to succeed Gary Love in August 1986. Furthermore, if my memory and arithmetic serve me well, of the graduates and Faculty members at large during my time at Queen's, I can count 20 professors and chairmen of departments in Great Britain, Northern Ireland, Australia, Canada, Nigeria and the United States, and many others have been appointed to senior posts since then. These are just some examples, to which all of you can add many more, which demonstrate the continuing vitality and contributions of this school to medical advances not only in these islands but in the far reaches of the world. It makes us proud wherever we are to be introduced as graduates of the Belfast Medical School. (Fig 3).

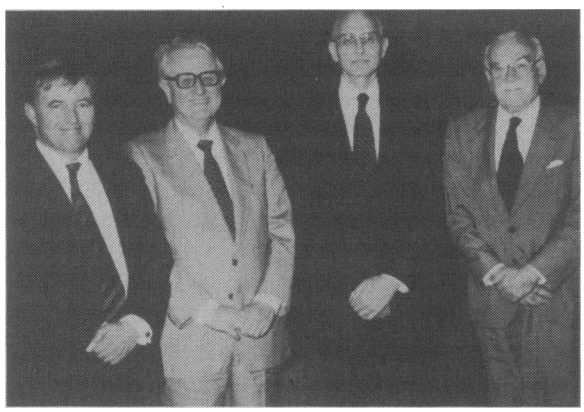

Fig 3. A reunion in 1982, at the University of Nottingham Medical Centre, on the occasion of a scientific programme given in honour of Professor David Greenfield in the year of his retirement from the Foundation Chair of Physiology. Right, Henry Barcroft, Dunville Professor of Physiology at the Queen's University of Belfast from 1937 to 1948. David Greenfield, second from left, was Dunville Professor from 1948 to 1962, and Ian Roddie, left, is the current Dunville Professor. The solemn-looking member of the group is the author.

THOUGHTS

Let me turn to the second half of my career, before Professor Bridges and Professor Love get anxious that I am not going to discuss the topic they assigned to me, namely, the view from the United States. Almost 30 years have passed since I took up my permanent abode overseas. Once again I have been fortunate: I arrived in the United States in 1957, the year that the Soviets launched Sputnik I. This technical feat resulted in abundant funds being made available in the United States for higher education including large sums to the National Institutes of Health for support of medical research. President Kennedy challenged us to put a man on the moon in ten years and bring him back safely. With this abundant funding, these were indeed challenging and exciting years and I have been privileged as a member of the Space Science Board of our National Academy of Sciences, to witness the development of the space programme, and as educator, researcher and administrator to participate in the progress of biomedical affairs at large.

While medical events in the United States have little if any relevance to this sesquicentenary, much may be learned in planning for the future from an examination of the different approaches to health care delivery around the world.

EDUCATION

In 1970 the United States Congress misdiagnosed a maldistribution of physicians as a physician shortage, and, as a consequence of federal funding and encouragement, existing schools increased their enrolment and new schools were founded. The number of medical graduates doubled in a decade, 1970 to 1980, and now,

like many other countries, we face an overabundance of physicians, despite the fact that the average tuition fees in our state-supported schools are about $4,000 per year, and about $14,000 per year in the private schools with the expense of one's maintenance in addition. Most students meet these costs through a low-interest, government-guaranteed student loan fund, so that the average debt of a student at graduation is now about $35,000 – $40,000, a debt which, though large in current asset terms, is repayable over many years and is not a bad investment for a long career in the professionally and often materially rewarding vocation of medicine. As this widespread overproduction of physicians continues, the opportunities for graduates, and in particular Belfast graduates, to select their role in medicine becomes limited not only in their own country but pertinently also in such countries as Australia, Canada and the United States, where so many Queen's medical graduates have achieved distinction.

Concerning the medical curriculum, we have had our share of 'eager beavers', anxious to put into practice their theories in medical education, happy in the knowledge that there is no way of evaluating whether one system is any better than another. Professor Roddie has eloquently discussed this in a series of five articles in the *Lancet* in 1984 under the heading 'Clichés in medical education'.[1] In all of this no doubt laudable enthusiasm to be innovative, we sometimes forget that a prime purpose of education is to teach us to distinguish those viewpoints which are based on scientifically verifiable propositions from those which are based on ill-conceived ideas, misconceptions or bias. In this computer age there is a tendency to confuse 'data' with 'ideas' and to mistake information for knowledge.

In the affairs of any medical school, the Dean, like Ahab of old, had to walk warily. It has been said that the main objective of a dean is to keep the six people who hate you away from the six who are still undecided! Phillip Rhodes wrote a paper 'Who would be a Dean? A lighthearted look at the impossibility of the task'.[2] He states that 'the affairs of medical institutions are supposed to be the subject of democratic debate in which, after listening to the arguments, the will of the majority will prevail, and those in the minority will acquiesce in what their wiser brethren have agreed'. He goes on to say: 'How such a belief could come to be accepted by a group of otherwise intelligent persons is beyond comprehension'.

I don't know whether the epidemic of the questionnaire has spread to Northern Ireland. With us it seems that every aspect of present-day life is continuously scrutinised by teams of economists, social planners, psychologists and statisticians. In my first year as Dean I received 131 questionnaires: apparently the senders were interested in my views on such diverse topics as the 'Academic Frustration Syndrome', the hierarchial ambiguity of the dysfunctional status gap between various members of the health care team, what I thought about deviant groups of medical school applicants, and my opinion on marital satisfaction as perceived by the medical student's spouse. Also, in my first few months as Dean, I received a volume from the Department of Health, Education and Welfare entitled *An empirical classification of United States medical schools by institutional dimensions.*[3] I started to read this opus with interest, and I quote: 'Based on the results of the six factor hierarchial cluster analysis, an optimal solution was sought using the Forgy's non-hierarchial cluster analysis method. The results of the hierachial clustering were used to give an indication of the number of clusters which would represent the schools, the schools were selected

as seedpoint for the non-hierarchial cluster analysis on the hierarchial clusters'. For those, like myself, unacquainted with the Forgy method, I was reassured by the next paragraph! 'The Forgy non-hierarchial cluster analysis technique complements the Ward hierarchial method by optimizing the same criterion, the sum of the squared distances of the schools from the cluster centroids, but does not maintain the permanence of cluster membership inherent in the hierarchial methods'. You can see that this is pretty heady stuff! All this contributes to the wellknown syndrome 'paralysis by analysis', which has become epidemic in our society today.

PAYMENT FOR HEALTH CARE

The last five years especially have seen the most dramatic changes in medical affairs in the United States. For example, as an incentive to increase control and cut costs of medical care, the Government introduced in 1982 a new system of payment for health care delivery, the Diagnosis Related Groups or DRGs. Four hundred and seventy-one categories of disease have been classified and a single payment to hospitals or medical organisations is provided, based solely on this classification with no allowance for complications. This system certainly provides a financial stimulus to keep patients in hospital for the shortest time possible, and as a consequence many hospital beds are empty.

MALPRACTICE INSURANCE

Lawyers in the United States work on the fee contingency plan — that is, if they win a suit they take a large proportion of the monies that are awarded, while, if they lose, the client pays nothing. Their frequently-voiced justification for this approach, which I believe is unique in the world, is that it permits the under-privileged members of our society to seek redress. Today we have more lawyers than doctors and there are more lawyers in the United States than in the rest of the world put together. About 70 per cent of the money awarded in malpractice suits goes to the lawyers and the courts and only about 30 per cent to the patient. As an example of the problem, in 1979 one physician out of 12 was sued for malpractice, and by 1984 the figure was one in five. Advertising by lawyers is rife, and a stable of physicians is always available to provide 'expert' evidence on the plaintiff's behalf. All of this has led to incredible escalation of the cost of malpractice insurance, particularly in the large cities. Unfortunately, in the final analysis, it is the patient who pays. There are increasing attempts to remedy this situation, and it is to be hoped that a reasonable solution will be forthcoming. Even the lawyers have soaring malpractice insurance rates, and last year malpractice claims were filed against one out of every 18 United States lawyers: One attorney has said 'I love suing lawyers, because they make such lousy witnesses and the jury never believes them'.

RESEARCH

Each three to five years, all biomedical scientists compete on a national basis for funds awarded through the National Institutes of Health. This is a healthy competition and the judgement as to the past research achievements of the applicants and the merits of the proposed research are, properly, made by peer review groups. Much, however, has changed from those earlier years when any worthy project was supported. Competition is keen for available funds and there is a new cloud on the horizon. In response to the large national deficit in the United

States, the Congress passed into law last December (1985) what is called the 'balanced budget plan', more accurately the Gramm-Rudman-Hollings bill. The plan calls for the Congress and the President to agree on a budget which cuts the previous deficit by one-fifth each year for five years. If agreement is not reached on which programmes to cut, then automatic cuts take effect. If, in these cuts, health research has to participate, the cuts could be as much as 14 per cent in 1987 and grow to 20 per cent in 1989, much to the alarm of our investigators.

ROLE OF PHILANTHROPY

While we await the outcome of the Gramm-Rudman Act, all academic health centres are increasing their efforts to raise money from the private sector for the support of their research. Success in gaining such support provides institutions with a much greater degree of flexibility and security in the development of new programmes. Money is certainly available in the private sector and our tax laws provide an incentive for those with resources to contribute according to their own inclination: it is a matter of how to be persuasive in securing it. Al Capone, the Chicago gangster, is reported to have said that you get more from a kind word and a gun than from a kind word alone. Fortunately, since philanthropy is traditional with us, the gun is unnecessary and a low-key approach is usually successful.

