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THE ULSTER MEDICAL JOURNAL

PUBLISHED BY
THE ULSTER MEDICAL SOCIETY

CONTENTS

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.....19.....

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THE
ULSTER MEDICAL JOURNAL

PUBLISHED ON BEHALF OF THE ULSTER MEDICAL SOCIETY

Vol. XXXVIII WINTER 1969 No. 1

UNIVERSITY SQUARE
A Sentimental Retrospect

by

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

Presidential Address to the Ulster Medical Society, 17th October, 1968

University Square

ON A Spring evening in 1938 there was a knock on the front door of my parents' home, 9, University Square, and I answered it. Standing on the step was our neighbour, Reggie Blackwood. He had a framed picture under his arm. "This is for you," he said. "It's your birthday, and I think you may appreciate it more than I do." For the only time in my life, I am quite sure, all my relations had forgotten the anniversary, and the gift was doubly welcome. It was a copy of the well-known though scarce lithograph of Queen's College, now the University, and I have treasured it ever since. It was quite typical of him to know when I was born. He probably knew when everyone in University Square was born.

1. *Reginald Walter Henry Blackwood*

A gentleman of private means, Reginald Walter Henry Blackwood (Fig. 1) had lived all his life either in 24, University Square, which had been his father's house before him, or at the family farm at Castlenavin near Seaforde in County Down. His father had been a director of the Ulster Bank, and had intended that his son should become a solicitor, so Reggie found himself for a time in the offices of Messrs. l'Estrange and Brett. But for our present purposes it is enough to say that such a life was not to his liking, for his outside interests were many. He was a noteworthy amateur herald, one of the most knowledgeable in Ireland, and was distinguished for his extreme accuracy, his excellent draughtsmanship, and his remarkable heraldic library, probably the largest in the country apart from those of the professional heralds. From his love of heraldry there sprang almost inevitably an insatiable interest in genealogy, and he made a vast collection of family trees of Ulster people, distinguished and humble alike. Much of his information he gleaned from wills, and one of his favourite pastimes was a holiday in London spent delving into these documents and any other papers that would throw light on the affairs of local families. He had a large personal collection of beautiful furniture, glass, silver and china, but his pictures were of historical rather than aesthetic value. He published little, the only paper I know of being one on the three small churches at Loughinisland, near his country home. With his love of books, and his need for a good reference library, it is small wonder that he took a keen interest in the affairs of the Linenhall Library, and that he was for many years its President. On his death in 1961 it was found that he had bequeathed to it all his books and manuscripts.

I was once told that among his personal papers was a typescript history of University Square, and it is through the good offices of Mr. J. W. Vitty, M.A., the Librarian of the Linenhall, that much of the information that follows has come into my possession. Far from being typewritten, his notes are in longhand and in a small Stationery Office notebook, and are almost telegraphic in form. In places, too, they are now beyond interpretation, as some of them are in pencil and much worn.

My own interest in all this arises from the fact that I was born in No. 3, though as we lived there only a short time after that event, I can recall nothing of it. I came back to No. 9 with my father and mother in 1913, and that was my home until my marriage in 1947, when my wife and I occupied No. 8 for seven years. There is no house in the terrace that does not hold personal memories for me, and now, as it becomes University property, and a place where hardly anyone lives, I feel that the time has come when someone who knew it intimately and affectionately should set down something of its history. It is, without doubt, the most handsome street of terrace houses in Belfast, but it is, above all, a place where people were born, lived and died; thirty houses in which families had their homes. It would be a pity if Mr. Blackwood's industry, and the notes he made, were to lie forgotten and unused. This account of University Square has thus two main sources of information : the Blackwood notes and my own memories. These are bound to overlap. My own contribution is highly personal, and is garnered especially from my childhood and school days. The period of my student and professional years is covered by Mr. Blackwood's history of each house, but I have taken the opportunity of adding many personal memories of people who lived in them. Forgive me, then, if there is too much ego in my cosmos, but the little world I am trying to recapture and describe is one dear to me. It represents a way of life fast disappearing, and in many respects gone for ever.

My own earliest recollections of the Square are of eating wild strawberries in the front garden of No. 9 while the arrangements for our transfer there were in progress. Several large shrubs with a central quite enormous holly had made a wilderness where a small boy could hide, safe from discovery, and where the fruit had similarly escaped notice.

It cannot have been long after we were settled in that a historic occurrence became fixed in my memory. I was wakened one night and brought into the front bedroom to hear men tramping up the street singing "When Johnny comes marching home again", for it was April, 1914, the guns for the Ulster Volunteer Force had been successfully run into the province, and not every car in the terrace had spent the night in its own garage.

The University never seems to have been out of the hands of the builders for any length of time, and about then there were two projects in hand : the one, an extension westward of the library, and the other, of political significance, the construction in the grounds of a large hutted hospital (Fig. 2) for the casualties expected among the members of the U.V.F. should there be war in Ireland over the Home Rule question. The hospital was started in the old wooden Exhibition Hall between the old O.T.C. Headquarters and the big conservatory in the Botanic Gardens, and gradually it was extended up the slope to the south of the old part of the Physics building. The premises were never used for their original purpose, and

2. *The Ulster Volunteer Force Hospital*

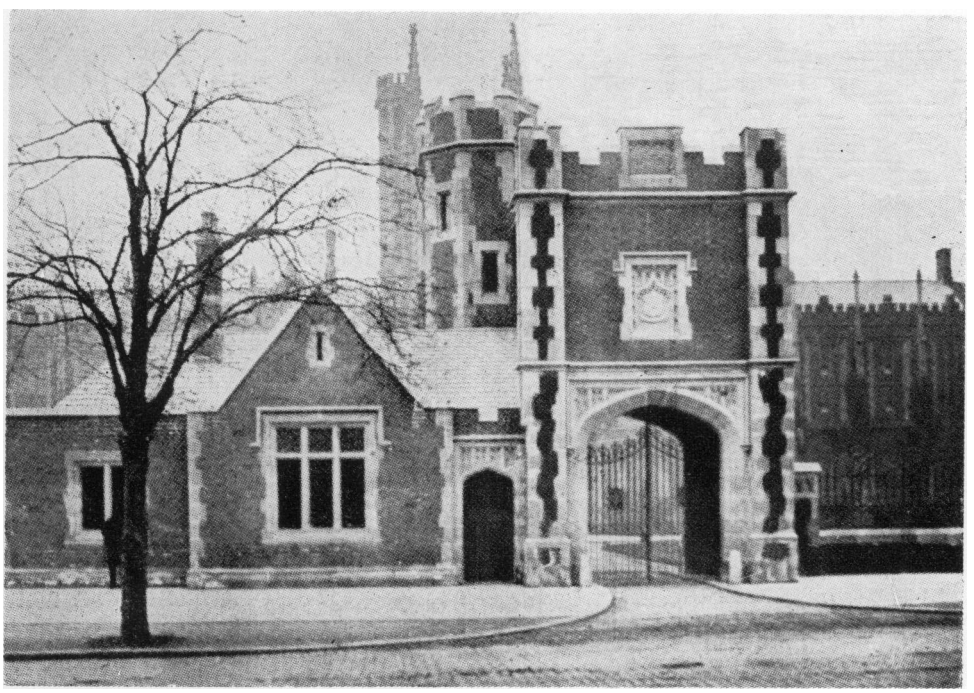
just as the U.V.F. became the nucleus of the 36th (Ulster) Division of the British Army, so the hospital became a military one, and was eventually to spread right to the University Road and to occupy ground where the Whitla Hall now stands. This last portion was an orthopaedic wing, and it is interesting to recall that one junior American medical officer to serve in it was Orr of Nebraska, afterwards famous for his plaster treatment of osteomyelitis, and who cannot have failed to profit from the wise guidance of A. B. Mitchell and S. T. Irwin while in that hospital, for they, like several other local doctors, held R.A.M.C. commissions while working there. The U.V.F. Hospital still survives at Craigavon and Galwally, both of which provide accommodation for ex-service patients. It is within the memory of most of us that the University used the old hospital premises until comparatively recent times. My own early recollections of the front of the University are therefore of wounded men in hospital blues, of students playing tennis on the front courts, and of Harry Millar's laundry hanging up in the back yard of the Hamilton Tower. Little did I realize then how well I would subsequently get to know him in the Physiology Department, where he was the senior technician for many years.

The Hamilton Tower (Fig. 3) erected in honour of the Rev. Thomas Hamilton, Vice-Chancellor of the University, in his lifetime, and taken down before his death, is now remembered by few, but a story is told of how some students played a frightful prank on an old man called Donnelly who kept a cab at the gates of the Methodist College. When trade was bad he spent his time inside the vehicle asleep, and thus it happened that his cab was led gently down to Queen's and through the gate of the Hamilton Tower. There it was turned round, the horse taken out of the shafts and led outside the gate which was then shut. The shafts were then pushed out through the bars of the gate and the horse harnessed in again.

University Square was a good place for small boys, and though the University grounds were officially out of bounds, old George Robinson, the Steward in the front hall, was unable to keep out the army of invaders, neither was William Fulton, Steward of the Union, nor Sammy Keyes who looked after the furnaces under the library and who had therefore a special responsibility for the gate in the middle of University Square. To be chased by any of these people was itself a safe and delightful experience, for they were all easily outdistanced, especially if we had bicycles.

