literary & historical

The medical sciences in twentieth-century Ireland

Caoimhghin S Breathnach
Department of Human Anatomy and Physiology, NUI University College Dublin

Introduction

A boundary, like any classification, is a convenient artifice; and mid-century rather than turn of the century is perhaps the crucial dateline in Irish medicine. Right through the first half of the twentieth century clinical science slumbered in the afterglow or more correctly the shadow — of 'the golden era of the Irish Medical School' even though, for a full generation, the basic sciences had begun to blossom along European lines.

The basic sciences

To understand the tardiness of change in the basic sciences it is necessary to recall that Vesalian anatomy included physiology; certainly the second edition of *De Fabrica Humani Corporis* [1552-5] clearly discussed function on many a page, and Hunterian anatomy continued the tradition so forcefully in the eighteenth century that in these islands the struggle for independence from the tyranny of the dissecting room lagged far behind the development of centres of physiological excellence in Europe. Physiological chemistry blossomed in the same period, but the first chair of biochemistry in Britain was not founded until 1902 (30 years before the Irish inauguration) when Liverpool appointed Benjamin Moore [1867-1922], a Scots-Irish medical graduate of Queen's College Belfast; elected FRS in 1912; he moved to the professorship of biochemistry at Oxford in 1920.

Curiously enough, the first determined attempt to separate physiology from anatomy came in the Catholic University of Ireland, an irregular institution in that it lacked statutory recognition.[1] With regard to the organisation of its medical school in Cecilia Street, Dublin, John Henry Newman [1801-1890] in 1855 acted under the advice of William Kirby Sullivan [1820-1890]: 'his ideas were large and bold, and I cordially embraced them'. Influenced by his experience in Germany where he studied under Justus von Liebig [1803-1873] at Giessen, Sullivan advocated the teaching of pathology and pharmacy as well as the complete separation of physiology from anatomy. Although it eventually transpired that the chair of anatomy and physiology remained unified in the penurious medical school, Robert Dyer Lyons [1826-1886] was appointed by Newman (to extricate himself from a misunderstanding with Lyons) to a chair of physiology in the science faculty in 1855. However, the failure of that faculty to grow and prosper (among other reasons) persuaded Sullivan to move to Queen's College Cork in 1873 as president in succession to Robert Kane [1809-1890].

In his first Report as president [1874-75] of the Queen's College, Sullivan repeated his earlier recommendation that anatomy and physiology be separated, and that physiology and pathology laboratories be provided as well as a students' reading room in the medical school.[2] But the three Queen's Colleges were limited to twenty professorships by the 1845 Act, so the schism had to await the arrival of Bertram Windle [1858-1929] as president in 1905. An anatomist by training, Windle took the chair of anatomy when J J Charles resigned in 1907 in order to accommodate David T Barry as professor of physiology, and when the National University was established in 1909 DP Fitzgerald relieved the president to indulge his interest in archaeology until he resigned the presidency in 1915.

In the meantime Queen's College Belfast had appointed William Henry Thompson, a Galway graduate from Granard, to the Dunville professorship of physiology in 1893; after ten years Thompson transferred to the chair of the Institutes of Medicine in Trinity College Dublin, and is renowned for a translation of *Pavlov's Work of the Digestive Glands,* and remembered for losing his life when the Leinster was torpedoed in the Irish Sea in October 1918.[3] Thompson replaced John Mallet Purser [1839-1929] who, from 1874 to 1901, divided his time between Sir Patrick Dun's Hospital and the college, where his main iterest was in histopathology. Purser, incidentally, was induced to return from retirement to take the chair of medicine from 1917 to 1925. In University College Dublin, Denis Coffey [1865-1945] held the chair of physiology from 1897 to 1909 when he became president of the new foundation. But it was not until 1920 that fission occurred in University College Galway, when Joseph Donegan [1893-1985] was appointed.