THE FUTURE

In a world of ever-increasing regulations with their demands for conformity, it becomes more difficult to maintain a proper balance and a freedom of choice to meet individual, local and national objectives. While bureaucracies everywhere have their habit of trying to reduce institutions to a common mould and to provide security for mediocrity, there is, I believe, within the democracies boundless opportunity for new adventures in medicine. Thus, despite the DRGs, despite the Gramm-Rudman Act, despite the malpractice crisis, optimism prevails and the future for the health care industry in the United States is both challenging and exciting. It is anticipated that this will take the same path that other industries have followed in the past few years, namely towards merger and consolidation. At present, 300,000 firms deliver medical care. By 1995 it is estimated that 50 per cent of the population will receive their care from about ten medical care firms, and nine out of ten of these will be operating for profit. Some cynic has said that for-profit organisations believe that if they make money they are bound to be doing good, whereas not-for-profit organisations believe that you are entitled to waste money for the common good! Each of the academic medical centres must come to grips with these changes and decide how best to turn them to their advantage. Teaching hospitals in the United States, not all of which are renowned for their efficiency, must compete, and compete successfully. Another change in attitude in the past five years is in advertising. It is now considered appropriate for academic medical centres to advertise, the prime reason being their need to compete with the for-profit operating companies, such as Hospital Corporation of America, and Humana, who are expending considerable sums on advertising and are undertaking scientific and technological programmes with the objective of achieving parity with the academic tertiary care centres. In order to maintain their revenues from patient care, the academic medical centres must meet this challenge by competing for patients with these enormous for-profit hospital corporations, and at the same time they must obtain large additional research funds from the National Institutes of Health and from private philanthropy.

Research programmes are the life-blood of all great medical institutions: those who fail to advance knowledge will soon find that the medicine which they practice is that of yesterday and not of tomorrow. We are only on the threshold of our understanding of the many diseases that afflict mankind — those of the nervous system, the mental diseases, the myocardiopathies, high blood pressure, Crohn's disease, just to mention a few. If we are to reduce the costs of medical care we must spend the funds which are necessary to gain greater understanding of the causes of the disease, and to replace expensive half-way technologies with prevention and cure. It is indeed well said that if people complain that research is expensive, ask them to compare this with the cost of disease. Look at the last few years and the advances in biotechnology. Human growth hormone and human insulin have now been cloned, as has the tumour necrosis factor which can break apart certain tumour cells. Tissue plasminogen-activator, a gene-spliced protein that dissolves blood clots, offers new hope to the millions with heart disease.

It is the continuing and successful integration of practice, education and research that creates progress in medicine. There need be no conflict in harmonising the ever-expanding dimensions of science in medicine with compassion, ethics and integrity to meet the overall requirements for the care of the individual patient. Indeed, the examples set by our teachers in this Medical School have taught us that the art of medicine involves a basic respect for the importance of the humanities in patient care.

EPILOGUE

The founder of my present institution, William J Mayo, in the closing years of his life, stated: 'I look through a half-open door into the future, full of interest, intriguing beyond my power to describe, but with a full understanding that it is for each generation to solve its own problems'. For those at the start of their medical careers, I envy them the challenges that lie ahead. Living as I do close to the Mississippi river, I can quote from Mark Twain: 'Consider well the proportion of things. It is better to be a young June bug than an old Bird of Paradise'. Those of us in the autumn years now charge those in the spring to maintain and enhance the reputation of our alma mater, so that the alumni who assemble for the 200th anniversary will look with the same pride that we have today, on the great accomplishments of this, our Medical School. The Belfast Medical School and its associated hospitals have always responded to challenge, and their unique standing in the North of Ireland, harnessed to the ability of the graduates, provide the incentives for continued important advances as the School now moves into the next 50 years.

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Transplantation

Mary G McGeown

INTRODUCTION

I interpret my title as meaning organ transplantation. Corneal and skin grafts differ from organ grafts in that they are not vascularised; in the former, immunosuppression is not needed to prevent rejection, while skin is very rapidly rejected unless transplanted as an autograft or between identical twins. Grafts are classified as: *autograft,* when the transplant is from the same individual, as is usually the situation in skin grafts; *isograft,* when the donor and recipient are of the same species and have identical genotypes — in other words, inbred litter mates or identical twins; *allograft,* when the donor and recipient are of the same species but their genotypes are different — this is the usual situation in human organ transplantation; and *xenograft,* when donor and recipient are of different species. I will use kidney transplantation as my model and describe it in some detail, not only because it is my own subject, but also because it developed earlier than transplantation of other solid organs.

KIDNEY TRANSPLANTATION

Development

Kidney transplantation enjoys a number of advantages over transplantation of other organs. The kidney is a duplicated organ and therefore a living donor can be used. This made it possible to transplant a kidney between identical twins without need for immunosuppression to prevent rejection, and such an isograft was the first successful human organ transplant. The surgery required is straightforward: only one artery, one vein and the ureter of the donor organ need to be anastomosed to the recipient's vessels and bladder. Transplantation of the liver, heart, pancreas and heart-lung are technically much more difficult. The progress of the grafted kidney can easily be monitored by urine volume and simple blood tests. The position of the kidney in the iliac fossa enables it to be visualised easily using imaging techniques such as ultrasound and renography. Rejection, if suspected, can be diagnosed by percutaneous needle biopsy which is a simple procedure; aspiration of a few kidney cells with a fine needle can even be carried out daily. Kidney function can be replaced for long periods by artificial means and the patient restored to relative health by dialysis treatment. And finally, the long experience of kidney transplantation gives it a considerable advantage over that involving other solid organs.

It was shown by Ullmann, in a demonstration to a Vienna medical society on 1 March 1902, that when the kidney in a dog was transplanted from its normal site to the vessels in the neck, urine continued to be produced [1] — evidence that urine production does not require a nerve supply. That same year Decastello, at another Vienna hospital, carried out dog-to-dog transplants,[2] and these were

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emulated later by Ullmann.[1] In both experiments urine was produced but neither Ullmann nor Decastello continued this work, though both later achieved fame in other fields. Carrel, also in Vienna, carried out autografts and later allografts of kidneys in cats and dogs using improved methods of vascular suturing.[3] He then removed the recipient animal's own kidneys and found that the animal remained well for a few days, after which urine production ceased. Jaboulay, Carrel's teacher, is credited with the first human transplants.[4] He carried out two xenografts, transplanting a pig and a goat kidney into the arm or thigh of patients with chronic renal failure. Each kidney worked for one hour only. Unger, in Berlin in 1909, also attempted xenografts, grafting a still-born kidney to a baboon, and a kidney from a pig-ape to a young girl, but neither graft produced urine.[5] In 1923 Williamson repeated the dog-to-dog experiment at the Mayo Foundation. He described the histological appearance of the failed kidney for the first time.[6, 7]

The first human allografts, that is human-to-human grafts, were carried out by Voronoy in the Ukraine,[8] six in all between 1933 and 1949. He used cadaver kidneys but none achieved any useful function. In 1946 a group in Boston carried out a human allograft using arm vessels, but it functioned only briefly.

In the early 1950s, the experimental work of Simonsen[9, 10] and Dempster[11] showed that immunological mechanisms were responsible for the rejection of grafts. With this in mind, further attempts to transplant cadaver kidneys were made in Paris by Küss,[12] Servelle,[13] and Dubost,[14] and in Boston by Hume and colleagues[15] usually without using immunosuppression though small doses of ACTH or cortisone were given to some patients. Surprisingly, the kidney survived for a time in a few cases and this was attributed to the relative immunosuppression of uraemia. During this period it became clear that it was better to place the transplanted kidney in the pelvis than superficially in the thigh.

Concomitantly, laboratory studies showed that skin could be transplanted between litter mates but not between animals from different litters of the same parentage; this suggested that it should be possible to transplant kidneys between individuals with the same genetic inheritance without rejection occurring. This led Murray et al in Boston in 1954 to carry out the first kidney transplant operation between identical twins.[16] The kidney survived for eight years until recurrence of the original nephritis led again to renal failure. Over the next five years transplantation between identical twins was carried out in several centres in Europe and America. Some failed for technical reasons but in none was there evidence of rejection. The first transplant in Belfast was in 1962 between identical twins: it was a technical failure. About this time Scribner described the semi-permanent arteriovenous shunt which allowed patients to be kept alive by repeated haemodialysis until a kidney became available for transplantation,[17] an important development which greatly facilitated the growth of a renal transplant programme.

Immunosuppression

It is obvious that few patients reaching end-stage kidney failure are fortunate enough to have an identical twin able and willing to provide a kidney. The question was — could rejection be prevented when the graft was taken from a less closely related individual? Total body irradiation as a means of immunosuppression was used prior to kidney transplantation in Boston and Paris between 1958 and 1960. In Boston one out of 12 survived, a transplant from a non-identical twin, and in Paris a sibling graft succeeded. These results indicated that immunosuppression could work; the problem now was to find the most

appropriate methods and regimens. Schwartz and Dameshek in Boston reasoned that an anti-cancer drug such as 6-mercaptopurine might be used for immunosuppression and found that rabbits treated with this drug had little response to injection of foreign protein.[18] This led Calne in London to use this drug in kidney transplants in dogs with success, though the drug was very toxic.[19] Calne then went to work in Boston and in 1960 tried out new derivatives of 6-mercaptopurine which were produced by Hitchings of Burroughs Wellcome in New Jersey. One of these, later known as azathioprine or Imuran, proved in dog kidney transplants to be even more immunosuppressive as well as less toxic than the parent drug.[20] In 1960–61, 6-mercaptopurine was used for human grafts in London by Hopewell,[21] in Boston by Murray and Calne, and in Paris by Küss.[22] The only success was Küss's patient who also received irradiation and intermittent prednisone. Murray and Calne used azathioprine in 1962: their third case succeeded, and despite several rejection episodes function continued for two years. Azathioprine then became generally accepted as the main immunosuppressive drug for transplantation for the next two decades.

In 1962 Goodwin reported successful treatment with steroids of several rejection episodes in a mother-to-child transplant, although the recipient finally died from sepsis.[23] After this, the combination of azathioprine and steroid was accepted as standard for kidney transplantation. The general view at that time seems to have been 'the more steroid the better', because this often permitted long-term survival of kidney grafts, even though many patients died from infection: some nephrologists preferred for their patients the greater safety of dialysis in spite of the less good quality of life. Nevertheless, the age of drug immunosuppression had arrived: the search was now on for an optimum regime.