My youthful contemporaries were numerous. There were our next-door neighbours, the Fullertons, in No. 8, Cecil and Eric with their sister Irene, and in No. 7 Jack and Jimmy Colville, conspicuous in the kilt, and their sister Jean. On the other side in No. 10 there was Margaret Lowry, later Mrs. C. H. G. Macafee, and further down in No. 16, the Russels, Billy, Archie and their sister Pearlie, and in No. 18 Mary, Jack and Charlie Mitchell. The Kirks in No. 21 were very junior, and the Russell girls in No. 4 were hardly much older. Margaret, Sinclair, Tom and Charlie Irwin in No. 29 seemed in those days to be miles away apart again from the gulf that at that age a few years can create.

The ordinary push bike was the great toy. A favourite trick was to rush down the path from the library to the Union and, reaching up into a tree, haul yourself into its branches, leaving the machine to be caught by a friend, or there were flights of stone steps that could be ridden down if you had no respect at all for the bike. A more staid performer was Dr. Letts, the Professor of Chemistry. We could all



3. *The Hamilton Tower*

mimic his manner of mounting, for he would push himself out into the Square with one foot resting on the step projecting from the hub of the back wheel until sufficient momentum had been gained to permit of a slow and dignified descent into the saddle. My recollection is that it was always summer and always sunny: hot days and long evenings.

The Square was busy professionally as it has never been since. Every afternoon the continuous but ever-changing rows of the motor cars of patients stood by the pavement, each with its varnished coachwork glistening, its lamps and other metal work a gleam of brass or nickel plate, and its attendant chauqeur in his livery. Years afterwards I heard an echo of those times. W. W. D. Thomson was introducing James Craig for the Honorary Fellowship of the Ulster Medical Society, and in his remarks he referred to his own early days in No. 25. At the end of an afternoon's work he was going down with a handful of letters to the pillar box at the foot of the Square when he met James Craig. "James," he said, "took his hands out of his trousers pockets. In one were fifteen silver shillings, and in the other fifteen golden sovereigns, and I was very jealous." But for the schoolboy there were no such distractions. Enough pence to go round to Mr. Ireland's tuck shop opposite Grattan's met most of the physical needs, and financial worry was far ahead. One of the hobbies of the time was the collection of cigarette cards, and I often wished I had kept mine, for they were beautifully designed and printed. I well remember the military uniforms series given with Player's Navy Cut and the dogs with Wills' Three Castles. Students tackled for these cards were seldom annoyed at being asked, and two in particular always kept their cards for us. Both were to become Presidents of the Ulster Medical Society: Robin Hall, who was then in training for the Universities' Long Jump Championship which he won and for which he had a special track between the library and the Union, and J. R. Wheeler, then a Rugby international.

If horse-drawn traffic had practically disappeared from the front of the Square, where my mother remembered Mrs. Brice Smyth feeding red apples to her husband's carriage horses, the mews (Fig. 4) still had its stables. The bedtime and waking hours of my childhood are associated with corresponding noises of various kinds: the rattle of wheels on cobbles, the whinney of horses, the solitary clop ringing out at night as a shoe was stamped on a stone stable floor, and the sound of halter chains dragged up and down through the sides of metal mangers. There were horses in the mews for years, for the Trotter brothers, surely the perfect example of the occupational name, kept cabs there except during the years of the 1914–18 War when they were serving with the Royal Horse Artillery. Among the chauffeurs and car washers at the back there were plenty of characters too: Bob Polly who could spit with uncanny accurary, Tommy McKnight, Sammy Lemon, William Eager and many another.

My own bedroom looked north over the city. I can still recall the joyous rhythmic clash of church bells on a Sunday morning, the factory sirens on week days, the hammering of goods train buffers shunting at night, and the fog horns in the Lough when the weather was bad. In the summer martins screamed round the eaves all day. 1921, the year of the Troubles, contributed a special noise: rifle fire. Indeed, Reggie Blackwood, the compiler of the notebook on the Square, was standing at a back window one evening when the glass was shivered round him by

a bullet which came to rest in his pocket book, for which reason my own bed was moved to a different part of my room. Later, in my student days, it was, of course, a great convenience to live so close to the University. My neighbour, Aileen Kennedy, now Mrs. Alex Sproule of Gilford, was in the same year, and was actually closer to the side gate, as was her brother, Rex, some years later, but for none of us did this mean that we were never late for a lecture. As far as I know I was the first person actually born in University Square to graduate in Medicine at Queen's, and in spite of the many years I had already lived there it seemed strange eventually to put up my plate in what had become by that time an almost exclusively medical enclave.

4. *University Square Mews*

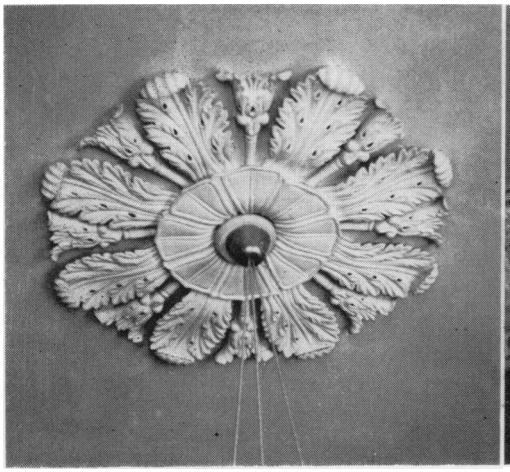
The ideas of those who planned University Square are no longer known, or whether there was ever any intention that it should surround more than one side of the College. It seems not unlikely that eastern and even western portions could have been laid out had steps been taken early enough. Centainly it never had any name other than University Square, in spite of the fact that there was no University, for Queen's College was only a constituent part of the Queen's University in Ireland. The reason was simple. There already was a College Square : the College Square North and College Square East that still face the Royal Belfast Academical Institution, which, before the days of Queen's College, provided higher education in Belfast.

The first page of the Blackwood notes records that the Head Lease was signed on 12th July, 1826, between George Augustus, Marquis of Donegall, and the Rev. Gorman Gregg. Many of the houses were under construction by 1852, and the order for paving the footpath was made on 1st February, 1854. The surface of

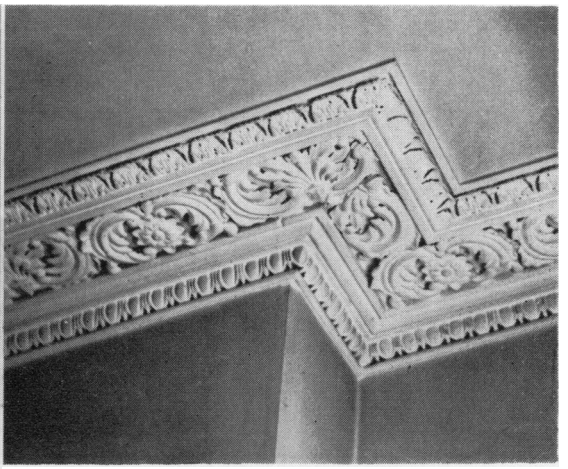
the carriageway itself must have fallen far short of modern standards, for nearly all the houses still have their original foot scrapers (Fig. 5). The notes are full of details of the various deeds by which the parcels of land were led or the houses transferred from one owner to another. It does not seem necessary to refer to these and their dates in full, but as far as I know all the resident families are mentioned. There are, too, genealogical notes and family trees far beyond the scope of this paper. Even the characters of those who lived in the Square have not always escaped the Blackwood tongue, and one is described as "a bad plant". The sums of money for which the houses changed hands at various times, including the ultimate transfer prices to the University, are more often than not quoted, but to repeat them here might arouse feelings which are not those of brotherly love.

While strictly Victorian in time, the majority of the houses are in traditional Georgian style, with characteristic doorways (Fig. 6) and fanlights, but Nos. 1, 2 and 3 are of a later period, and are of truly Victorian architecture. No. 25 is the only one to retain all the small panes of glass in its sash windows, though most of them have preserved them in the upper stories. The houses were built to come forward or recede in small blocks. A few of them are double, and some of the single ones have three windows in the first and second floors and some only two. None of the bay windows is original. In spite of these minor variations there is great unity in the terrace, which would be more evident could it be painted to emphasise the blocks rather than the individual houses, and thus show their relationship, one to another. Towards the east end the footpath slopes downwards, so that the last five houses have basements and more front steps than any of the others. This little slope also necessitated a double kerb to the footpath at one time, though with extensive resurfacing of the road this has disappeared. The late R. J. McConnell used to call this part of the Square "Kirk's Brae", for Thomas Sinclair Kirk lived about the point where it begins. Some of the houses were built with stables, and some had back gardens. Some even had both. One of our neighbours lost a bet because he insisted that my mother had in some ingenious way so placed a great gold and red broom bush that it showed over the top of the bottom wall, while it was in fact safe in the ground at the foot of the garden. There were several good apple trees in the garden of No. 24, and there would have been room for a tennis court there. In later years nearly all the houses sacrificed their gardens for garages. Heavy iron railings and gates protected the fronts of all the houses until they were requisitioned during the 1939–45 War, but samples can still be seen between Nos. 7 and 8, and at the houses with basements. The interiors are characterised by handsome reception rooms with high ceilings, excellent cornices (Fig. 7) and central medallions (Fig. 8), many of which are still in good repair. The houses have, however, the faults of their period : dark and gloomy kitchens, completely enclosed inner yards, and more stairs than can be conveniently managed with modern domestic help. Nevertheless, they represent faithfully the small town house of a more leisurely and gracious period than the present; a period of which I was privileged to see the last phases.