Anatomy suffered from the disadvantage that histology remained an integral part of physiology; even on the Continent macroscopic anatomists looked askance at the microscopists, and favoured ever-expanding textbooks, like those of Gray and of Daniel Cunningham FRS who left Trinity for Cambridge in 1903, which became massive tomes of minute detail. (Ironically, J Brontë-Gatenby, professor of zoology and comparative anatomy in the School of Physic, edited with E V Cowdry the second edition of the *Microtomist's Vade-mecum,* the acknowledged guide to 'the methods of modern [1928] microscopic anatomy'.) Only the development of the electron microscope by Ernst Ruska [1906-1988] helped the anatomists to rescue themselves from bondage, as exemplified in Turlough Fitzgerald's *Neuroanatomy.* Applied anatomy was another outlet; MA MacConail interested himself in mathematics and joint lubrication as a bioengineering problem, a common approach to biological systems nowadays but a rare event in the 1940s.[2]

Freed from anatomy, experimental physiology prospered. TH Milroy, who succeeded Thompson in Belfast in 1902, investigated the regulation of respiration, but it was not until 1935 that the department was set alight by the appointment of Henry Barcroft

[1904-1997], the son of Joseph Barcroft of Newry. Until 1948, when he transferred to St Thomas's Hospital Medical School in London, Barcroft exploited venous occlusion plethysmography with outstanding success in the analysis of autonomic control of the peripheral circulation. In Belfast he trained John Shepherd, Robert Whelan and Ian Roddie, and in London Jeremy Swan, the Sligo-born physician whose name is associated with the flow-directed cardiac catheter.

David Barry's [1870-1955] immediate concern in Cork was the provision of new laboratories for physiology, histology and biochemistry.[2] (Biochemistry did not achieve a separate existence until mid-century when Thomas Brady was appointed.[2]) Barry's first paper in the *Journal of Physiology* in 1914 set out to analyse the 'afferent impressions from the respiratory mechanism' upon the medulla oblongata. He was not able to establish the site of origin of these impulses, and did not pursue the subject; his subsequent papers indicate that he left a new subject almost as soon as he approached it. Admittedly the heart features in many of these, and his interest in autonomic control is also apparent from two papers in *The Lancet* in 1915 and 1916. With David Torrens [1897-1967] of Trinity, he examined the possible role of liver in blood regeneration after haemorrhage. His student E F McCarthy, while working under Joseph Barcroft in Cambridge in the 1930s, in the words of Bartels, made the exciting discovery that the oxygen dissociation curves of foetal and adult blood differed. Barry was drawn into college politics. He contested the presidency unsuccessfully, and resented the new dispensation after 1921; one has to sympathise with his castigation of 'the prevailing attitude to medical research [as] a national disgrace', but he felt he had an axe to grind.[2]

In Galway Joseph Francis Donegan [1892-1985] was appointed on the death of J P Pye [1848-1920] who had held the combined chair since 1877![4] Shortly before his appointment the President of the College, Alexander Anderson [1858-1936] despatched Donegan — armed with the 1851 Exhibition Prize for Medical Research — to London to work with Ernest Henry Starling [1866-1927]. In Starling's laboratory in University College he set about examining the autonomic nervous control of the venous system, and demonstrated that cutaneous veins were responsive to thermoregulatory rather than vascular reflex control, whereas mesenteric veins and arterioles were influenced by the vasomotor reflex centres. In later years he spent long vacations with Otto Warburg [1883-1970] and turned his attention to the role of intracellular potassium ions in excitation and contraction of muscle fibres — the subject of the 1942 John Mallet Purser Lecture; it was mid-century before Colm Ó hEocha established biochemistry's independence before assuming the College presidency. Long after Donegan retired in 1963 he continued laboratory work in his home, an inveterate investigator until a few years before his death in 1985.

Bertram Collingwood [1871-1936] was appointed professor of physiology and histology in the new University College Dublin in 1909.[5] His teaching was always aimed at the application of physiological principles to the treatment of diseases; like his famous uncle Charles Dodgson [1832-1898] — better known as Lewis Carroll — he had a humorously whimsical side to him, and this enlivened his lectures to the considerable appreciation of his audience. In 1920 when he was recalled to London, to St Mary's Hospital Medical School, he left in Dublin two outstanding students; James Malachy O'Connor [1886-1968] and Edward Joseph Conway [1894-1968]. O'Connor succeeded Collingwood; his major research interests were directed towards elucidation of the regulation of body temperature, and the localisation of function in the renal tubule. He showed that the constancy of renal blood flow in the face of change in perfusion pressure was an intrarenal mechanism independent of innervation — an early insight into autoregulation.