Attempts were made by Woodruff[24] in Edinburgh and Starzl[25] in the USA to develop a more specific weapon, antilymphocyte serum. This was produced in horses by immunising them against peripheral blood lymphocytes, the cells which infiltrate rejecting grafts. The antiserum has promising results in animals but, on the whole, has proved disappointing in human transplantation. The antilymphocyte serum has been purified to antilymphocyte globulin (ALG), the spleen, thymus, or cultured lymphoblasts being used as the source of antigen. Horse serum often produces reactions in patients and so small animals are preferred, especially rabbits, though this greatly increases costs as each batch of serum must be standardised and can only be tested in primates. ALG given along with azathioprine and prednisolone is restricted to the early post-operative period. It is now widely used in North America and in many European centres for treatment of rejection episodes, but is little used in the United Kingdom. It is associated with a high death rate due to opportunistic infections such as cytomegalovirus infection, pneumocytosis, and toxoplasmosis. Rubin from Boston, addressing the spring meeting of the British Transplantation Society in April 1986, attributed the high death rate to the ALG rather than the accompanying steroid. He also considers that the combination of ALG with any other immunosuppressant greatly increases the risk of malignant tumours. The recognition of these risks has been tardy.

From 1962 onwards Hamburger used tissue typing based on lymphocytes — it had long been realised that red cell compatibility was essential, and, if transgressed, immediate rejection was the rule.[26] Kissmeyer-Nielsen introduced the direct cross-match between the serum of the recipient and the cells of the donor in 1966, which must of course be negative.[27]

At the end of 1968 in Belfast we began to transplant cadaver kidneys using the combination of low dose steroid with azathioprine,[28, 29] From the beginning we were able to achieve two-year graft survival rates of over 80 per cent, well above all other centres, and we can fairly claim to have been the first to demonstrate that high doses of steroid were unnecessary and that the numerous steroid toxic effects can largely be avoided. Furthermore, most patients escape Cushingoid changes on our low dosage.

Blood transfusion from third party donors carries the risk of sensitisation of the recipient against antigens present in the subsequent kidney donor. By the end of the sixties the risk of producing cytotoxic antibodies led to a very cautious approach to giving blood transfusions to patients who might be candidates for renal transplantation. Eventually it was considered desirable to avoid giving any blood transfusions at all. This policy, far from improving the results of transplantation, paradoxically led to lower graft survival rates. This was not at first attributed to the no-transfusion policy, but in 1974 Opelz and Terasaki reported that graft survival was better in patients who had received transfusions than in those not given blood.[30] The conclusion was not generally accepted and their report was criticised on the grounds that it was a multi-centre study with many other differences in management besides transfusion. Over the next few years, however, studies in animals, including rhesus monkeys, showed convincingly that blood transfusion improved graft survival in most animals though a few were sensitised and lost their grafts early on. Subsequently, this improvement in graft survival with blood transfusion has been demonstrated in human recipients. There is, however, no doubt that some subjects will develop antibodies and unfortunately there is no way of identifying them in advance. Despite intensive research we still do not understand how transfusion actually benefits transplants and in the absence of a theoretical model we are uncertain as to the best way to use transfusion.

The next development in immunosuppression took place after 1970. In 1972 at the Sandoz Laboratories in Basle, Borel found that cyclosporin A, a fungal agent, has potent immunosuppressant activity both *in vitro* and *in vivo,*[31] and Calne and White in 1976 – 78 used it in dog kidney and pig heart transplants with excellent graft survival. The drug was first used for human transplants by Calne in Cambridge in 1978:[32] he used it without steroid and considered the main advantage to be the avoidance of steroid side effects. Despite this view many centres now use steroids with cyclosporin A, sometimes in fairly low dose but often in doses high by our standards. Cyclosporin A is now the most widely used immunosuppressant drug in transplantation, not just for kidney but for all types of organ and bone marrow transplantation.

Cyclosporin A is not used at present for kidney transplantation in Belfast. In the first place we have consistently attained a one and two year graft survival rate of over 80% for cadaver grafts, and 95% for live donor grafts — among the best experienced at any centre.[33] Only by 1986 have some centres equalled our performance. It has serious side effects more numerous than the leucopenia and neoplasia associated with azathioprine. Two of these are of overwhelming importance, nephrotoxicity and lymphoma. The former is dose-related and is exceedingly common, occurring not only in transplanted kidneys but in normal kidneys of patients given the drug for heart or bone marrow transplantation. It is difficult to make a clinical distinction between transplant rejection and nephrotoxicity and even experienced renal pathologists sometimes find it impossible to

make a cytological diagnosis on biopsy appearances. Blood cyclosporin A levels may be of help but toxicity and blood levels do not correlate at all closely. The distinction, however, is very important because if the decline in function is due to toxicity it should improve when the dose is reduced. It was originally thought that cyclosporin A toxic change was completely reversible, but interstitial fibrosis in cyclosporin A-treated grafts has been reported from many centres; Myers and colleagues in 1984 reported reduced glomerular filtration rate in heart transplant patients treated with cyclosporin A, two of whom developed end-stage renal failure, the kidneys showing interstitial fibrosis with focal glomerular sclerosis.[34] Experience on the long-term survival of cyclosporin A grafts will soon become available. Our own experience with azathioprine in the long-term is shown in the Table. Our first 100 grafts were done over ten years ago. Ninety-seven were cadaver grafts, three were from living related donors. Forty-seven patients survive with functioning grafts for ten to over 17 years. Twenty-one died with well-functioning grafts between six months and 15 years after transplant. There were two early deaths with functioning grafts. Thirty grafts have failed (not due to death) over the whole period of 16 years.

TABLE

Fate of the first 100 renal transplants in Belfast, to 31 December 1985

	No
Grafts surviving 10 – 15 + years	47
Died with functioning graft after six months – 15 years	21
Early death functioning graft	2
Failed grafts	30
Total	100

The second important side effect of cyclosporin A is lymphoma. The earliest cases reported by Calne occurred within a few months, and there were four in the first 32 patients, which he attributed to the large dose used.[32] Other centres reporting lymphomata also used quite high doses, though less than Cambridge did initially. Much lower doses are now being used; some centres have switched to azathioprine and steroid after two to six months on cyclosporin treatment but some grafts have been lost from rejection at the change-over. The incidence of neoplasia at the more recent, lower doses is not yet known. Neoplasia of course also occurs with azathioprine: one of our patients died of acute monoblastic leukaemia, two have developed basal cell carcinoma, and seven squamous carcinoma. I am all too uneasily aware that we have given too much azathioprine in the past and we now reduce it for long-term grafts.

Other immunosuppressants have been tested: for example, monoclonal antibodies which are more specific forms of ALG have been used in human transplantation, but although early reports by Cosimi were exciting they seem to be more helpful in the laboratory than for clinical situations.[35] Total lymphoid irradiation, pioneered by Myburgh in Johannesburg using baboons,[36] utilises irradiation of an inverted Y area of the body similar to that used for treatment of Hodgkin's disease, but, when used for human transplantation, mortality is high.

Triple therapy (cyclosporin A, steroid and azathioprine) or even quadruple therapy (cyclosporin A, steroid, azathioprine and ALG) have been tried in several centres on small series of patients but so far with equivocally significant results.

There is no strong evidence that cyclosporin A is superior to the Belfast regimen of azathioprine plus steroid. Eurotransplant reported in October 1985 a first cadaver graft of 82% at one year using cyclosporin A, a result no better than our own. Furthermore, all methods of immunosuppression have serious side effects and are less than fully effective. The great hope is that a better derivative of cyclosporin A may be obtained, but the analogues cyclosporin B, C, D, E and F are not immunosuppressive, and while G is immunosuppressive, its side effects are not yet known.

Developments in tissue typing have taken place over the past twenty years and have led to the setting-up of collaborative organisations for exchange of kidneys to obtain better matching – UK Transplant, Eurotransplant and Scandiatransplant all exist for this purpose, and there are links between the three computers so that rare genotypes can be matched. The exchange of kidneys has been facilitated by improvements in harvesting cadaver transplants — better perfusion fluids, *in situ* perfusion, and acceptance of the concept of heart-beating brain-dead donors.

OPINION

I have used kidney transplantation throughout as a model. Except for tissue typing, all these aspects are relevant to other organ transplants. ABO matching alone is used for liver, heart, and heart-lung grafts because there is no satisfactory artificial method of replacement of these organs equivalent to dialysis: if a graft cannot be found quickly, the patient will die. Besides the technical difficulties of transplanting a liver, heart or heart-lung preparation there are some special constraints. The donor organ is needed urgently as the patient is already in advanced organ failure when selected. Only patients aged less than 45 are considered (we have successful kidney transplants up to the age of 71), and the donor must be young, certainly less than 35, and matched for size with the recipient. Furthermore, in heart-lung transplantation, the donor must be in the same hospital as the recipient and this raises the problem of moving a dying patient. But in spite of these additional problems remarkably good results have been obtained with heart, liver and, very recently, with heart-lung transplantation. The results with the pancreas are, however, less satisfactory for there is the special problem of dealing with its exocrine function, and in the human it has not yet proved possible to transplant separated Islets of Langerhans.

It has become fashionable to knock 'hi-tech' medicine, deriding it for syphoning scarce resources from other areas of health care for the benefit of a few. Organ transplantation is the acme of 'hi-tech' medicine, but it is indeed a very real advance. Chronic renal failure is no respecter of persons and occurs from early childhood to old age. Less than 25 years ago it was a death sentence, a more certain one than even cancer or leukaemia, for which some form of treatment was often possible. As an example I can cite the case of Anna, who developed end-stage renal failure at the age of 16. She had two spells of haemodialysis, separated by a transplant which functioned for about three years, during which her daughter, Julie, was born. Two years after a second transplant Seán was born and Anna had a third child in November 1985. Without the derided 'hi-tech' medicine and the years of patient, constructive and innovative research which

has made it possible and which might indeed make many other life-saving developments possible also, Anna would have died at sixteen instead of being a lovely and fulfilled young woman.