In the early days the residents were for the most part business men and their families, with a fair admixture of academic and clerical interests, but it was about the turn of the century that medical men began to arrive. They came from Wellington Place and College Square North, from Great Victoria Street and the

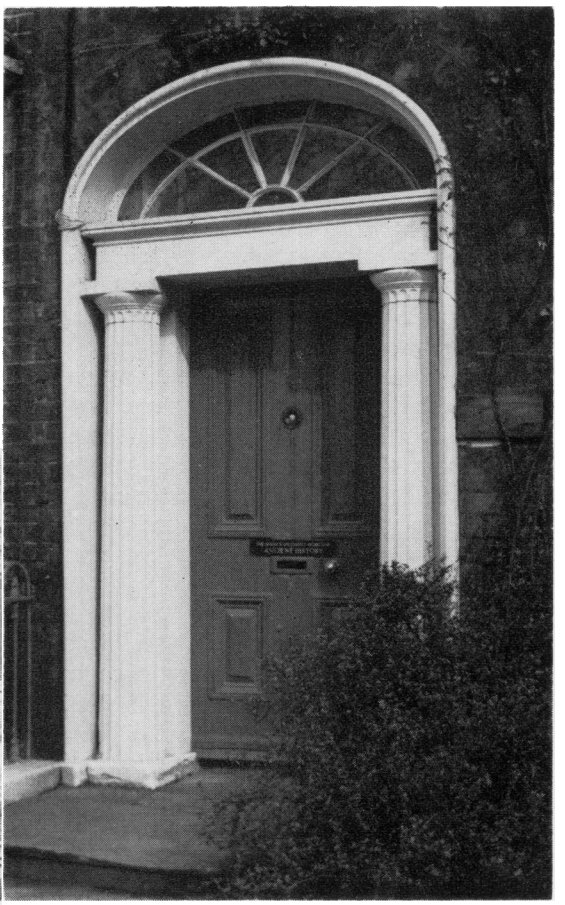


8. *Medallion*

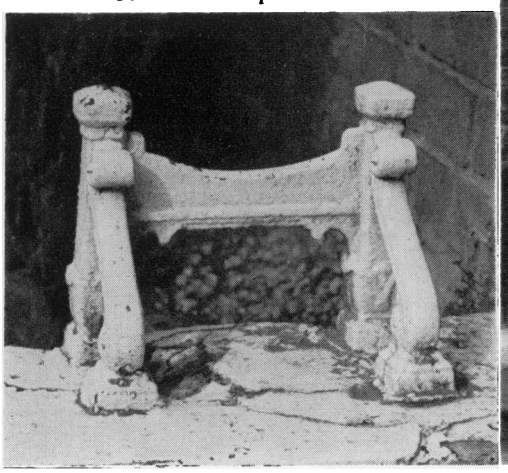


7. *Characteristic cornice*

6. *Georgian style doorway*



5. *Footscraper*



Dublin Road, so that in later days there lived here many of the consultants and the clinical Professors of the Medical Faculty who, together, formed the Honorary Staffs of the Voluntary Hospitals. There were also general practitioners and dentists. All this finally gave the terrace its claim to be the Harley Street of Belfast.

The top three houses, being built later than the others, were not occupied until 1877. The numbering had then to be changed for all the others, not for the first time. This account uses the subsequent and still existing numbers.

No. 1

The first resident of No. 1 was George Phillips, but by 1880 the premises had become a girls' school under Miss Reeves, and ten years later was described as Oriel College with Mrs. Elizabeth Miles as Principal. From 1902 the house never lost its dental attachments until purchased by the University. The first dental surgeon was Ezekiel Agnew, L.D.S.F.P.S.Glas., who was, as the Blackwood notes point out, the son of Andrew Agnew of Kilwaughter, Larne. He was followed by Herbert Clifford, L.D.S.R.C.S.Eng., and in 1918 by William Marshall Swan, L.D.S.R.C.S.Eng., the son of Thomas Swan of Buncrana. He was one of the original team who founded the Belfast Dental School. During his occupancy there was also room to squeeze in, for a period, two surgeons from the Royal Victoria Hospital: Henry Price Malcolm, and Ian Fraser, Marshall Swan's cousin.

No. 2

The first resident of No. 2 was Mrs. Henderson, to be succeeded by William Close and his daughter, but in 1894 the professional element had taken over in the person of William Bowden, a dental surgeon. During parts of this period there were two other tenants: Wiclif McCready, a surgeon on the staff of the old Belfast Ophthalmic Hospital in Great Victoria Street, and Miss M. L. Gardner, M.I.S.T.M., a pioneer of physiotherapy in Belfast.

The years from 1922 to 1934 are of historic interest. In 1921 Northern Ireland was given its own Parliament, which was duly opened by H.M. King George V in Belfast that year. There were, however, no Parliamentary buildings, and, while Stormont was being built, the Assembly's College of the Presbyterian Church, opposite the east end of the Square, was used for the meetings of both Chambers. During those years No. 2 became the temporary Assembly's College.

Subsequently Dr. Alexander McCambridge Monypeny practised here, and the last owner, and, in fact, the last doctor to live in the Square, was James Kinloch McCollum.

No. 3

"Mrs. Hunter", says the Blackwood note, "was the first tenant of No. 3. She originally took No. 1, but on account of it having so many windows she changed to No. 3." She was followed in 1890 by John Park, D.Litt., Professor of Logic and Metaphysics in Queen's College. The next resident was James Bristow Lyons, Linen Merchant, whose second wife was Margaret Julie, daughter of Jules Festu of Villaninez, Calvados, Normandy, an area destined to become familiar in wartime to two subsequent residents of No. 3. My father came next, and there I was born. By 1909 the house was in the professional hands of Mark Francis Cahill, M.D., and the last owner was Thomas Howard Crozier.

No. 4

For better or worse, the door of No. 4 never seems to have borne a professional plate; not even when, in its recent University days, it was the temporary home of Harold Rodgers on taking up the Chair of Surgery in Belfast. It had been No. 1, was first occupied in 1854, and had a rapid succession of tenants: Daniel Kirk, Linen Merchant; George Smyth of Messrs. Lindsay Brothers; and Michael Manlon, Timber Merchant. Then came Dr. Thomas J. Cantrell of the Ulster Medical Hall, Castle Place. In 1852, he had, in partnership with Sir Henry Cochrane, Bart., of Dublin, founded the firm of Messrs. Cantrell and Cochrane. A memorial house plaque in Ashfield school records that:

> Dr. Cantrell was a leading Belfast chemist who by his skill, acumen and integrity contributed to the commercial wealth of our City by developing a business which carried Belfast mineral waters across the seven seas, and thus gained for the City a world-wide reputation which still stands supreme.

Then followed Augustus Minchin Ferrar of Messrs. Jaffé Brothers; John McCallum, Senior Inspector of National Schools; Hugh Ross, Goods Manager of the Belfast and Northern Counties Railway; Robert Anderson; Mr. and Miss Woodside; William Morrison; John Francis Mulligan, Solicitor; and finally William Russell of Messrs. Forster Green and Company. Perhaps a strange coincidence is the occupation of the house by Robert Anderson of Messrs. Anderson and McAuley, who became High Sheriff and Lord Mayor of Belfast, a Knight, and subsequently a Baronet; and William J. Morrison, Managing Director of the Bank Buildings. Sir Robert Anderson's wife was the daughter of the Rev. Andrew Long of Monreagh in Co. Donegal, and they have at least two relations among the Fellows of the Ulster Medical Society: J. A. Smyth and D. A. D. Montgomery.

No. 5

Occupied from 1854, No. 5 shows the usual type of resident, the successful business man, with the professional exception of one dentist: Robert Atkinson, Merchant; William Gelston, Tobacconist; Mortaiz Portheim, Linen Manufacturer; James Clarke, Dentist; Mrs. Eliza Simpson William Greenhill, Corn and Coal Merchant and Charles Stanley Sinclair, Yarn Merchant.

No. 6

Following the Rev. Adam Hudson; Thomas Hughes, Gentleman; Mrs. Agnew and her son Henry, in 1900 No. 6 became the home of Dr. William Gillespie McKenzie and his American wife. They were succeeded by their son, William Richard McKenzie, Gynacologist to the Samaritan Hospital until his early retirement in 1938. His son, Kenneth, was one of the famous Fighter Pilots of the Battle of Britain. When a firm of architects took over No. 6, for many it marked the beginning of the end, and College Gardens clacked its tongue!

No. 7

John Oulton, Flax Merchant; Plato Oulton, Secretary to the Water Commissioners; Charles Oulton, Cashier in the Northern Bank; and Miss Grace Oulton occupied No. 7 from 1854 to 1907. It then became the home of James Colville, B.A., M.D. He was of County Down farming stock, but it was his wife, the daughter

of a Glasgow Bailie, who insisted that my childhood friends, Jackie and Jimmy, wore the kilt. James Colville was in general practice, was a Past President of the Ulster Medical Society, and one of the foundation trustees of the Robert Campbell Memorial Fund. He was followed in 1936 by Eric Oliver Blake from Trinidad, a Queen's graduate with a large practice on the Newtownards Road as well as in University Square. When he died, the funeral crowds filled the Square and blocked all traffic. The last occupant, and in fact the last professional entrant to the Square was dental, Stanley McCullough.

No. 8

The early occupants of No. 8 were Mrs. Rosetta Harrison, Henry Harrison, William Campbell, James McCorry, Linen Merchant; Rev. Lowry S. Berkley,

9. *Andrew Fullerton*

Mrs. Eliza Scott, Mrs. Hughes, Mrs. Gunning, and William Clugston. Then came two great medical, or, rather, surgical names: Andrew Fullerton and Cecil Armstrong Calvert.

Andrew Fullerton (Fig. 9), the son of a Methodist Manse, was Professor of Surgery at Queen's University from 1923 to 1933. Enthusiastic, diligent and painstaking, he was a poor lecturer, but a magnificent and stimulating bedside teacher. One of the Irish pioneers of cystoscopy, his contributions to urology should be better known than they are, especially his discovery of diuresis occurring on the affected side in unilateral kidney disease, a finding of great assistance before the elaboration of later simpler techniques. All the urine specimens from his wards in the Royal Victoria Hospital were taken home and examined in his own house.