Conway entered the medical school in University College Dublin in 1912, but intercalated a two-year course in physiology and chemistry before graduating in 1921, whereupon he joined O'Connor and took his DSc in 1927. In 1932 he was appointed to the newly-founded chair of biochemistry and pharmacology, and soon established an exceptionally fruitful research laboratory that attracted financial support from the Rockefeller Foundation, the US National Institutes of Health and Air Force, as well as the Medical Research Council of Ireland. His research work began in association with O'Connor in renal physiology. Because of the necessity to make innumerable estimations on very small volumes of fluid he had to develop his own methods. So successfully did he overcome this difficulty his microburette and diffusion unit became a standard method of microanalysis for a generation (described in *Microdiffusion Analysis and Volumetric Error*).

Inevitably he progressed to consideration of the differences between intracellular and extracellular fluids, and the bioenergetics of membrane transport. The first satisfactory explanation of these phenomena was given in the 'monumental paper by Boyle and Conway in the *Journal of Physiology* in 1941', where it was shown that the cell membrane is selectively permeable, and that active transport places restraint on the movement of ions. In 1949 he suggested in *Biochemistry of Gastric Acid Secretion* that the protons (hydrogen ions) released by the oxidoreduction of cellular respiration in oxyntic cells might be the source of hydrochloric acid. His mathematical approach to biological problems was beautifully illustrated when he examined Macallum's theory that blood plasma was an oceanic remnant and showed that the romantic notion that Silurian seas still circulate in our blood stream is without foundation.

It was only in the last third of the century that younger men and women in increasing numbers were given the opportunity to continue the work of these pioneers, and establish an international reputation for work done in Ireland in the fields of physiology, biophysics, pharmacology and their increasingly numerous subdivisions. Biophysics underwent a natural evolution by means of application of electronic wizardry and theory to biological problems — with spectacular success in well-endowed Irish centres, but the metempsychosis of materia medica into pharmacology was truly revolutionary. William Whitla [1857-1933], the generous doyen of physician-pharmacists, had so open a mind that he regretted 'there are still some who deny such modern discoveries as the fact of levitation'. With the aid of chemists, pharmacologists in the nineteenth century succeeded in isolating active agents from the long-revered materia medica (e.g. alkaloids, glycosides) and in synthesising new drugs (e.g. barbiturates, acetyl salicylic acid) but the rewards were meagre, even allowing for the isolation of adrenaline and insulin by J J Abel [1857-1938], the world's first professor of pharmacology (University of Michigan 1883; Johns Hopkins University 1893).

The fortuitous discovery of neuroleptic agents opened up not only the development of modern psychopharmacology but also ushered in an ability with the help of imaging techniques to localise cerebral function in conscious subjects and their alteration in pathological states. Pharmacokinetics, pharmacodynamics, molecular immunopharmacology and toxicology are now actively pursued in various Irish institutions and the interplay of agonists and antagonists at receptor sites are the subject of numerous investigations. The first professorship of clinical pharmacology was established in the Royal College of Surgeons in 1975; Kevin O'Malley made a systematic study of the age-dependent prolongation of the effects of drugs and the decrease

in responsiveness to drugs in ageing target organs, trends which led to a distinct branch of geriatric pharmacology.

Pathology and bacteriology were treated by clinicans in a service capacity, although Joseph Bigger in bacteriology and in pathology RAQ O'Meara struggled to retain time for research activities in the School of Physic; diphtheria was of especial interest to O'Meara and he collaborated in Cork Street Fever Hospital with Christopher J McSwiney, who was rewarded with a statutory inquiry for having the temerity to suggest 'A Public Health Programme for Eire' in an address to the Medical Society of University College Dublin in 1940. Even when spectacular advances in histopathology (including electon microscopy), chemical pathology, immunology, human genetics and microbiology were made in mid-century diagnostic laboratories tended to overshadow the research facilities their income subsidised and provided. Ironically it has been the return of these laboratories to the hospitals from the university campus which has fostered an explosion in fundamental research into pathogenesis and the mechanisms of disease.