Despite these arguments transplantation does produce real dilemmas because resources are insufficient to permit treatment of all who might benefit.[37] How to decide who should have treatment? That is the question. Many more patients could be treated even with our present restricted facilities if there were more kidney donors. We know, and you know, that many suitable donors are lost, and this is not entirely due to reluctance of the public to allow organ donation. Doctors have a responsibility also. Transplantation doctors have discussed whether legislation might help, particularly an 'opting-out' scheme — that is, that it is for the individual to register an objection to donation if he has one, and if no such objection is registered permission is assumed. Manchester has tried 'opting-in' by registering willingness to donate on a computer connected to the intensive care units in the area, but after two years only 200,000 have registered whereas 1,000,000 would be needed to be useful. Some States in the USA have introduced legislation to make it compulsory to request donation before turning off life support machines. Neither 'opting-out' nor 'opting-in' appears so far particularly helpful but the USA scheme is reported to have increased the numbers of donors.

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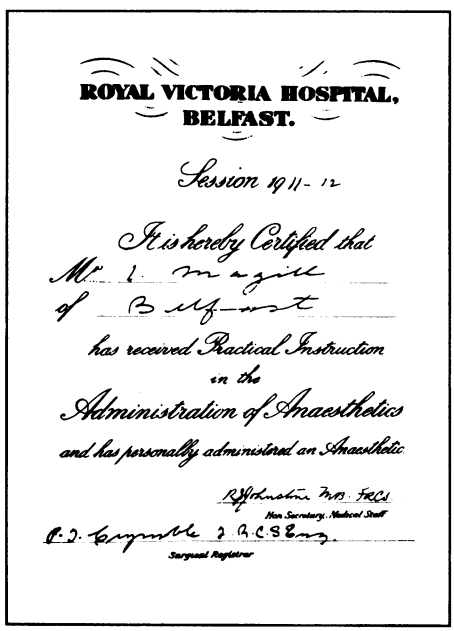
Anaesthetics

*With special reference to Ivan Magill**

J W Dundee

Ivan Whiteside Magill, from Larne, is one of our most illustrious 'wild geese' (Fig 1). In 1912 as a medical student he was issued with a certificate confirming that he had, as part of his training, administered *one* anaesthetic (Fig 2). At that time, this was the only statutory requirement of training in anaesthesia for the qualifying examination of MB, BCh, BAO. The certificate was signed by R J Johnstone (later Sir Robert), Honorary Secretary of the Royal Victoria Hospital Medical Staff, and later (1920 – 1938) Professor of Gynaecology at Queen's, and by P T Crymble, then Surgical Registrar at the Hospital and later the Professor of Surgery at Queen's. There is no evidence of any participation by an anaesthetist — a fair tableau of the standing of anaesthetics at that time.

Fig 1 (above). Ivan Whiteside Magill (1888-1986).



ROYAL VICTORIA HOSPITAL,
BELFAST.

Session 1911-12

It is hereby Certified that
Mr I Magill
of Belfast
has received Practical Instruction
in the
Administration of Anaesthetics
and has personally administered an Anaesthetic

R J Johnstone M.D. F.R.C.I.
Hon. Secretary, Medical Staff

P. J. Crymble L.R.C.S.E.
Surgical Registrar

Fig 2 (right). Certificate of Practical Instruction in the Administration of Anaesthetics issued to Mr Ivan Magill, Royal Victoria Hospital, Belfast, Session 1911-1912.

(Reproduced by kind permission of Professor Cyril Conway, Magill Department of Anaesthetics, Westminster Hospital, London).

Magill could well be called the father of modern anaesthesia, having made notable contributions on the control of patient airway and ventilation. His pioneering work made possible thoracic and cardiac surgery as we know it today. Regrettably, his university (QUB) was not appreciative of his work. His MD thesis was referred in 1920; the University did later award him a DSc *honoris causa,*

*Ivan Magill died on 4 December 1986, six months after this paper was read at the Symposium.

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but not until 1945 when his reputation and achievements were established. He gave a Distinguished Scholar Lecture at the inauguration of the University Department of Anaesthetics in 1958,[1] when he presented all his certificates of honour to the Department. These are too many to list in full, but they include Honorary Fellowship of the Royal Society of Medicine, one of the highest available medical honours. Plastic surgery benefited particularly by his early work and he has been awarded medals by both British and American Associations of Plastic Surgeons, while in his own specialty the Magill Department of Anaesthetics at the Westminster Hospital honours him eponymously, an unusual distinction for one still alive.

In 1913, when Magill qualified, the available anaesthetics were ether, chloroform, ethyl chloride and nitrous oxide. The first three of these were poured on a gauze-covered (Schimmelbusch) mask and inhaled by the patient. These agents were adequate for the operations carried out at the time. Ether and ethyl chloride were both inflammable but electrocautery was not widely used: ether and chloroform provided sufficient relaxation for the limited degree of abdominal surgery. Ethyl chloride provided a rapid induction as at that time there were no intravenous agents.

The names of Gillies and McIndoe are now well known because of their pioneering work in plastic surgery which started with the blast and bomb injuries of patients in World War I. It is not difficult to imagine the problems which would arise in carrying out plastic surgery on the head and neck with the then available apparatus of a facemask covering the mouth and nose. Magill's major contribution was to introduce a tube into the trachea which not only secured an unobstructed airway but which allowed the anaesthetist to remove himself from direct contact with the face, thus enabling plastic surgery to be carried out. An additional advantage was that the anaesthetist could now inflate the lungs of the patient at will. Thoracic surgery had been hindered by the problems of 'paradoxical' respiration, when, with an open chest and spontaneous ventilation, air would shunt from one lung to another rather than be exhaled, and hypoxia would develop. A balloon on the 'Magill endotracheal tube' sealed the lungs off from the atmosphere and not only was the anaesthetist well out of the surgeon's way but he could now control the patient's breathing. Patients were readily rendered apnoeic by hyperventilation and the administration of a deep level anaesthesia which depressed the respiratory centre. This physiological approach to controlled ventilation has now been replaced by pharmacological means associated with administration of specific muscle relaxants.

Magill's tube literally 'opened' the chest to the thoracic surgeon. He made many refinements including endobronchial (one lung) anaesthesia. He developed laryngoscopes and popularised 'blind nasal' intubation and he also refined the rather crude anaesthetic apparatus which was available at that time by the 'Magill attachment', consisting of a rebreathing or reservoir bag, which is now a household word in the anaesthetic world.

Modern general anaesthesia can be looked on as controlled depression of a number of vital functions. The first of these is consciousness and there are now many agents which can depress this safely. Not all of these, however, will produce adequate muscle relaxation, and specific muscle relaxants which will abolish muscle tone have now been developed. In general these are less toxic than the general anaesthetics and they can also be reversed at will: thus the fears of producing prolonged uncontrolled apnoea, which must have been a nightmare to

the early anaesthetist, are now gone. Reflex suppression, which will minimise the stressful effects of surgery, is also widely practised and many drugs are available for this purpose.

Muscle relaxants abolish tone not only in the abdominal muscles but also in the thoracic muscles; artificial ventilation is therefore a necessary part of a modern anaesthetic technique. The detailed knowledge of the opioid drugs and other cerebral depressants which the anaesthetist requires together with his day-to-day acquaintance with the principles of artificial ventilation have led to his assuming a pioneering role in establishing and staffing intensive care units. Most of these, as in Belfast, started as 'respiratory failure units', and most are now very effectively run by highly trained anaesthetists.

Depression of blood pressure and even cardiac action under anaesthesia, which were other fears of the early anaesthetists, can now be carried out safely and this has led to the important role of the anaesthetist in open heart surgery. A large number of vasodilators, cardiac depressants and adreno-receptor blockers, as well as various cardiac stimulants, are now available to meet the requirements of any heart operation including transplantation. Anaesthesia for cardiac surgery has come a long way from the early hypothermia experience in which patients were literally cooled in a bath of cold water, a practice in general use until as recently as the early 1960s.

Local (localised) anaesthesia has also advanced and is particularly widely used in obstetrics: indeed in some countries the majority of operative procedures are carried out under local anaesthesia alone but this is less favoured in Britain. The anaesthetist, with his wide knowledge of nerve blocks and opioid analgesics, has become involved in the management of chronic pain, working in conjunction with his neurological surgical colleagues. Many pain clinics are now available, such as those held in Belfast, and specialise in the symptomatic relief of chronic pain and in diagnostic blocks.

The academic branch of the specialty has also advanced rapidly. Modern university departments are well equipped with laboratory facilities and, in Belfast, clinical trials and other assessments of as high a standard as that in any other specialty are carried out. Anaesthesia was originally described as an art, but it has now become both an art and a science and a recognised medical discipline on a par with other specialties. Anaesthetists play their full part in undergraduate teaching programmes of medical schools particularly in such practical and applied aspects as care of the unconscious patient and resuscitation. One cannot train a medical student to be a safe anaesthetist in a two-week attachment, but he can be given the opportunity of gaining a healthy respect for the drugs which anaesthetists use, as well as a more than nodding acquaintance with the handling of the anaesthetised patient.

The British Medical Association has just published a report on *Alternative therapy*.[2] The working group was chaired by an anaesthetist, Professor James Payne, of the Royal College of Surgeons of England. One of the 'alternative medical' techniques is acupuncture and I have seen this used very effectively and quite genuinely for a Caesarean section in China. Anaesthetists outside China have not ignored acupuncture and it is being increasingly widely used for pain relief, although at the moment one cannot see its further use in general anaesthesia. Its efficacy, however, may be wider. On a recent visit to the People's Republic of China, I was impressed by its use in the obstetric out-patient department and was assured that it had completely eliminated the morning sickness of

early pregnancy. Could this not be used to prevent one of our still-recurring problems, post-operative vomiting?

The BMA report criticises the claims of 'alternative medicine' because the techniques have not been subject to modern methods of scientific evaluation. Stimulated by the idea that the Chinese claim for 'acupressure' in preventing hyperemesis could be applied to Western anaesthetic practice, we have recently evaluated acupuncture at the P6 (Neiguan) point under standard conditions which would satisfy the most stringent criteria of clinical research. Our findings (summarised in Fig 3), which are based on 175 patients, suggest that acupuncture has a future role in this field: not only does it work but it is cheap and it has few side-effects.[3] To my knowledge this is the first scientific study of this kind in the world and was carried out by members of a specialty which not only keeps up-to-date but — dare I say it? — is often in advance of other medical specialties!