I should know. His hand centrifuge was attached to his consulting room mantlepiece which was in our party wall. He did many cyctoscopies in his own house. In my student days in the afternoons the telephone would sometimes ring. I would be told that the front door was open and that I was to walk in as his assistant. This I often did, and saw bleeding papillomata and other bladder lesions beautifully demonstrated. "Andy" was a great little man. He was very conscious of his position : C.B., C.M.G., a full Colonel who had served in France in the 1914–18 War as a consultant surgeon, President of the Royal College of Surgeons in Ireland; but he was just as jealous of the reputation of his medical school which he did much to adorn. I am very proud of having been his dresser, his resident pupil and his houseman.

10. *Cecil Armstrong Calvert*

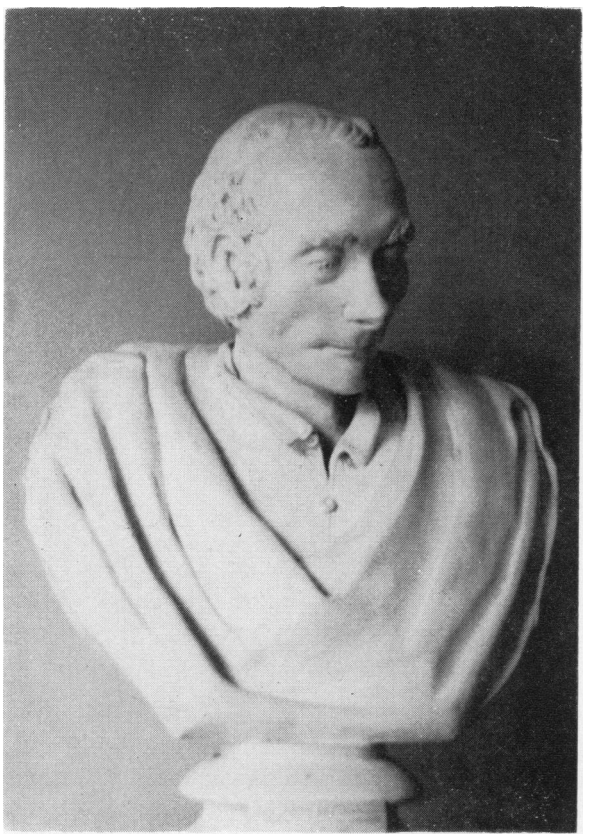
Cecil Armstrong Calvert (Fig. 10) is remembered with affection by all who know him. Gentle in manner as he was in technique, he could have adorned any branch of surgery. It might have been orthopaedics, for he was for many years assistant to S. T. Irwin, but eventually he and G. R. B. Purce set out on their pioneering work in neuro-surgery, and it was to this speciality that he devoted the remainder of his life which ended so tragically in a motor accident. His work at St. Hugh's Military Hospital at Oxford during the 1939–45 War gave him an international reputation. I never remember his study being in darkness at any hour of the night in all the years he was our next door neighbour, for he was widely read and published many articles.

My wife and I lived in No. 8 for the first seven years of our married lives.

No. 9

For No. 9 the great names are not to be medical.

In 1857 there resided here the Rev. James McCosh, M.A., LL.D., D.Litt., Professor of Logic and Metaphysics in Queen's College (Fig. 11). He was born in Ayrshire in 1811, and had been a Presbyterian minister in Arbroath and Brechin before coming to Belfast. At Queen's he showed powers of administrative ability that were to carry him far. He was not only a voluminous writer on his own subjects; he was one of the first to advocate at Queen's extra-mural study for business people and others not in a position to take full advantage of an academic course. He felt that this should not necessarily be vocational, but should be, as Moody and Beckett, in their history of Queen's University, quote him as saying:



11. *Rev. James McCosh*

. . . a judicious mixture of science and literature, (as) it would be a great error to suppose that persons engaged in business would prefer those classes which seem more intimately connected with their professions (to those which) as most congenial to their taste, would relieve their minds in the midst of the pressure of business.

An inspiring teacher, they add, a leader of opinion, an educationalist, above all a fluent and powerful writer, he spent seventeen very fruitful years at Belfast, becoming known to a wider public than probably any of his colleagues. His election to the

presidency and the chair of philosophy at Princeton in 1868 was a measure of his reputation. There had been little scope in Queen's College, Belfast, for the academic statesman in McCosh at Princeton, on the other hand, the opportunity awaited the man. McCosh led Princeton with courage, sagacity and vision through twenty critical years, during which the college was transformed and prepared for the new status of university which it attained in 1896.

He must therefore rank as probably the greatest of the Square's distinguished residents.

It is coincidence that when I went to look for the bust of James McCosh I found it in his own old drawing room in 9, University Square, for it is coincidence that it now houses the University Department of Philosophy, and it is coincidence that 1968 is the centenary year of McCosh's translation to Princeton.

The residents who followed him were Daniel Kirk, and then Francis Davis Ward and William Yeates, both of the firm of Messrs. Marcus Ward and Company. This printing works had in its day an international reputation, for the standard of its work has seldom been rivalled. Next came the Rev. William Magill, D.D. My grandfather was the Rev. George Magill, D.D. These two Presbyterian clergymen were close personal friends, though not related in any way. Both had been in Cork at the same time, and while they were there they were known as the Rev. William and the Rev. George. Samuel James McMullan, M.A., Professor of History and English Literature at Queen's came next, to be followed by John William Russell, Chief Accountant of the Ulster Bank, who in turn was succeeded by my father, David Strain, manager of its Donegall Place branch. It was thus my own home for 34 years, and my mother lived there until her death.

No. 10

The first resident of No. 10 was Arthur C. Weir, Linen Manufacturer of Donegall Place. He was succeeded by William Crossley, also in the linen business; Charles King, Railway Contractor; Robert K. Tomlin; William A. McKay; George and Dora Phillips; Robert Thompson; Hugh Brown, and Andrew Cuming, Wine and Tea Merchant. From 1906 onwards medicine was firmly entrenched: William Joseph Maguire, B.A., M.D., M.R.C.P.I.; Professor C. G. Lowry, who afterwards moved to No. 12; Dr. S. H. Davison who after a short period went to Australia; Dr. Thomas Kennedy, for many years Deputy Coroner for Belfast, and then his son Reginald Graham Kennedy. His son, Graham, represents the third generation of medical Kennedy's who have lived in this house.

More than one person claims to have seen the ghostly figure of a man enter No. 10 through the closed door.

No. 11

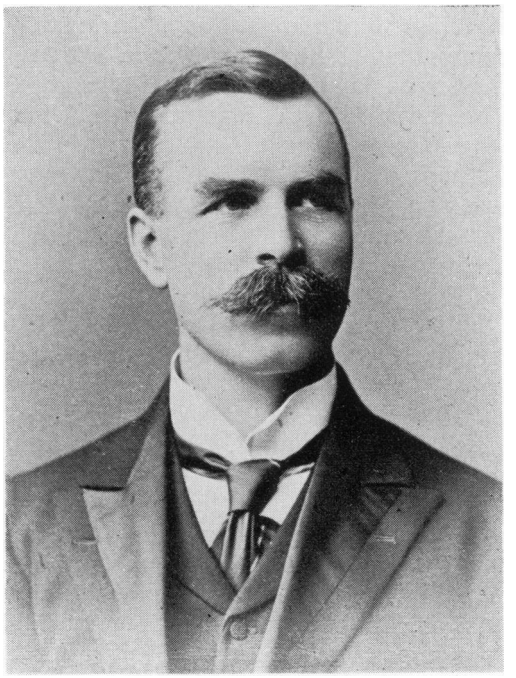
Solid business marks the early days of No. 11. The list starts in 1854 with Thomas Gowland, Colonial Merchant; then William Higgins of Messrs. John Hind and Sons, Flax Spinners; John Thompson, Shirt and Collar Manufacturer; William John Robertson of the Bank Buildings; and Samuel Gaffikin. Medical possession began in 1904 with James Colville before he moved to No. 7, and he was followed in 1908 by James Craig.

James Andrew Craig, M.B., F.R.C.S.Eng., was for many years a leading consultant in ophthalmology and oto-rhino-laryngology, and was Lecturer in the University as well as surgeon to the Royal Victoria Hospital. He had great skill,

charm and kindness, but, at times, a tongue like a keratome. He once asked a rivetter from the shipyard how long his eyesight had been bothering him, and when the victim said that it had been ever since the first day he went into the Queen's Island, James Craig made his classical reply, "Of course, my friend, I remember the morning perfectly." In the days when foreign travel was more difficult than it is now he used to go off every Easter to Madeira with his friends Gardner Robb and William Massey Burnside.

No. 12

From 1854 No. 12 was occupied successively by Mrs. Jamieson, William Dickey Henderson, Insurance Agent and Commission Merchant; John McClinton, George



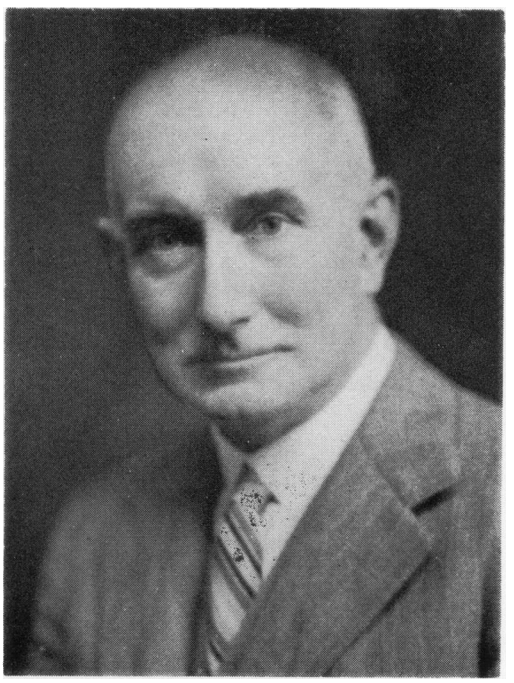
12. *William Baird McQuitty*

Thompson, William Druham McBride, and Mrs. Elizabeth Holland. This lady's grand-daughters, Elizabeth and Susan Holland, now Mrs. W. H. Ekin and Mrs. D. A. D. Montgomery, are both medical graduates of Queen's.