Clinical Science

Surgery: Specialisation lies at the heart of advancement in the *clinical sciences.* Its earliest recognition was in surgery where the outcome of treatment is patently related to the experience of the operator. But the trend was resisted for, as Locke remarked in the Dedicatory epistle to *An essay concerning human understanding,* 'New opinions are always suspect, and usually opposed without any other reason, but because they are not already common'.

James Paget [1814-1899], the St Bartholomew's Hospital surgeon eponymously remembered for description of eczema of the nipple as a prodroma of mammary ductal cancer [1874] and osteitis deformans [1877-82], showed in his *Clinical Lectures and Essays* [1875] that he was fully alive to, and conversant with contemporary advances in biology and physiology. But for him 'clinical science' meant exclusively researches on his living patients:[6]

'I feel sure that clinical science has as good a claim to the name and rights and self-subsistence of a science as any other department of biology; and that in it are the safest and best means of increasing the knowledge of diseases and their treatment... Receiving thankfully all the help that physiology or chemistry or any other science more advanced than our own can give us, and pursuing our studies with the precision and circumspection that we may best learn from them, let us still hold that, within our range of study, that alone is true which is proved clinically, and that which is clinically proved needs no other evidence'.

Small wonder that the master craftsman Berkeley Moynihan [1865-1936] declared in 1930 that 'surgery as a craft has reached its peak', and two years later — in the Romanes Lecture delivered in the hallowed Sheldonian Theatre — he was even more certain that 'We can surely never hope to see the craft of surgery made much more perfect than it is today. We are at the end of a chapter'. However, Zachary Cope, the acknowledged authority on The Early Diagnosis of the Acute Abdomen, was not overcome by the successful standardisation of technique and establishment of specialisation. In 1953, with remarkable prescience, he wrote:[7]

It is difficult to imagine many operations within the abdomen which have not already been performed. It is more easy to think that discoveries of the future may prevent the necessity for the performance of many operations which are now frequently done. Should the aetiology of peptic ulceration be discovered with a corresponding remedy, and if at any time the cause and cure of cancer were found, then abdominal surgery would be greatly curtailed. For the present the surgeon is needed for these conditions.

Cope dated specialisation from 1900 onwards — precisely the period of its inauguration in Ireland. In 1892 while he was a demonstrator in anatomy in the School of Physic Robert Woods [1865-1938] applied La Place's law [$P = T(1/r - 1/r^1)$] to the membranes in the human body in a state of tension, including-most notably — the wall of the heart. But he had no inkling that Cunningham would leave for Cambridge and he turned to surgery to earn a living. He was the first Irish surgeon to devote himself exclusively to a single branch of the art; early in the century the 'minor specialties' developed apace (even though the essential qualification was often no more than a visit to Vienna) but the earliest major specialty to develop was orthopaedics. Although all orthopods did not always confine themselves to bones and joints, Arthur Chance and Henry McAuley were fully occupied with skeletal injury and disease.

Neurosurgery flourished in the hands of A A McConnell [1884-1972] in the Richmond Hospital and its offspring is now the Institute of Neurology at Beaumont. Behind every successful neurosurgeon is a team of specialists, including radiologists, pathologists and electrophysiologists. Beside if not before him he depends on a subtle neurologist. Francis Carmichael Purser [1877-1934], for all his ability as a meticulous surveyor of sensory loss — instilled in him in London under Castlebellinghamborn Gordon Holmes [1876-1965], believed in a muscular rather than a neuro-radicular pathogenesis of sciatica [1931]. Henry Lee Parker was probably the first fulltime neurologist in Ireland; from 1942 to 1945 he enlivened the Richmond medical scene before returning to the United States where he served as Chief of Neurology at the Mayo Clinic until his death in 1958. His distaste for neuropsychiatry contrasted sharply with that of Edward L Murphy [d 1962] in St Vincent's Hospital. In Belfast neurology was firmly established by Lewis Hurwitz [1926-1971] and Michael Swallow before the neurosurgeons unfortunately, of dire necessity, became expert in dealing with gunshot injuries there.