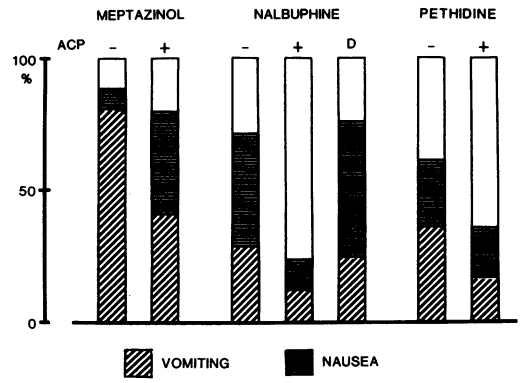

Fig 3. Perioperative emetic sequelae (up to six hours post-op) occurring in women having minor gynaecological operations and premedicated with meptazinol 100mg, nalbuphine 10mg or pethidine 100mg.
+ indicates that the premedication was followed by 5 min acupuncture at P6, while D refers to dummy acupuncture.

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Advances in the treatment of trauma

D S Gordon

In the nineteenth century, surgical advances were usually made by individuals: giants in their time, their very individuality, however, meant that many founded no surgical schools, they had no trainees or structured pupilships, and in consequence their work was often forgotten for decades. Two examples in neurosurgery were Sir William Macewan of Glasgow and Sir Victor Horsley of London. These were the two founders of modern neurosurgery, yet they worked largely in isolation and had no successors.

Today surgical advances depend on team work and co-operation — between individuals within the specialty and often between specialties. The surgery of trauma is a case in point: it provides many examples, usually from hospitals with a number of surgical specialties. A good example in Belfast is the management of severe leg injuries involving comminuted fractures, vascular damage and extensive skin loss. Here results have been significantly improved by the co-operative work of several departments: the orthopaedic surgeon applies the Belfast fixator made in Mackie's foundry, the vascular surgeon inserts an arterial shunt followed by repair of the damaged vessels, and the plastic surgeon completes the work by transferring a free skin flap with microsurgical suturing of arteries and veins. Not only is this inter-specialty collaboration operatively efficient — much of the work has been innovative.

Co-operation between accident and emergency staff, anaesthetists and neuro-surgeons has also been crucial in improving the management of acute head injuries in Belfast. This paper describes briefly the advances in treatment which were stimulated by three developments. First, a better appreciation of the pathology and pathophysiology of traumatic brain damage; secondly, the development of investigative measures such as blood gas analysis, cerebral blood flow measurement and CT scanning; and, thirdly, the advent and frequency of missile injuries in the province which called for special skills in resuscitation and treatment.

The accident and emergency reception area in the Royal Victoria Hospital opened in 1968. It was decided against the then conventional practice to place the intensive care unit near to the resuscitation unit and the neurosurgical department and this has proved extremely effective, especially when large numbers of injured patients arrive together as is a feature of civil terrorist explosions, or an air or railway disaster. In 1970 missile wounds became frequent but the emergency services configuration meant that at the Royal Victoria Hospital resuscitation and treatment were mobilised even when the interval between injury and the patient's arrival at hospital was as little as 15 minutes, which was often the case. Admittedly the number of missile injuries was small in comparison with road traffic accidents, but they were injuries of a severity seldom seen before in accident centres. Many patients had multiple severe injuries

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Fig 1. Cecil Armstrong Calvert, FRCS (1894-1956), Surgeon in charge of the Neurosurgery Unit, Royal Victoria Hospital, 1947-1956.

requiring unusually intensive levels of resuscitation and surgery. The surgical techniques, while increasingly refined, are, in the main, derivative and can be traced to the work of Kocher, Halstead, Cushing and Jefferson. World War II gave neurosurgeons a further opportunity to develop techniques for dealing with severe open head wounds. Cecil Calvert (Fig 1), a Queen's alumnus and Royal Victoria Hospital-trained surgeon was one of the best known neurosurgeons in the Oxford Centre for treating missile wounds. Little has since been added to their work. Recent advances and treatment therefore have concentrated less on operative technique and more on resuscitation, the evaluation of brain damage and the management of the unconscious patient. It soon became clear that brain damage sustained at impact was often less important than secondary damage caused either by concomitant or consequential extracranial factors or such intracranial complications as haematomas, cerebral swelling or hydrocephalus. Principal among the extracranial factors are hypoxia, hypotension, hypercarbia and fall in packed red blood cell volume leading to cerebral oedema with rising intracranial pressure.

In the 1960s mechanical ventilation was introduced in the management of patients whose respiratory state was affected by head injury or other causes of coma. In the 1970s it was applied in Belfast, probably for the first time, in the management of missile wounds. Patients being monitored by continuous intracranial pressure recording and repeated blood gas analysis could now have their intracranial pressure regulated by appropriate adjustments to their ventilation thus minimising the hazards of hypoxia and cerebral oedema. A rise of intracranial pressure sometimes signalled the development of cerebral oedema or of a complicating haematoma. The skills of the anaesthetists in the intensive care unit, allied to improved investigations in neurosurgery and radiology, were especially valuable in the management of patients with missile wounds, whose clinical state is notoriously labile. Such patients can die from early epilepsy or inhalation of vomit; these complications can be prevented by mechanical ventilation.

CLINICAL CONSIDERATIONS

Intensive care starts with prompt and efficient resuscitation in the accident and emergency department. This involves immediate intubation and ventilation, adequate transfusion and early monitoring of intracranial pressure. From clinical observations of patients with missile injuries who were being resuscitated, some prognostic signs were identified. Patients with missile wounds who had no motor response to pain after resuscitation died no matter what treatment was given. Patients with arterial hypotension (mean pressure below 80 mmHg) or arterial 'hypertension' (mean pressure over 110 mmHg) had 60% and 68% mortality

respectively, while those with mean blood pressure of 80 – 110 mmHg had only a 22% mortality. A persistently high intracranial pressure proved incompatible with a good recovery. Some of these prognostic indicators have since been shown to be helpful in the management of closed head injury.

An increasing number of patients with head injury are transferred from other hospitals to the neurosurgical department at the Royal Victoria Hospital for clinical assessment, radiological examination and operation. Such transfer poses certain problems. The clinical condition deteriorates in the ambulance unless special measures are taken: thus many unconscious patients need mechanical ventilation in transit and this depends on a well organised anaesthetic service which we are fortunate to have in Northern Ireland. The benefits of an anaesthetist accompanying the patient have been apparent for 20 years, yet in the world literature we still read of the very high mortality among patients who arrive in an ambulance deeply comatose and severely hypoxic. The suggested remedy is usually phrased as 'the patient should be accompanied by a doctor or a nurse in the ambulance', but, unless the skills of an anaesthetist, fully equipped, *are* available during transfer, there is a high probability of the patient's deterioration. The transfer procedure should be regarded as an extension of resuscitation to be undertaken only when the patient's cardiopulmonary state has been stabilised and under appropriate supervision.

One of the chief benefits achieved from transfer to the neurosurgical department is the identification of haematomas by CT scan and their immediate removal (Fig 2). Recent guidelines on indications for transfer to neurosurgical departments, based on accumulated experience, should in the future increase the number of patients transferred. Such transfers must be made as early as possible if the treatment of head injuries is to be improved.

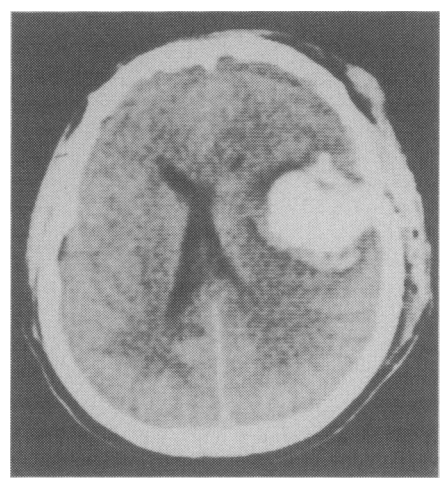

Fig 2. Right cerebral haematoma.

Co-operation between specialties is not confined, in Belfast neurosurgery, to the resuscitation and management of the unconscious patient. The management of skull defects resulting either from head injury or from the removal of bone flaps during operations is another important area. The earlier methods of bone grafting or acrylic resin cranioplasty provided adequate cover for small defects; however, because of the difficulties with contouring and fixation and poor impact resistance these methods are unsuitable for large defects especially those involving the forehead. In the School of Dentistry at the Royal Victoria Hospital, metallic dental plates are formed to a high degree of accuracy by high pressure moulding. By an adaptation of this process, large plates are made which can be applied over the skull defect using an onlay fixation technique, thus improving the patient's appearance and protecting him from further trauma. These plates fulfil all the requirements of cranioplasty, namely radiolucency, low tissue reactivity, low specific gravity, the capacity for fine adjustment in the operating theatre, and accurate contouring. This technique has been highly successful and has become the method of choice for cranioplasty.

THE FUTURE

Future planning for head injuries must assume an increasing number of patients to be referred to the neurosurgical department. A 24 – hour CT scan service with facilities for immediate neurosurgical operation and improved monitoring techniques will lead to early detection and removal of intracranial haematomas and improve management of the unconscious patient. The call for an increasing commitment on the part of neurosurgeons to the treatment of head injuries has been welcomed, although it is hardly practicable in the current climate of reductions in clinical services.

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The pre-clinical departments

I C Roddie

This is a short account of how the pre-clinical subjects have grown and developed since the foundation of the Belfast Medical School in 1835 and of some of the personalities who were involved (Fig 1).

PROFESSORS OF ANATOMY AND PHYSIOLOGY

In 1835 when the Foundation Chair in Anatomy and Physiology was established, the Foundation Professor, Dr J L Drummond, had the entire responsibility for all pre-clinical studies. For this task, we today employ seven professors, 25 readers, senior lecturers and lecturers, four research officers, two research assistants, 39 technicians, six clerical officers and one computer programmer, 84 people in all. I would like to think that the teaching today is 84 times better than in 1835 but I suspect that this may not be so.