The Faculty is well represented from 1910 onwards. The list starts with William Baird McQuitty, M.A., M.D. (Fig. 12). He was a physician of great repute on the staff of the Royal Victoria Hospital, where his name is commemorated by an exhibition, but he died that same year at the early age of 48. He was followed by Edmund Albert Letts, D.Sc., Professor of Chemistry in Queen's, and an authority on sanitary science. The next resident was James Graham, M.D., J.P., for many years the City Coroner. He was one of several practitioners who had begun their professional lives as dispensers. I remember the night before we sat our finals he said to Aileen Kennedy and me, "Hold up your heads, and don't give a damn for

any of them." The next resident was William A. Clugston, followed in 1922 by C. G. Lowry from No. 10.

Charles Gibson Lowry, M.D., D.Sc., F.R.C.S.Edin., F.R.C.O.G. (Fig. 13), who had started his professional life in general practice, was on the staffs of the Ulster, the Royal Victoria and the Belfast Maternity, afterwards the Royal Maternity, Hospitals. He was Professor, first of Midwifery from 1920, and then of Midwifery and Gynaecology from 1937 to 1945. His forceful teaching, his pawky wit, his inability to suffer fools gladly, and his almost Churchillian appearance and manner will never be forgotten by his students. "Boys," he used to say, "always keep your head well flexed like the foetus in utero, for if you don't, someone will flex it for you."



13. *Charles Gibson Lowry*

The marriage of his daughter, Margaret, to C. H. G. Macafee, who succeeded him in the Chair, prolonged the Lowry interest in University Square.

"C.G." was followed in 1946 by William George Frackelton, a Past President of the Ulster Medical Society.

No. 13

In 1854 No. 13 was the home of James Guthrie, Sub-Treasurer of the Town Council and afterwards Town Clerk. He was followed by Archibald Reynolds, Mrs. Charlotte Shaw, and Mrs. Agnes Monypeny. Then, by one of those strange coincidences, there was another Civic Official, Robert Meyer, afterwards Sir Robert, Town Clerk of Belfast.

In 1913 the house became the home of the Elwood family. Walter H. Elwood was a dentist of the old school, and he had three sons, two dentists and a doctor.

I well recall the daily sight of old Walter Elwood with his sons, Herbert and Walter, setting out for their surgery in Packenham Place, and returning in the evening, always on foot. The old man was a striking figure, slim, elegant and frock-coated, his silver head crowned by a silk hat at all seasons of the year. His son, Herbert, was one of the founders of the Belfast Dental School. Barnes Elwood, M.C., F.R.C.S., practised medicine in the Square. They were all keen yachtsmen, and their boat was one of the largest and most beautifully kept on Belfast Lough.

Numbers 14, 15, 16 and 17 were built in 1852 by William Linden. He was a confectioner, with a shop in Cornmarket, and the business was in existence until

14. *Robert James Johnstone, Kt.*

recently, when the premises were demolished to make room for more modern buildings. Before the days of the Benn Dinners at Clifton House, the Linden family had for many years provided the residents of the Belfast Charitable Society's Institution with a special Christmas dinner.

No. 14

No. 14 began its career in 1854 as Miss Harold's Boarding School, and she was succeeded by I. D. Croome, Headmaster of the School of Design. Then followed Charles Wolfe Shaw, Linen Merchant; Samuel McCausland and his son; George F. Roughan, M.A., Local Government Board Inspector; Hans McMordie, Solicitor; Rev. H. Evans, D.D., Editor of the Irish Christian Advocate; and Mrs. Margaret Andrews. Two distinguished medical men conclude the list.

In 1909 Robert James Johnstone (Fig. 14) moved to University Square from

Great Victoria Street. He had been destined for the Church by his father, and it was only when he had won a medical scholarship at Queen's that his defection was discovered. He was surgeon to the Royal Victoria Hospital and the Maternity Hospital, now the Royal Maternity, where his name is commemorated in Johnstone House. He was offered the Chair of Midwifery and Gynaecology at Queen's, but would accept only Gynaecology, of which he was Professor from 1920 to 1937. He represented the University on the General Medical Council, and was one of its first representatives in the Northern Ireland House of Commons. When the British Medical Association met in Belfast in 1937 he was an obvious choice for the Presidency, for he commanded immense respect and affection. He was a fast but

15. *Samuel Ireland Turkington*

gentle operator, yet he used few instruments. As a visiting American once said to him.. "Say, Doctor, I guess you ain't hard on the ironmongery department". Wise in committee, his deep voice was seldom heard until he had found the essential problem and its solution. B.A., M.B., LL.D., F.R.C.S.Eng., F.R.C.O.G., he was knighted shortly before his death in 1938. It was my special privilege to know R.J. both as a surgeon and as a relation, for his wife and my mother were sisters. Simplicity and kindness marked all he did.

The last medical resident of No. 14 was Samuel Ireland Turkington, M.D. (Fig. 15). A scholarly man of Napoleonic appearance from Mid-Tyrone, his main clinical interest was chest disease. He was a physician on the staff of the Royal Victoria Hospital, where he was a popular teacher of basic medicine. Many of his students will recall his mnemonic of the thirteen P's for the diagnosis of pulmonary tuberculosis even if many have likewise forgotten what they stood for. His opening

address to the Hospital in 1937 on "Students of Medicine" is outstanding among a series of very remarkable opening addresses, and should be read by all who have not already done so. His sister still lives in No. 14. This is the last private residence in the Square..

No. 15

No. 15, the second of the Linden houses, had for its first resident the Rev. Edward Hartrick, Incumbent of Magdalene Church; then Finlay McCance, J.P., Linen Merchant; Henry Hugh Bottomly, Sub-Sheriff; John Greenhill, Town Councillor, Grain and Coal Merchant; Thomas Matthews of Messrs. Miller Boyd and Reid; Rev. James Dawson, D.D., Minister of Berry Street Presbyterian Church; S. G. Ruby, United States Consul; William S. Mollan; J. Black, Linen Merchant; John McC. Loewenthal, Linen Merchant and Brazilian Vice-Consul; William D. O'Brien of the Franklin Laundry, Ormeau Avenue; and Alexander Gardner Robb. One of John Loewenthal's daughters, Amélie, qualified in medicine at Queen's, and married James Dixon Boyd, Professor of Anatomy in the University of Cambridge.

Gardner Robb, M.D., was a physician who specialised in fevers, and had charge of the infectious diseases wards in the Union Infirmary, now the City Hospital, where his name is perpetuated in Gardner Robb House. He was also Superintendent of the Fever Hospital at Purdysburn. In my earlier days I recall him as the proprietor of a series of fox terriers each of whom made any approach to his open motor car a sheer impossibility. Later I was to remember him as great clinical teacher. He was of striking appearance in his later years for he kept his hair so closely cropped as to give the impression that he had none.

No. 16

No. 16 has a shorter history than most of the houses because many of the tenancies were long: John Bates, Town Clerk; Mrs. Savage, widow of Lieut-Colonel Patrick Savage of the 24th Light Dragoons; Hugh Hamilton, Auctioneer; James Gardner, and William Russell, Director of Messrs. Henry of Belfast. I have already mentioned the Russells as childhood friends. William qualified in medicine at Trinity College, Dublin, and is in practice in Northwood, near London. The only medical resident was Doctor Samuel Donnan who arrived in 1938 shortly after qualifying. He died, tragically early, the following year, but his parents continued to live there.

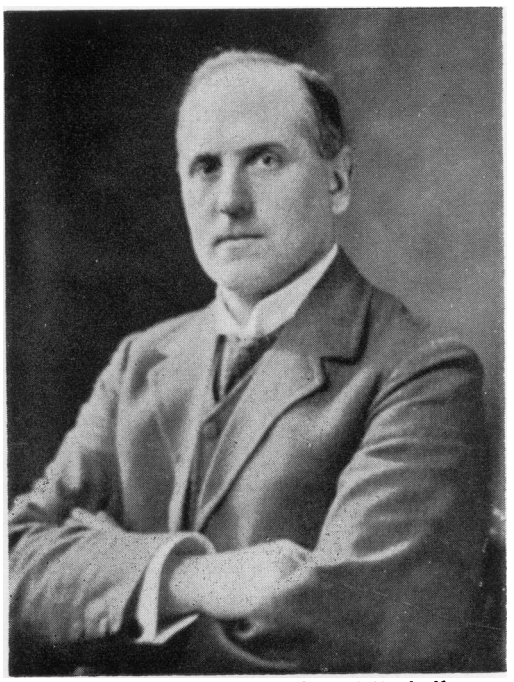
No. 17

No. 17's early residents were John Bates; Samuel Thompson, Merchant, of Corporation Street, and Local Director of the Provincial Bank of Ireland; Adam T. McAuley, General Manager of the Belfast Banking Company; and William McKean of Messrs. William Ewart and Sons.