Thoracic surgery — in spite of there being one general surgeon who 'specialised' in each teaching hospital — had to await the development of an adequately funded tuberculosis service in 1948; after spectacular improvements in pulmonary surgery, thoracic surgery came of age when Keith Shaw and Eoin O'Malley combined forces in the embryonic National Cardiac Centre at the Mater Misericordiae Hospital. Vascular surgery is in greater demand and is less dependent on centralisation; its exponents' techniques have long outmoded lumbar sympathectomy performed by Patrick Fitzgerald [1911-1978] to alleviate hypertension.

When T J D Lane [1922-1967] forsook the X-ray room and confined himself to surgery his successes with prostatic hypertrophy led to the provision of a massive urological unit beside the Meath Hospital of Stokes and Graves, but did not quite lead to the international recognition achieved by Peter Freyer [1851-1921] and Terence Millin [1903-1980] working in London. However, renal dialysis (courtesy of Arthur Barry's [1913-1996] munificence) for kidney failure or drug detoxication developed in the Charitable Infirmary, Jervis Street, and progressed to the renal transplantation programme when immunological suppression of rejection became a clinical reality. Operative gastroenterology has been transformed from a surgical to a medical specialty since the development of flexible fibreoptic endoscopes; nonetheless the surgeons have partially redressed the balance with the introduction of minimal access surgery in major hospitals. Furthermore, as Cope predicted in 1953, surgical intervention for peptic ulceration has been made obsolete by discovery of specific inhibitors of gastric acid secretion, and the realisation that

carriers of *Helicobacter pylori* are at increased risk of developing peptic ulcer disease and non-cardiac gastric carcinoma.

Internal Medicine: In these islands Thomas Lewis [1881-1945], physician to University College Hospital London, was the tireless pioneer, and ultimately the leader, of a movement to bring the methods of science and the critical standards of science to the bedside, to the study of disease in man, from 1913 onwards. Lewis slowly brought Einthoven's string galvanometer into widespread clinical use, if not quite to the bedside. In 1915 the first machine was installed in Belfast by Professor A Lindsay, and in 1921 the Red Cross Society and Order of St John purchased one for the Dublin hospitals to be housed centrally in Mercer's Hospital under the direction of Leonard Abrahamson [1897-1961], later professor of medicine in the Royal College of Surgeons. Henry Moore [1887-1954], professor of medicine in University College Dublin pioneered the use of the Benedict-Roth spirometer to measure basal metabolic rate as an index of thyroid function [1925]; so far as 'research in clinical medicine' was concerned, he resignedly acknowledged that 'the part-time worker cannot be said to be such a success [as] the whole-time investigator [of] disease as it naturally occurs'.[8]

Lewis broadened Paget's use of clinical science and defined it as the branch of knowledge that focuses on diseased human beings, but which also includes directly relevant parts of the allied sciences. Although the human patient is central, the work in Lewis's view — will often extend 'to more distant boundaries; [in 1935] these will include human physiology, because the normal is the control to the diseased man; will include the morbid anatomy and the bacteriology of man; and will include "experimental medicine", which has come especially to mean such experiments upon the lower animals as is inspired by clinical problems'. A few short years after Lewis's death the electron microscope revolutionised biology; his paraclinical sciences have expanded enormously to include, among others, histopathology, microbiology, molecular immunology, nucleic acid chemistry and genetics, pure and applied.

Lewis believed that the science and art of medicine should be kept as separate ideas, although he had 'no wish to infer that the science and art can never be pursued by one person'. On the contrary he argued that:[6]

The boundaries between individual sciences may not be maintained rigidly without hindering progress; overlaps between clinical science, pathology, and physiology are vital to medical science as a whole; they bind together these activities, which in process of time have grown too far apart from one another.

Unfortunately the value of vertical integration has still to be realised, but it is against the insight of a peerless clinical scientist that Irish efforts have to be seen.