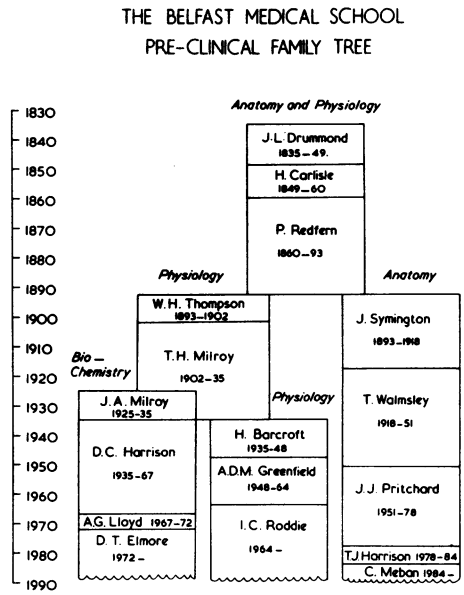

Fig 1.
Family tree of heads of pre-clinical departments.

James Lawson Drummond (Professor of Anatomy and Physiology 1835–49) will be remembered as much for his skill in setting up the Belfast Medical School in an inhospitable financial and difficult professional climate as for his contribution to anatomy and physiology, though he was author of a reasonable text.[1] He had been an attending physician at the Belfast Fever Hospital since 1814 when he was appointed to a newly established Chair of Anatomy and 'Medical' Physiology in the Faculty of Arts in the Belfast Academical Institution in 1819. In this role he taught natural philosophy and natural theology and performed some dissection studies for students preparing for the ministry. When the Medical School was established in 1835, largely through his personal efforts, he was appointed a Foundation Professor with the Chair of Anatomy and Physiology as well as the newly created Chair of Botany — which he had been teaching since 1822 — and he was the school's first Dean. From time to time he had a part-time assistant and he shared a lecturing room with four other professors teaching different disciplines. During his years of office he was heavily involved with teaching, administration and clinical duties; he had little time for personal research. He carried on for 14 years (though he surrendered the Chair of Botany

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to William Matier in 1836) until the school was transferred to Queen's College Belfast. Drummond did not transfer with the school. In 1849 he broke his thigh in an accident and retired invalided on a pension of £150 per annum. He died in 1853.

Hugh Carlisle (Professor of Anatomy and Physiology 1849 – 60) was born in 1793 in Armagh. He was educated at Trinity College Dublin, taking his BA in 1817. In 1832 he became a demonstrator in anatomy at Trinity as an assistant to his uncle, the distinguished anatomist Professor James McCartney. In 1837 he graduated MB and in the same year became senior proprietor and Professor of Anatomy and Physiology in the Park Street School of Medicine, one of the most successful private schools, which closed on his appointment in 1849 to the foundation Chair of Anatomy and Physiology in Queen's College Belfast. Originally he had been appointed to Queen's College Cork but at the last minute exchanged with Alexandre Carte who had been appointed to Belfast (since QCB and QCC were constituent colleges of the Queen's University in Ireland, posts and incumbents were interchangeable). Thus he came to the new medical school at Queen's College Belfast at the age of 56 and as one of its most senior professors. He served on its first Library Committee and prepared its first calendar. He was the only Faculty of Medicine member not to have a private practice but his university stipend was still relatively high (university salary £200, student fees £307, total £507) compared with professors in other faculties. Eventually he became Dean and thus a member of the governing council.

Academically, according to Moody and Beckett,[2] he was of 'local distinction' only. He was renowned for his 'physical powers' and his knowledge of 'comparative anatomy'. He died in office aged 67 at his home in Holywood.

Peter Redfern (Professor of Anatomy and Physiology 1860 – 93) was born in Chesterfield, Derbyshire, in 1820. He studied medicine at Edinburgh and University College London, graduating MB in 1844, MD in 1847, and FRCS in 1851. From 1845 he was a lecturer in anatomy at King's College Aberdeen, during which time he was active in research, conducting experimental studies on the nutrition and repair of articular cartilage.

In 1860 the lectureship was suppressed when King's and Marischal College were amalgamated, and he successfully applied for the Chair of Anatomy and Physiology at Belfast in 1860, a chair he was to occupy for the following 33 years. Working through the administrations of three presidents, Henry, Porter and Hamilton, he was an important element of continuity in rapidly changing times. He became the QCB representative on the Senate of the Queen's University in Ireland and, when the Royal University of Ireland was established in 1883, he was appointed an examiner and medical fellow to it. He is best remembered at Queen's for being a very effective teacher, enjoying continuous prestige, popularity and success, and for his sheer ability — 'the next to Dr Andrews in point of mental power and energy' as President Henry wrote in 1873. The Medical School flourished during his time and, with student fee income, his remuneration was the highest of all professors in Belfast. In 1874 he was President of the Biology Section of the British Association which visited Belfast that year.

He played a role in the moves to admit women to the university, not always on the side of progress! In 1870 there was a proposal that women be admitted to QCB on condition that (a) they paid an extra fee; (b) they signed a declaration that they

would not disrupt classes or undermine discipline; (c) they would not be eligible for scholarships, and (d) they would not enjoy all the privileges of male students. Redfern objected to these restrictions and, with Andrews, wanted full equality if the Charter permitted. He gave his view as follows: 'The continued success of females in the intermediate and various university examinations for some years forbids further speculation as to their chances in intellectual competition with men. No one would dare at present to suggest that they will not be able to hold their own in intellectual struggles on any subject if they have equal advantages with men'. He did not pursue the matter and adopted a more reactionary stance over the question of women studying medicine and admitting women to the University when the matter came before Convocation in 1873, and again, at the University Senate, voted against Miss Edith Pechey when she applied for admission to QUI to sit for the MD examination in 1873.

There was a problem about his retirement. The government considered that, like civil servants, university professors should retire at 65. University staff did not accept this. However, Redfern agreed to go in 1893 when he was 73. He died 19 years later in retirement at Templepatrick.

PROFESSORS OF ANATOMY

A factor precipitating Redfern's retirement was the proposal to set up a separate chair in physiology with money being offered by the Sorella Trust established by the Dunville family. The government did not wish this to be implemented until the matter of university retirement age was settled. When Redfern agreed to retire, Anatomy and Physiology were separated into two independent departments and there have been separate chairs from that time.

Johnson Symington (Professor of Anatomy 1893 – 1918), known affectionately as 'Symie', was born in 1851 in Buckinghamshire. He was educated at Edinburgh University, where he graduated MB in 1877 and MD in 1885. He was appointed at the age of 42 to the Foundation Chair in Anatomy which he held for the next 25 years.

Symington was interested in research and built up a national, if not international, reputation for his work on topographical anatomy. Perhaps he is best known for his pictures of transverse sections of the body which he developed from serial cross-cuts through the frozen body of a young woman. These pictures are remarkably similar to the beautiful pictures made by computer-assisted tomography today. He became an editor of the standard anatomical text of his day, *Quain's Anatomy.*[3] He was elected a Fellow of the Royal Society in 1893, and also became a Fellow of the Royal Society of Edinburgh; he was President of the Anatomical Society of Great Britain and Ireland from 1904 to 1906, and a medical fellow of RUI from 1894 to 1909. He also played an important part in university administration and was one of the most influential personalities in the Medical School. He was appointed Registrar to QCB in 1901 and continued as Registrar to the new Queen's University of Belfast, admittedly a down-graded office, from 1908 to 1918. He helped initiate the Better Equipment Fund. He was one of the University Commissioners set up to establish the new universities in Ireland. The Commissioners wanted to make the Registrar post a full-time one, but Senate was concerned about the effect this might have on the teaching of anatomy, and Council about the dominance of the Senate and its officers. So the Commissioners agreed to the creation of the post of Secretary to the University

with responsibility for the administrative work previously carried out by the Registrar. Since then the Registrar post has been an administrative (unpaid!) sinecure with ex-officio membership of Senate and Standing Committee and eligibility for appointment to Senate committees. It disappeared under the 1981 Statutes, some duties being assumed by the new Academic Assessor. Symington gave up the Registrar's house at the south end of the Lanyon Building in 1909, and during the summer vacation it was converted to provide classrooms, ladies' rooms and a staff common room (the Old Staff Common Room). When he retired in 1918, he returned to Edinburgh where he died in 1924 aged 73.

Thomas Walmsley (Professor of Anatomy 1918 – 51) was born in Bombay and educated at the High School in Greenock and the University of Glasgow where he graduated MB in 1912. He at once became a junior demonstrator in the Anatomy Department in Glasgow and later senior demonstrator and lecturer (1915), and was appointed to the Chair of Anatomy at Belfast in 1918 when just 30, taking up his duties in 1919. In 1918 – 19 P T Crymble and Margaret Purce ran the course. His relative youth and lack of war service resulted in some initial difficulties in his dealings with ex-service men returning to take up medical duties after the First World War, but these were short-lived and for most of his career he was a charismatic figure who made a deep impression on the students he taught. His quiet speaking voice, his scholarly appearance and demeanour, held students in rapt attention at his lectures. He had an unusual approach to anatomy and his descriptions of the human body drew heavily on comparative anatomy and embryology. He had a way of saying things which made them memorable: in a lecture he might introduce a concept with a phrase such as 'you will remember from when you were dissecting the crocodile'. Henry Barcroft, when he was introducing himself as the new Professor of Physiology in 1934, was told 'You know, Barcroft, anatomy and physiology were once taught here as one subject by the Professor of Anatomy. I dare say it will be that way again one day'. My father was very impressed when Walmsley asked him had he not a son reading medicine: Walmsley felt sure he recognised the head mould.

His research was of the armchair rather than the bench variety. When Professor Bridges and I were BSc students with him, he told us that he did not need to do experiments, nature had carried out all the experiments he required. His bench microscope rarely moved: the green baize beneath it was darker than elsewhere. He had an interesting and popular public lecture entitled 'A basket of bones' in which he built up a picture of a past society from the evidence of their bony remains. Being somewhat of a recluse by nature and perhaps a disappointed man in his profession, he did not play much part in university administration, but he inspired an unusual number of students to become professional anatomists, several attaining chairs and readerships and some gaining lasting reputations, such as William Hamilton and Dixon Boyd. Towards the end of his career, he developed cancer of the stomach and died in County Armagh in 1951 aged 62.