Medical possession began in 1903 with Henry Lawrence McKisack, M.D. (Fig. 16), Physician to the Royal Victoria Hospital. A brilliant consultant, he is always spoken of in the warmest terms by those who knew him as a great teacher and a great gentleman. He is to be remembered by the Ulster Medical Society as the donor of the 1914–18 War Memorial panel.

Next came Dr. Marian Andrews, Consultant Gynaecologist to the Ulster Hospital, and one of the first women to practise in Belfast. She was followed by

16. *Henry Lawrence McKisack*



17. *Arthur Brownlow Mitchell*

Dr. Patrick Loy who afterwards went to Liverpool, and finally by Samuel Russell Foster, M.C., M.B., who was later joined in practice by his son, Peter.

No. 18

No. 18 was inhabited a searly as 1852. Henry Black, Wholesale Grocer of Waring Street, was followed by Mrs. Murray; Robert Roddy, Linen and Damask Manufacturer of Donegall Street; Rev. Hamilton Moore, B.A., D.D., first Minister of Elmwood Presbyterian Church; Hugh Moore; Waring Manley, Linen Manufacturer; Miss Roberts, and Alexander Gribbon.

Medical occupation began about the usual time, the first decade of the century, for in 1908 the owner was Arthur Brownlow Mitchell, M.Ch., F.R.C.S.I. (Fig. 17). A.B. is remembered by many. He was a great teacher and a sound surgeon, especially in gastro-intestinal conditions, but in his later years he suffered from increasingly crippling deformity of the hands, so that younger men recall him more for the wisdom of his opinion than for his technical dexterity. One of his sons, John Myles Mitchell, qualified in medicine at Queen's, and is in practice in Yeovil, Somerset.

In 1930 the house became the home of the Macafees. Professor Charles Horner Greer Macafee's wife and I share the distinction of being, as far as I know, the only people to have lived in three houses in University Square, though the number of persons who have lived in two is remarkable. The Macafee medical tradition continues with their sons, Jeremy and Allister.

No. 19

No. 19 is one of the double houses, the first from the University Road end, and for many years a conspicuous feature of its front steps was the pair of lions guarding its entrance. Though they have slipped off to the suburban peace of Ballyhackamore, they have, indeed, achieved literary fame, for Forrest Reid refers to them in his "Apostate" when describing his childhood with his nurse, Emma.

> So, he wrote, we sallied out with our little parcel of provisions (for) the battered stone lions in University Square, creatures I fed daily on my morning walks.

In 1852 the house saw a joint tenancy by John Wylie, Wholesale Grocer in Victoria Street, and Alexander Dickey, both Bursars at Queen's. They were followed by Charles Finlay of Messrs. Finlay Brothers and Company, and then the Rev. Samuel Edward Busby, so that for a time the house was the St. Andrew's pasonage.

By 1915 the owner was Sydney Herbert George Blakeley, M.D., who practised there until he moved to Bedford in 1927. He was succeeded by William George Frackelton, who had been for a time in the practice with him, and who afterwards moved to No. 12. The last resident was Reginald Hall.

No. 20

A palm tree characterises No. 20, another double house. The first resident was the Rev. William Dool Killen, D.D., LL.D., Professor of Ecclesiastical History in the Assembly's College.

He was succeeded by James Thomson, D.Sc., LL.D., F.R.S., whose father had been the professor of Mathematics in the Academical Institution. He himself was Professor of Civil Engineering in Queen's College from 1857 to 1873, and he afterwards held a similar chair in Glasgow. He was a man of great distinction, whose reputation as an engineer stands as high in professional circles today as that of his more widely known brother, Lord Kelvin.

Then followed John Alexander Arnold, Merchant Clothier; Mrs. Workman, and J. J. Phillips, the architect and antiquarian. I personally remember him for his remarkable rhinophyma. In 1900 the house came into the possession of Dr. Brice

18. *Thomas Sinclair Kirk*

Smyth and afterwards of his son, Dr. Malcolm Brice Smyth, Physician to the Belfast Children's Hospital in Queen Street, now the Royal Belfast Hospital for Sick Children.

No. 21

No. 21 is a single house between double ones, yet the alignment of the whole is not seriously interrupted. The first resident was Mrs. Killen, and she was followed by George Bartlet Coulter, in spite of the temporary tenancy of Hector Freeman Gullan, M.Inst.C.E., City Engineer.

1905 saw the beginning of one of the longest onwerships of the whole Square, when the house became the home of Thomas Sinclair Kirk, B.A., M.B. (Fig. 18). His plate said simply "Surgeon Kirk", and he was the last person in Belfast to use this professional prefix. Many will remember his deep quiet voice, his brown eyes and his gentle manner. He was both a great gentleman and a definite character,

perhaps the greatest medical character the Square has produced. He had some ideas that he pushed perhaps further than others would have done. Many will recall with horror the period when all who came near his ward kitchen in the "Royal" were fed on sandwiches of dried serum from old cows, and the emphasis was on the old, to increase the antibodies. Those who saw it will not soon forget the wonderful effect of filling a dirty wound with urea crystals and leaving it overnight under oiled silk, but he would pour a whole jam pot full of urea into the open abdomen, and he would blow up the subcutaneous abdominal wall with oxygen to combat acidosis. Certainly his artificial limbs would have become world famous in his lifetime if he had had the light alloys at his disposal that we know

19. *Thomas Sinclair*

of today. But if some of his views were unusual, he was a true pioneer, and was held in deep affection. He drove a very ancient two-seater car, so old that my own recollection of it is that it resembled more than anything else a mechanised sedan chair. One day when I was a student I was in the kitchen of Wards 9 and 10 in the "Royal" when Ian Fraser came in to ask him about something, and by way of winding up the conversation, and of offering him a lift home if necessary, asked him if he had his car with him. "Why?" said Pa. "Do you want a tow?" His son, Christopher, qualified in medicine at Queen's, and his daughter, Denzil, married Thomas Walmsley, Professor of Anatomy in the University.

No. 22

No. 22 reverts to the double type of house common in this part of the Square. Occupancy started in 1852 with the Rev. Murphy. This was interrupted for a few

years by William Girdwood, Solicitor, but then he was in residence again. The Rev. James Greer Murphy, D.D., D.Litt., LL.D., was a graduate of Trinity College, Dublin, was Headmaster of the Classical School at the Royal Belfast Academical Institution, and then Professor of Hebrew at the Assembly's College. He was succeeded by John McConnell Higginson, J.P., Registrar of the Diocese of Down and Connor and Dromore, who afterwards inherited his father's home, Carnalea House. There followed Henry Seeds, Solicitor; David Brown, Merchant, afterwards of Bloomfield House, and Adam Duffin, LL.D., Stockbroker.

From 1902 Medicine was represented by a single distinguished proprietor, Thomas Sinclair, M.D., M.Ch., F.R.C.S.Eng. (Fig. 19), was the son of Samuel Sinclair, Yarn Merchant, and was Professor of Surgery at Queen's from 1886 to 1923. Like Andrew Fullerton, his successor in the Chair, he served in France in the 1914–18 War as a Surgical Consultant with the rank of Colonel, and was awarded the C.B. For many years he represented the University on the General Medical Council and in the House of Commons at Westminster, as well as in the Northern Ireland Senate. He was small in stature, quiet in manner and always beautifully dressed. He was one of the last men I can recall who often wore a white slip inside his waistcoat. I was present in the theatre at what must have been his last operation, when he assisted Professor Fullerton to remove a thyro-glossal cyst from the neck of his own chauffeur, surely a largely University Square event.

No. 23

No. 23 is distinguished by being the only house in the Square to have a bay window that rises to two stories, and rumour has it that this was done to annoy the neighbours in No. 24. The house was built in 1852 by the Rev. John Edgar, D.D., who was its first resident. His wife was one of the Grimshaw family who were among the founders of the Belfast cotton industry. In 1868 Thomas H. King, the United States Consul, lived there. In 1877 the occupant was Mrs. Sydney Elizabeth Sinclair, widow of Thomas Sinclair of Hopefield, and she was followed by F. Howard Sinclair. Then came the Rt. Hon. William Henry Holmes Lyons, J.P., D.L., P.C., the first of the Square's Old Harrovians, and later William Russell, whose son William lived afterwards in No. 16.

In 1899 the owner was a dentist, John James Andrews, L.D.S.R.C.S. One of his daughters was the wife of Sydney Blakeley of No. 19, and another was married to R. J. McConnell. As a small boy I remember the elegant Mrs. Andrews wearing a long train on her gown on which sat one or more Pekinese dogs, too lazy to walk.

Medicine came into occupation in 1928 with the arrival of John Andrew Smyth, whose son, Gordon Dill Long Smyth, has followed in the professional tradition.

No. 24

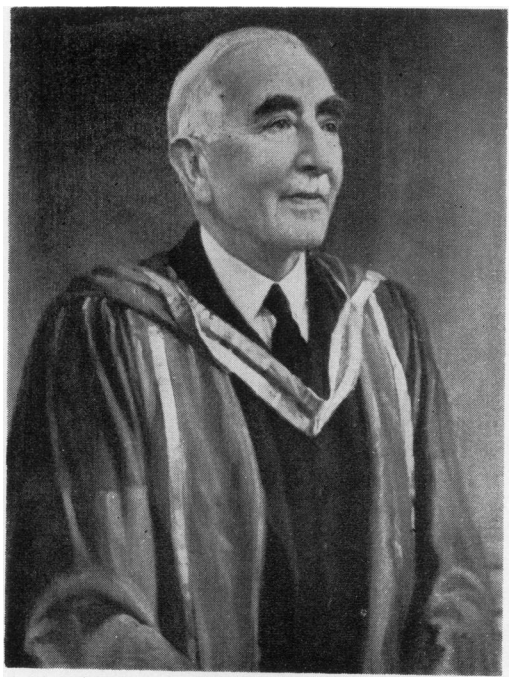
No. 24 has a short history. In 1852 George Cliborn Pim of Messrs. E. and W. Pim, High Street and Donegall Street, lived here and was followed by Thomas Hughes.