'As others see us' was not gifted to the Irish medical fraternity in the first half of the century. The Rockefeller Institute for Medical Research was opened in 1901; its General Education Board was established in 1903; a year later what became the International Health Board came into being; and the Rockefeller Foundation was incorporated in 1913 'to promote the well-being of mankind throughout the world'. In the 1920s, individually and more-or-less collectively, members of the medical profession in the nascent Irish Free State sought funds for buildings and teaching staff salaries, but not — as was pointed out to them — for research from the Rockefeller Foundation.[9]

Visitors from New York were not impressed, although Joseph Bigger won a travelling fellowship in 1929 and William Doolin's review in *Studies of Flexner's Medical Education* attracted favourable attention; Alan Gregg [1890-1957], director of the Foundation's Division of Medical Education found the editor of the *Irish Journal of Medical Science* 'to have a better point of view than many of the men in Dublin'. Gregg eventually wrote off Irish medical education in the privacy of an internal memorandum: 'Small quantitatively, smaller qualitatively, and very near nil in its research work'.[9]

In 1953 the Irish Medical Association (IMA) invited the American Medical Association (AMA) to assess 'comparability' of instruction in Irish Medical Schools.[10] The schools were visited by HG Weiskotten, Victor Johnson, Dean F Smiley, and Donal G Anderson, leading American medical educators, and an extract from the resultant letter from AMA to IMA read:[11]

In considering medical schools for inclusion in its list, the Council places great emphasis on the importance of the school's having full control and supervision of all phases of a medical student's education. It is the Council's understanding that much of the instruction in clinical subjects at the National University of Ireland is given at hospitals that are not under the control of the medical schools and by teachers who are not on the faculty at the medical school and who are not responsible directly to the faculty of the medical school.

A detailed academic analysis of their report was defensive.[12] In 1955 a Report from the General Medical Council of the United Kingdom supported the American criticism and likewise specifically noted the lack of integration between the medical schools and the hospitals remarking particularly on the lack of vertical integration between the preclinical science and the clinical art.

By 1959 when the New York State Board of Regents visited Ireland again, they were impressed by the 'remarkable progress'; the original visit had a seismic effect — followed by the aftershock of the UK report. The editorial in the *Journal of the Irish Medical Association* in the wake of that (first) visit concluded prophetically:[13]

Whatever may be the immediate outcome of their comparison of the teaching methods in our two countries, on the long term view their visit will have been of benefit to the Irish schools of medicine and that a more frequent exchange of visits between American and Irish teachers cannot fail to prove of mutual advantage.

(The Republic of Ireland paid for its neutrality in World War II when the Marshall Plan was rebuilding Europe, and it was not until John F Kennedy's presidency that Irish graduates benefited from the US National Institutes of Health International Post Doctoral Research Fellowships which facilitated training in US laboratories.)

The upshot was the appointment within a decade of fulltime or geographic wholetime professors of medicine, and the first incumbents, DK O'Donovan, Peter Gatenby, Denis O'Sullivan, CF McCarthy and WF O'Dwyer [1916-1999], became exemplars not only for their research staffs but also for their succcessors. Additionally, FP Muldowney was appointed to an endowed chair in experimental medicine and further endowments facilitated the establishment of research professorships in a variety of subspecialties with enormous benefit to the reputation of Irish medicine.

Oliver Fitzgerald [1911-1987] established a prolific unit devoted to experimental therapeutics and broadened the field of gastroenterology from the confines of the alimentary tract to include disorders of its two major glands, the pancreas and liver. Ivo Drury [1920-1988] insisted on the importance of treating the patient with islet insufficiency not the altered concentration of blood glucose, and made a special study of diabetes mellitus in pregnancy, publishing two important manuals *Diabetes Mellitus* [1979] and *Understanding Your Diabetes* [1984]. Petr Skrabanek [1941-1994], when he forsook endocrinology, proved to be an articulate critic of medical foibles new and old, and his conjoint book with James McCormick, *Follies and Fallacies in*

Medicine, was soon translated into the major European languages. WJE Jessop [1903-1980], dean of the medical faculty in the School of Physic from 1959 to 1973 used his consummate political skills to better the environment in which medicine was taught and practised in Dublin.