John Joseph (Jack) Pritchard (Professor of Anatomy 1952 – 79) was born in 1916 in Adelaide, South Australia. He was intellectually precocious and also extremely talented in mathematics and qualified BSc in Medical Science and in Mathematics with high honours at the University of Adelaide in 1934, when only 18. The following year he was awarded a Rhodes Scholarship to work at Oxford in the Department of Physiology with J C (later Sir John) Eccles, the Australian Nobel laureate. At Oxford he obtained a 1st class honours degree in physiology

and qualified MB, BCh, after clinical training at St Bartholomew's Hospital in London. After graduation he trained in anatomy, first as a demonstrator at University College London and then as lecturer and later reader at St Mary's Hospital Medical School. Here he got to know David Greenfield and, when the Chair of Anatomy at Queen's fell vacant, Greenfield, who in 1948 had moved to the Chair of Physiology at Belfast, suggested that he should apply.

Jack Pritchard liked and enjoyed students and this warmth was fully reciprocated. No student forgot the hospitality at his house in Belfast or his retreat on the Glenarm estate. He taught topographical anatomy with great skill and even greater verve and the way he could build up chalk pictures of complex anatomical relationships was enjoyed and appreciated by generations of students. He also loved conversation, travel, and many of the good things of life, so his extrovert and warm-hearted personality and *bon vivant* tastes soon became known and thoroughly welcomed world-wide. Scientifically he is known for his work on bone growth and repair. He was elected President of the Anatomical Society of Great Britain and Ireland from 1967 to 1969 and, as editor of the *Journal of Anatomy* from 1973 to 1979, he gave generously of his time to help authors get their work into a form which was suitable for publication. In later years, his health — though not his energy, popularity or humour — deteriorated and he died suddenly at home in 1979 aged 63. He was succeeded by Tom Harrison, a Queen's graduate who started work in the Anatomy Department with Professor Walmsley shortly after the end of the Second World War and continued until 1984 when he retired to live on the land of his forebears near Ballynahinch. A fine neuroanatomist, Harrison also worked on growth and was a lucid and meticulous lecturer.

Fig 2. Dunville Whiskey.

PROFESSORS OF PHYSIOLOGY

In 1893 a separate Chair of Physiology was created through the generosity of the Dunville family. This was the first new chair to be created since the inception of the College (1849) and so marked an important milestone for Queen's. The Dunville family business was distilling, and their product, Dunville's Irish whiskey (Fig 2), was widely marketed and drunk all over the world in considerable quantity bringing pleasure to many and great wealth to the proprietors! In 1872 the family endowed a trust fund, the Sorella Trust, in memory of Sarah Dunville who had died while quite young. Income from this trust still provides funds for the much prized Dunville Studentships and, in 1893, the trust granted £240 per annum to endow the Dunville Chair of Physiology. The early professors were sometimes known as the 'whiskey professors'.

William Henry Thompson (Professor of Physiology 1893 – 1902) was the first 'whiskey professor'. Born in County Longford in 1860, the year his predecessor Peter Redfern was appointed to his chair, he was educated at Dundalk Institution

and Queen's College Galway where he graduated in medicine. Postgraduate training followed in Hamburg, Heidelberg and in Leipzig where he worked with the famous physiologist Professor Carl Ludwig, and from 1887 to 1891 he was a demonstrator in anatomy at Trinity College Dublin, during which time he was admitted to FRCS. In 1892 he worked in the Department of Physiology at University College London with Professor E A Schäfer, researching into the degenerations within the central nervous system caused by lesions of the temporal lobe cortex. In 1893 he was appointed to the new Dunville Chair in Belfast and the following year married Redfern's eldest daughter, thus uniting anatomical and physiological interests domestically as they had once been united academically. From University College London he brought Harry Miller (aged 22) as his technical assistant. Harry became known to generations of staff and students in his 44 years at Queen's. In the early days he lived in the Hamilton Tower at the front of the University and when he became 'head assistant' in 1924 he was joined in the Tower by John (Shakespeare) Irvine as junior assistant. The splitting of the Department of Anatomy and Physiology also meant some splitting of the student fees, and so the incomes from Queen's of the new pre-clinical professors were about half of that enjoyed by Redfern, but even so they equated well with those of their other professorial colleagues.

Thompson was perhaps the first pre-clinical teacher systematically to carry out experiments, no doubt influenced by his early experiences in Germany and London. In addition to his work on nerve-tract degeneration, he studied the effect of atropine on renal function since it was then considered that urine might be secreted by the kidney in a manner analogous to that in other glands, such as the pancreas, which were affected by atropine. He also studied the effect of various peptones on the circulation and urine secretion in dogs. He worked largely single-handed, helped only by his technical assistant, until the Better Equipment Fund in 1902 provided funds to employ a demonstrator. In 1900 he was elected President of the Ulster Medical Society and took as his presidential address topic the recent advances in the physiology of gastric digestion which were emerging from Pavlov's laboratory at St Petersburg. In 1902, Thompson was appointed Professor of the Institutes of Medicine at Trinity College Dublin. Keenly influenced by Pavlov's work, his research interests now moved towards human nutrition in which he built up a reputation which took him to be the scientific advisor to the Ministry of Food in the First World War, work for which he was knighted in 1918. He didn't survive long to enjoy the honour; he went down in the Irish Sea with the torpedoed RMS Leinster in October the same year.

Thomas Hugh Milroy (Professor of Physiology 1902–35) was born in Wigtownshire in 1868. He was educated at Edinburgh where he graduated in medicine in 1891. After some years' postgraduate study in Germany he returned to Edinburgh as a lecturer in Physiology to work with Professor Schäfer, who had moved there from London in 1899. Thus both Thompson and Milroy were influenced by this most eminent physiologist. (Because of attitudes in World War I, Professor Schäfer later changed his name to Sharpey-Schafer).

Milroy's main interest was in the physiological chemistry of muscular contraction, an interest shared with his brother, John Alexander Milroy, who came to Belfast with him in 1902 as a demonstrator in physiology, later lecturer in biochemistry and finally first holder of the J C White Chair of Biochemistry (1925). Thomas was a scientist of exacting standards and high principles. He was a quiet, austere and reserved man who failed to communicate the excitement of the subject or

the importance of the discoveries in this revival period of physiological research. Certainly, as can be seen from the presidential lecture he gave to the Ulster Medical Society in 1928 on 'Physico-chemical adjustments in the blood', he made few concessions to the scientific weaknesses of an unsophisticated audience. However, he was held in high and consistent esteem in scientific circles, as is illustrated by the fact that near the end of his career he was invited, in 1931, to write a review on 'The present status of the chemistry of skeletal muscle contraction' for the prestigious international journal *Physiological Reviews,* while as early as 1907 he was one of the few British delegates to give a paper to the Seventh International Physiological Congress at Heidelberg, a group which included Langley, Sherrington, Barcroft and Bayliss. David Smyth, FRS, Queen's graduate and one-time Professor of Physiology at Sheffield University, attributed his own love for and rectitude in physiology and the scientific method to his early training, under Milroy, as a demonstrator in the Queen's department in 1933.

On the administrative side, Milroy's long tenure of office made him a force for stability within the Faculty and University. He worked on the new constitution for Queen's University Belfast which came into existence in 1908, and later was Dean of the Faculty of Medicine. He was basically a shy man: unmarried, he lived with his sisters. In an appeciation of him on his retirement, it was said that he disliked controversy and was reluctant to engage in sweeping changes or take bold measures. He was always an influence for restraint, perhaps evidence of his good sense. As the years passed he withdrew increasingly from academic politics and, like his brother John, held himself aloof from the general business of the University. He retired in 1935 and returned to Scotland where he died 15 years later aged 80.

Henry Barcroft (Professor of Physiology 1935 – 48), though born in Cambridge in 1904, is descended from an old Irish Quaker family. His father, Joseph (later Sir Joseph), Professor of Physiology at Cambridge, was born in 'The Glen', a tall house which was attractively set to the west of the main Belfast-Dublin road south of Newry. Barcroft was educated at Marlborough College and King's College Cambridge where he graduated BA with 1st class honours in physiology. He took his clinical training in St Mary's Hospital and graduated MB, BS, from the University of London in 1930. From 1932 to 1935 he was a lecturer in physiology at University College London.

Like his predecessor Milroy, Henry Barcroft was an excellent, dedicated scientist and to him we owe most of our knowledge of the nervous control of human peripheral blood vessels. Like much work of genius, his had a deceptive simplicity, so that once it had been done it seemed obvious. He had the knack of being able to devise simple physiological questions which would give important and clear-cut answers. His experiments and writing had a straightforward, lucid elegance which made them easy to undervalue; those, however, who familiarised themselves with his work were impressed by the quality of his mind and his undeviating determination to get things done. With limited staff and funding he managed a programme of research whose results have stood the test of time and make standard reading today. His contribution to science was recognised by his election to Fellowship of the Royal Society and to Honorary Membership of the Physiological Society. Recently the latter Society had a special ceremony to mark his 80th birthday. Basically a man of science, Barcroft had little interest in University administration: in this as in his researches, it could be said that he had a proper sense of priorities.

In 1948 he left Belfast to take the Chair of Physiology at St Thomas's Hospital Medical School in London. He and his wife Biddy look back with great nostalgia to their time at Queen's and their home in Malone Park.

David Archibald Mant Greenfield (Professor of Physiology 1948 – 64) was born in Poole in Dorset in 1917 and educated at Poole Grammar School, and at St Mary's Hospital Medical School where he graduated BSc in physiology with 1st class honours in 1937 and MB, BS, three years later. During his student days at St Mary's much of the teaching was didactic and called for little intellectual curiosity, but Greenfield's formidable and sensitive intelligence lent itself to enquiry and he was greatly influenced by the Professor of Physiology there, Arthur St G Huggett. Huggett encouraged his students to think about physiology in terms of scientific evidence, and Greenfield early became committed to the intellectual freedom and scientific honesty that physiology seemed to offer, commitments which never weakened with the years. This intellectual discipline was reinforced by working with Professor George Pickering, Professor of Medicine in St Mary's at the time, who argued and practised the belief that an open mind and an investigative approach were as relevant to clinical work as they were in the basic sciences. After his intern year, Greenfield returned to a lectureship in physiology at St Mary's, and at 31 was a very young appointment to the Chair of Physiology in Belfast in 1948.