In 1884 the house was purchased by James Taylor Blackwood, a Director of the Ulster Bank, and the father of Reginald Walter Henry Blackwood, the compiler of the University Square notebook. Reggie often told me of the Square's second ghost. This was his old Aunt Kayley, then long departed. He claimed he had often seen her walking up and down the footpath, or going into No. 24, while at other

times he had seen her sitting in an armchair in the drawing room of his sister's house, the most northerly of the three little houses to the north of the new Students' Union.

No. 25

No. 25 was built and resided in by the Rev. George Bellis, D.D., Secretary of the Board of Missions of the Presbyterian Church and a Moderator of the General Assembly. His wife was the daughter of Samuel Arnott, Surgeon, of Belfast. Charles Dickens dined in this house as the guest of the Bellis family, and the teapot used on the occasion is still in the possession of their descendants. He was succeeded by his son, James Huet Bellis, and then by his nieces, the Misses Maude and Mary Martin. In 1912 the house was the Ulster School of Cookery and Domestic Training under Margaretta C. Angwin, and this was followed by the tenancy of John S. Larmour, Linen Merchant.



20. *William Willis Dalziel Thompson, Kt.*

1915 marked the arrival of William Willis Dalziel Thomson (Fig. 20). "W.D." is, of course, still clear in the memories of most of us. He was a commanding figure, tall, slim, silver haired, with twinkling eyes below great black eyebrows, and with a voice that never lost the wood notes of his native Annahilt. Attired, often on quite ordinary occasions, in formal morning clothes, he looked, as indeed he was, the fashionable consultant, a position well founded on clinical acumen and deep scholarship. B.A., B.Sc., M.D., F.R.C.P.Lond., he occupied the Chair of Medicine at Queen's from 1923 until his death in 1950, and was a Physician to the Royal Victoria Hospital. He was a Deputy Lieutenant for the City of Belfast, and was

knighted for his services to Medicine. His only son, Humphrey Barron Thomson, who qualified in medicine at Queen's, was killed in the Far East on active service with the Royal Army Medical Corps. Lady Thomson still retains a flat in this house.

No. 26

No. 26 was occupied as early as 1851 by the Rev. G. T. Payne, but the following year it became the home of Mrs. Anne de la Cherois Purdon, widow of Henry Purdon, M.D. of Sans Souci, Co. Antrim, formerly of Co. Westmeath, and third daughter of Samuel de la Cherois Crommelin of Carrowdore Castle. Then followed John McDonnell, Wholesale Grocer of Skipper Street; John Praeger, Merchant; Joseph Hall Boyd; Patrick Ewing of Messrs. Thornton Ewing and Company, and later of Glendhu, Strandtown, and then Mrs. Boyd.

In 1868 it was the home of the Rev. Josias Leslie Porter, D.D., LL.D. He was married to a daughter of the Rev. Henry Cooke, D.D., better remembered as "The Black Man", and, like his father-in-law, he lived at a time of bitter religious controversy, a fact not without bearing on his own public life. He had been for ten years a Presbyterian Missionary in Damascus, and was to become Professor of Biblical Criticism in the Assembly's College and Secretary of the Faculty, Presbyterian Dean of Residences in Queen's College, Moderator of the General Assembly of the Presbytrian Church, Assistant Commissioner of the Education Board, and, finally, President of Queen's College from 1879 to 1889.

There followed James M. Thompson, Commercial Agent of Donegall Place; J. F. Harbinson, Watchmaker and Jeweller of 1, Royal Avenue; Mrs. Thompson; Henry S. Parker, LL.D., Headmaster of the Methodist College, and Miss Storey. In 1900 No. 26 was the Ulster Academy of Music under the direction of F. Koeller, D.Mus. Oxon., who was also the Conductor of the Belfast Philharmonic Society. The premises were next, for a time, the Headquarters of the Queen's University Contingent of the Officers Training Corps, and later the house was purchased by David Kilpatrick, who subsequently moved to Knock.

Medical occupation was delayed as late as 1929, when the resident was Thomas William Gerald Hogg, an Ophthalmic Surgeon, who moved on taking up a full-time appointment.

He was succeeded in 1937 by James Stevenson Loughridge, whose son, William Gordon Gault Loughridge, who was born in the Square, follows in the medical tradition.

No. 27

No. 27 is another of the houses with a short history. Mrs. Mary Anne Knox lived there in 1852. She was the widow of the Rev. Edmund Francis Knox, B.A., Perpetual Curate of Ballymascanlon, Co. Louth. There followed the Rev. Deane Knox Mitchell, Minister of Crumlin Road Presbyterian Church; William Harvey of Messrs. McLaughlin and Harvey; Elizabeth Morgan; Mrs. Emily Elizabeth Coates from No. 30; and in 1923 it became the Headquarters of the Higher Education Division of the Northern Ireland Ministry of Education.

By 1932 it was the home of Richard Sydney Allison.

No. 28

No. 28 was first occupied in 1854 by Thomas Price, Gentleman : a rare description among the Square's inhabitants! There followed the Rev. Edward Hartrick; Alexander Gill of Messrs. Gill and McTear; William J. Jenkins, Muslin Manufacturer of Adelaide Place; Rev. William Shaw Darley, and the Rev. John Boyce McCartney.

In 1919 it became the home of John Lawrence Rentoul, M.B. Lawrie Rentoul was a pioneer of clinical bacteriology, and had his own laboratory in University Square. He was one of the survivors of the sinking of the "Britannic" in the 1914–18 War.

21. *Robert John McConnell*

He was followed in 1927 by Robert John McConnell, M.B., M.Ch. (Fig. 21). He is recalled in great affection by many. A small, sandy coloured man of somewhat rugged appearance, Bobbie John was a great practical surgeon who served the Royal Victoria Hospital with distinction for many years, having been in the R.A.M.C. in the 1914–18 War. One morning, arriving at the "Royal", and asking for his ward sister, a probationer nurse gave him a chair in the corridor, where he was duly discovered.

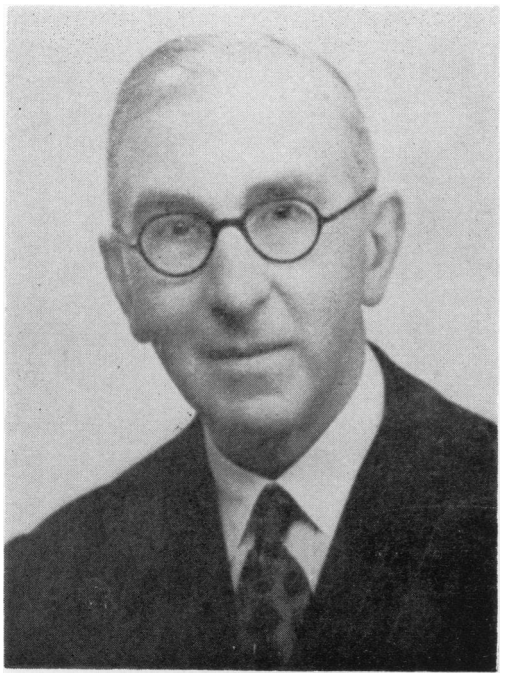
No. 29

From 1854 No. 29 showed an unusually wide diversity of residents : James Siebert, Linen Merchant; William Boyd of the Vitriol Works; Dr. Pilleau, Surgeon Major; Benjamin Graham Sadler of the Linen Hall; George Scott, Fountain Street; George Smyth of Messrs. Lindsay Brothers; Adam Duffin, whose wife was the

daughter of John Swanwick Drennan, M.D., of Dublin, and who afterwards moved to No. 22 and then to Dunowen; Thomas Crowe, Professor of Music; and Richard Rodgers, Linen Merchant.

Medicine moved in in 1909 with Cecil Edward Shaw, M.A., M.D., on whose early death in 1914 the house was purchased by S. T. Irwin.

Samuel Thompson, Irwin, M.Ch., F.R.C.S.Edin. (Fig. 22) was one of the Square's great medical figures. He was on the staffs of the Royal Victoria and the Ulster Hospitals, and, though he was a pioneer in orthopaedics, was a surgeon of wide skill in every field, and the personification of sound common sense. He



22. *Samuel Thompson Irwin, Kt.*

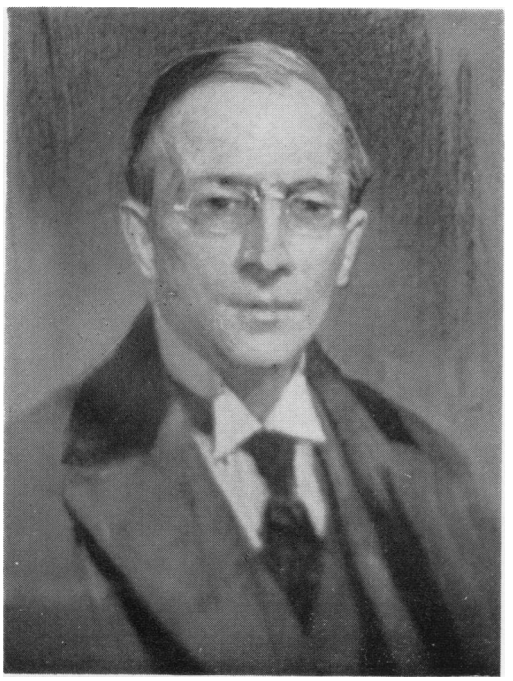
played Rugby for Ireland, represented the University at Stormont, and was awarded the C.B.E. and a Knighthood for his services to Medicine. His eldest son, John Walker Sinclair Irwin, followed him to the international Rugby field and to his two hospitals, and his other sons, Samuel Thompson Irwin and Charles Gibson Irwin are also doctors. All three were born in the Square. C. G. Irwin's Christian names are a reminder that in the middle of the night on which he was born, C. G. Lowry slipped down University Square Mews in his dressing gown to attend the confinement.