Paediatrics: Dorothy Price's [1890-1954] *Tuberculosis in Childhood* [1942], printed on wartime paper, deservedly became a classic. Robert Collis [1900-1975] is best remembered for highlighting the social deprivation which led to staggering infant mortality and for recognising the association between acute rheumatism and erythema nodosum. Neil O'Doherty's [1930-1999] *Atlas of the New Born* [1985], with the pithy, apposite legends to the illustrations, was excelled only by his film and textbook on *Neurological Examination of the New Born* [1986]. Niall O'Donoghue's *Epilepsy* has gone into three editions. Séamus Dundon showed the importance of controlling fluid and salt balance in infants, and O. Conor Ward made his original contribution to the Romano-Ward syndrome.

Statutory Bodies

The Medical Research Council of Ireland (MRC) was established by the Minister for Local Government and Public Health in 1937, under the chairmanship of Robert Farnan [1898-1962], professor of midwifery in University College Dublin, to carry out clinical research and study matters of importance to the health of the general population.[14] Annual subventions from the Exchequer were apportioned by committees to applicants from various fields, but from the beginning the Council decided to fund special units, such as the Chemotherapy Laboratory housed in Trinity College Dublin under Vincent Barry [1908-1975], and the Cell Metabolism Unit under EJ Conway in University College Dublin, to encourage the development of a critical mass of expertise in a particular field. Field studies were not neglected. The attention of the Council was drawn to the prevalence of goitre in south Tipperary by Dr Martin Naughten, County Medical Officer of Health in 1938, and Dr John Shee's survey funded by the Council found thyroid enlargement in half the school children in certain districts; iodine status (recently re-visited with newer sophisticated analytical methods) was studied; although intake was low the health and development of the goitrous children was in all other respects highly satisfactory, iodine therapy did not have a dramatic effect, and these findings led to a broader dietary survey in search of alternative factors; DK O'Donovan, embarking on a career in endocrinology, took a special interest in the work — an early manifestation of unstinted, unbending and unwearied commitment to the promotion of medical science in Ireland.

A National Science Council, which did not shun overlap with medicine, came into operation in 1967 a year after the Medico-Social Research Board (M-SRB) was established in January 1966 under the chairmanship of Patrick Lynch and the direction of Geoffrey Dean, noted for his monograph on *The Porphyrias.* Dr Dean set about ascertaining the accuracy of death certification and quantifying morbidity as recorded by hospital in-patient enquiry; the prevalence of mental illness, including alcoholism, was tackled by Dermot Walsh.

A Health Research Board was established in August 1986 to amalgamate the MRC and M-SRB with additional responsibilities to include health and health services research in its programme. It was charged with the analysis of the 'overall thrust of health policies' as expressed by the Department of Health's policy within the wider international objectives of the World Health Organisation with its concept of Health for All by the Year 2000. Nothing succeeeds like excess, and financial stringency reared its ugly head long before the arrival of that desirous but delerious millenium.

Conclusion

Knowledge comes, but wisdom lingers

Experimental medicine, therapeutics and surgery throve after the American and British visitations, which were not allowed to pass without dissent.[11] Progress continues with quickening pace, spurred by increasingly generous state subvention and support from outside bodies like the Wellcome Trust.

A century after *An Introduction to the Study of Experimental Medicine* was published by Claude Bernard [1813-1878] in 1855, Ireland was introduced to, and is now zealously immersed in, the practice as well as the principles of experimental medicine as the foundation of sound clinical practice. Wisdom's slow progression reminds us that all our current concepts are not necessarily valid and, worse yet, we lack an infallible guide to those which will stand the test of time. To appropriate Einstein's [1879-1955] rhetorical question: 'Who would have thought around 1950 that in 50 years time we would know so much more and understand so much less?'[15]

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Correspondence to: C S Breathnach, Division of Physiology, University College, Earlsfort Terrace, Dublin 2. Phone 7067456; Fax 7067417.