I was in the middle of my pre-clinical studies when Greenfield came into post. He so impressed me that, when the opportunity to read for an intercalated BSc presented itself, I was anxious to read for it in physiology. It turned out to be one of the most formative years in my life and I was very fortunate to have had such a unique opportunity. Greenfield's time at Queen's was a time of great success not just for himself, for the medical school and the University, but on account of the great upsurge of interest in physiology which he generated in those fortunate enough to work with him. While personally modest, unselfish and self-deprecating, he was intensely loyal, supportive and encouraging to his juniors. He built up their self-confidence, stimulated them to think independently, and encouraged them to take responsibility and not shrink from its duties. It may be no coincidence that so many of those influenced by Greenfield subsequently became Deans and/or held other professional administrative offices: Greenfield himself became first Dean at Nottingham; J T Shepherd became Dean at the Mayo Clinic and is now effectively its Director; R F Whelan became Dean at the University of Adelaide and later Vice-Chancellor at Western Australia and Liverpool; R S Coles became Clinical Dean at Bristol; W E Glover became Dean at the University of New South Wales in Sydney, Australia, while I myself and A H G Love have been successive Deans of Medicine here at Queen's, and are to be followed by R G Shanks next session (Fig 3). I suspect that much of this was due to Greenfield's influence on our careers.

Scientifically, the Greenfield years were very productive. He continued and extended Barcroft's interests in the human peripheral circulation: indeed, he and his team laid much of the modern knowledge in this field of physiology and the department became one of the best known in the UK and beyond. The standard test for assessing the circulatory reflexes of astronauts is based on Greenfield's work on the effects of lower body suction on man. He will be remembered for his enthusiasm and his enormous capacity for hard work. He had excellent manual skills: in the workshop, his products were known for their ingenuity, simplicity and robustness; in the drawing office, his diagrams were known for their clarity.

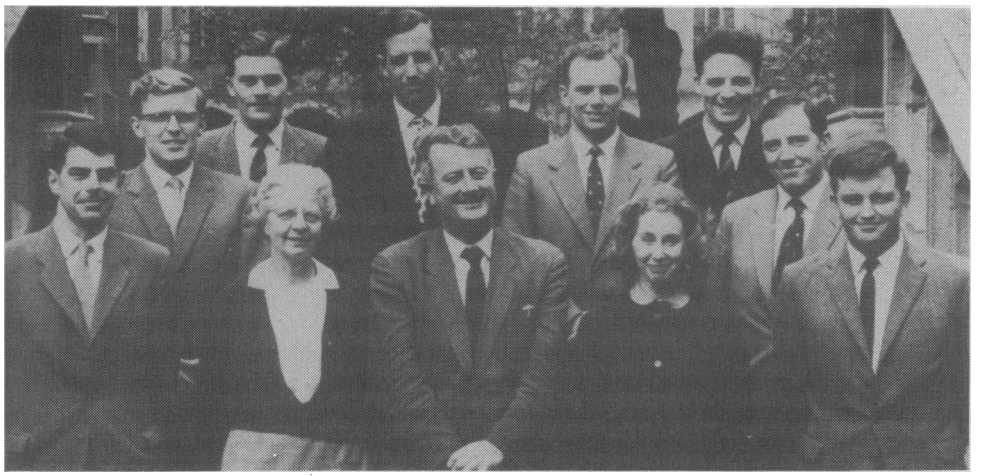

Fig 3. Departmental Staff, Department of Physiology, 1961 – 62. Front row from left: E W Clarke, D H Strangeways, A D M Greenfield, A Duffield, I C Roddie. Back row from left: H O'Kane, J E Black, A H G Love, R G Shanks, S M Lyons, W E Glover.

With Greenfield, everyone could do anything if they put sufficient thought and effort into it. In his later years at Queen's, he played the major role in arguing for and planning the Medical Biology Centre which now houses the facilities for the pre-clinical departments.

In 1964 he was invited to return to St Mary's as Professor of Physiology to succeed his old chief, Professor Huggett, an invitation he felt bound to accept. At that time, however, new medical schools were being considered for Nottingham, Southampton, and (later) Leicester, and Professor Pickering, who had been given responsibility for planning the new medical school at Nottingham, persuaded Greenfield to be the Foundation Dean, and he moved there in 1969. This proved to be a difficult and onerous task but Greenfield carried it out with great success. His experience, utter integrity, charm and style, made him a very valuable member of many national committees. He served on the UGC and was chairman of its Medical Sub-Committee. He also served on the GMC and its Educational Sub-Committee, and on the Medical Advisory Committee of the Committee of Vice-Chancellors and Principals. Not only was he principal planner of the new medical school at Nottingham, but he was also involved in the establishment of new medical schools in Salisbury (now Harare) in Zimbabwe, the Chinese University in Hong Kong (as member of the 'Hong Kong UGPC'), and the Sultan Quaboos University in Oman.

I succeeded Greenfield when he went to St Mary's in 1964 and inherited the department which he had built up. In 1968 we moved with the other pre-clinical departments into our new premises (Fig 4).

PROFESSORS OF BIOCHEMISTRY

The emergence of biochemistry as a separate discipline came in 1924 with the endowment of the J C White Chair of Biochemistry. J C White was a former Lord Mayor of Belfast and, as well as the Chair, he endowed the 'J C White Laboratories' to accommodate staff on the north-east corner of the old chemistry building in the main quadrangle.

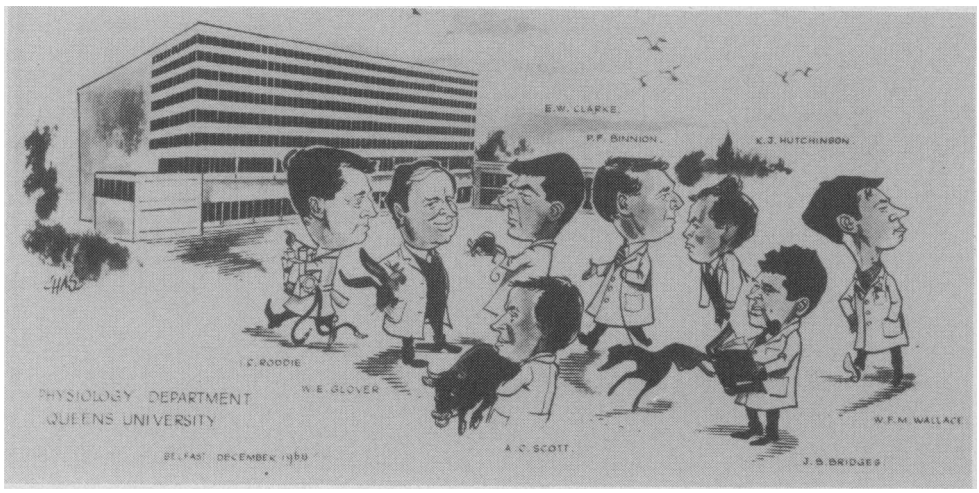

Fig 4. Moving to the new Medical Biology Centre, 1968.

John A Milroy (Professor of Biochemistry 1925 – 34) came to Queen's in 1902 as a demonstrator in physiology along with his brother Thomas who had been appointed to the Chair of Physiology. Like his brother he was educated at Edinburgh University where he graduated MA and MD. Though he worked in the Department of Physiology his interests, like those of his brother, were mainly in physiological chemistry, and they co-authored a textbook, *Practical physiological chemistry,*[4] which was used extensively in biochemistry practical classes as late as the nineteen-fifties. In 1909 he was promoted to a Lectureship in Biochemistry and in 1922 to a Readership. In 1925 he was appointed first incumbent of the J C White Chair of Biochemistry. Though Biochemistry and Physiology became two separate departments, the Milroy brothers continued to work together in harmony and unison. Like his brother, John had a rather quiet introverted nature but was highly respected as a scholar and gentleman and, also like his brother, held himself aloof from academic disputation in the University. His main research interest was in the biochemistry of the blood pigments. He died in 1934 in his sixty-fifth year.

Douglas Creese Harrison (Professor of Biochemistry 1935 – 67) was born in London in 1901 and was educated at King's College London where he obtained a BSc degree in chemistry with 1st class honours in 1921. He then worked with Sir Gowland Hopkins, President of the Royal Society, at Cambridge University, obtaining a PhD in Biochemistry, and in 1926 was appointed to a Lectureship in Biochemistry at Sheffield University where he stayed until he succeeded J A Milroy in Belfast in 1935. He obtained the DSc degree from London University in 1933 and became a Member of the Royal Institute of Chemistry.

Like his predecessor, Douglas Harrison was interested in the biochemistry of blood pigments and did important work on methaemoglobinaemia and the effect of vitamin C. He also worked on tissue oxidation. His science was meticulous and scrupulous and he had, and still has, a highly developed sense of duty and of loyalty. In the latter part of his career he was heavily involved in the planning of the Medical Biology Centre, though he himself retired just as it was ready for

occupation. After retirement he continued to give invaluable service to Queen's as Registrar and, when the office was subsumed in that of Academic Assessor in the 1981 Statutes, in the latter post, which at age 85 he still holds. In these posts he has had an ex-officio place on Senate and its Standing Committee and, in the case of Academic Assessor, also on the Board of Curators though he had been previously an elected member for many years. Here his qualities of courtesy and astuteness together with his intimate knowledge of the University and its regulations and his prodigious memory are invaluable.

Alan G Lloyd (Professor of Biochemistry 1967 – 72) had only a brief tenure of office though he saw through a great expansion of the role of biochemistry in the University. He introduced an honours course in biochemistry for science students, and biochemistry was given equal time and weighting with anatomy and physiology in the undergraduate medical and dental curricula. Everything he did was done with energy and drive, and at times he seemed a prophet of the more corporate-orientated ethos in university life. He was a Cardiff graduate who had worked in University College Cardiff and Trinity College Dublin before coming to Belfast. When he left in 1972 to become Deputy Director of the British Industries Biological Research Association, he was succeeded by Don Elmore who still occupies the chair.

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