No. 30

The last house is No. 30. Charles Finlay of Messrs. McClure and Company of Corporation Street, resided there in 1854, and there followed : Mrs. Susan Black; Thomas B. Topping, Pork Merchant and Lard Refiner; and William Trelford Coates, Assessor to the Belfast Corporation, Plumber and Gasfitter.

In 1913 the resident was Lieutenant Colonel Hugh Blair Cunningham, M.D., F.R.C.S.I., Ophthalmic Surgeon to the Ulster Hospital, and the first Commanding Officer of the Queen's University O.T.C.

From 1919 No. 30 was the home of Henry Hanna, M.A., B.Sc., M.B. (Fig. 23), Consultant in Diseases of the Eye, Ear, Nose and Throat to the Royal Victoria and the Belfast City Hospitals. He bore the nickname of "Snooty", for he neither minced words, nor in the voluntary days, could he stand the sight in hospital of a patient who might have gone to his own house privately. Shrewd, with a dry wit, he was a sound clinician of a generation that has passed, and many of his *obiter dicta* are recalled with glee by his former students.



23. *Henry Hanna*

So I come to the end of my sentimental journey, and pass out of University Square into Botanic Avenue with its pillar box, as so many of us have done so often before. This can be a chilly experience, for to leave either end often means an encounter with a blast of cold wind, because the Square is very sheltered and really has a climate of its own. This is proved each year by its show of unusually early snowdrops and crocuses, and, later, its magnificent magnolias. It is still a street of great architectural character, but it is not, as many of us can recall it, a residential place in spite of its professional preoccupations; where fathers could, and often did, prune the roses, where mothers sometimes sat in the front gardens or at open drawing room windows, and where small boys tore their clothes on the tall spikes of the University railings. I cannot but regret its change from that state.

24. *In the University precincts*

What will become of this street, unique in Belfast? At least it is not to end its days as salerooms for motor cycles or second-hand cars, or crumble into decay at the hands of small shopkeepers. After all, it is not as old as the main block of the University, and is of the same mellow liver-coloured brick. Indeed, to new generations of students in many Faculties it is not just a precinct (Fig. 24), but has become established in tradition and affection as part of the University itself. Long may it be allowed to contribute its grace and charm to the civic scene!

This account is already over-long for its present purpose, yet a volume could be filled with the record of those who lived here, who contributed so much to the commercial and administrative prosperity of Belfast, to the academic life of the

College and University, and to Medicine. Nor have I referred to the years of the 1930–45 War, when, for example, such things as a Postal Censorship Office, an A.T.S. Sick Quarters and a Military Psychiatric Out-Patient Department found themselves housed in premises whose professional occupants were in the Forces. I wonder, indeed, how many people I have mentioned. My own recollections cover almost half the period. The list includes many friends, among whom are some of my old teachers and my present colleagues.

Which of us did Reggie Blackwood describe as "a bad plant"?

25. *University Square – the end*

Appendix

With the exception of my own personal reminiscences I have avoided all but the most nominal references to the surviving doctors and dentists who were the last residents in University Square. Some day these names may be harder to collect than at present:

No.

2. James Kinloch McCollum, M.D., F.R.C.P.I., D.R.C.O.G., D.P.H.
3. Thomas Howard Crozier, M.D., B.Sc., F.R.C.P.Lond.
7. Stanley Martin McCullough, L.D.S.
8. Robert William Magill Strain, B.Sc., M.D., Ph.D., F.R.C.P.I.
10. Reginald Graham Kennedy, M.D.
12. William George Frackelton, M.D.
17. Samuel Russell Foster, M.C., M.B.
18. Charles Horner Greer Macafee, C.B.E., M.B., D.Sc., F.R.C.S.I., F.R.C.S.Eng., F.R.C.O.G.
19. Reginald Hall, B.L., M.D., F.R.C.P.I.
23. John Andrew Smyth, B.Sc., M.D.*
    Gordon Dill Long Smyth, M.D., F.R.C.S.Eng., D.L.O.*
26. James Stevenson Loughridge, M.D., B.Sc., F.R.C.S.Eng.*
27. Richard Sydney Allison, V.R.D., M.D., F.R.C.P.Lond.

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*Still have consulting rooms in University Square.

BREAST CANCER ASSOCIATED WITH PREGNANCY

By GERARD A. LYNCH, M.B., F.F.R., F.F.R.(I.), D.M.R.T.
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THE ASSOCIATION of breast cancer with pregnancy is an infrequent one, and whilst many reports in the past suggested that such an association led to an almost hopeless situation, more recent re-appraisal indicates that where clinical findings are identical the prognosis may be no different from that of a similar group of non-pregnant breast cancer patients. It is suggested, indeed, that in some circumstances pregnancy can have a favourable influence on the prognosis and it is emphasised that radical or curative treatment should be attempted whenever possible. Where pregnancy complicates breast cancer, however, it must be accepted that there are many additional problems facing the surgeon, gynaecologist, radiotherapist and family doctor. Should the pregnancy be terminated? Should the young woman treated for breast cancer be advised against subsequent pregnancies? Obviously, many factors other than purely clinical considerations must be taken into account and these, together with the infrequency of the condition and the degree of individualisation, necessarily plays havoc with any attempt to determine a treatment policy. As further reports appear in the literature, however, it becomes possible to indicate more positively what treatment measures and factors may influence the prognosis and this present article reviews our experience in the Northern Ireland Radiotherapy Centre over an eleven year period. The cases are discussed and compared with similar groups already reported.

INCIDENCE

The figure most often quoted is that of T. T. White (1958) who, reviewing the world literature, states that three cases of carcinoma of the breast occur per every ten thousand pregnancies. In Northern Ireland over eleven years 45 cases of breast cancer occurring in pregnancy and lactation were registered at the Radiotherapy Centre whilst there were 337,000 births in the country in the same period.

TABLE I
Breast Cancer Associated with Pregnancy in Northern Ireland

Population	1.4 millions
Births	337,342
Breast Cancer in Pregnancy and Lactation registered at Centre	45 cases
Breast Cancer Cases Registered	3,031
Breast Cancer Associated with Pregnancy	59 cases
Pregnancy Complicating Breast Cancer (%)	1.9%

This table indicates that one case of carcinoma of the breast occurs for every 7,500 births, a figure considerably lower than that of White but rather similar to that of Finn (1952) who found 10 patients with breast cancer in 65,561 pregnancies.

The high figure of White may be accounted for by the fact that he quotes reports from several specialised units or hospitals where some degree of selection must have been inevitable. The figures from Northern Ireland on the other hand include all births in the country over that period, both hospital and domiciliary. In addition, the radiotherapy service covers the whole country and approximately 90 per cent of all new breast cancers occurring are registered at the Radiotherapy Centre. For geographical and other reasons there is very little population movement or loss of clinical material.

The table also indicates that in the eleven year period just over 3,000 new breast cancer cases were registered at the Radiotherapy Centre. In that time 59 patients were seen in which pregnancy complicated the condition, i.e., 45 cases where breast cancer appeared in pregnancy or lactation and 14 cases where pregnancy followed previously treated breast cancer. The figure of 1.9 per cent is almost identical to the 2 per cent figure quoted by White (1958) from several New York and Seattle hospitals but lower than the 2.9 per cent given earlier by the same author in a collected series of 43,931 cases (1955). These figures refer to breast cancer patients of all ages but when the child bearing age is considered, then pregnancy complicating breast cancer is not an uncommon occurrence. Most of the patients with this combination must be found in the 30 to 40 age group and this was the case in this present series (Tables 2 and 3).

TABLE II
Breast Cancer in Pregnancy and Lactation

Age	20–29	30–39	40–49
Number	3	26	16

Average Age = 37.0 years

TABLE III
Breast Cancer Treated Prior to Pregnancy

Age	20–29	30–39	40–49
Number	3	8	3

Average Age = 36.1 years

It was found that when we considered only breast cancer patients under the age of 40, 19 per cent of the patients, or almost one in every five, had concurrent pregnancy or became pregnant after treatment for breast cancer. This is a figure very similar to that of Treves & Holleb (1958) who reviewed 549 patients, 35 years of age or younger, finding that 14 per cent had concurrent pregnancy and 5.5 per cent became pregnant after treatment for their breast cancer.

Our youngest patient was a woman of 25 and the oldest, a woman of 45 years of age.

Obstetric History

The previous obstetric history of both groups of patients is illustrated in Table IV.

Table IV
Breast Cancer and Pregnancy. Obstetric History

Previous Obstetric History	*Cancer in Pregnancy and Lactation* 45 *Patients*	*Pregnancy following Treated Breast Cancer* 14 *Patients*
Nulliparous	5	4
Para 1	9	4
Para 2	7	–
Para 3	11	2
Para 4	6	1
Para 5	3	2
Para 6+	4	1

This indicates that 14 patients out of 45 where breast cancer appeared during pregnancy or lactation, and 8 patients out of 14 where pregnancy followed previously treated breast cancer, were nulliparous or had one child. This quite clearly is a factor one would have to take into consideration on the question of therapeutic abortion or the advisability of future pregnancies.

Of the 59 cases registered at the Centre, 45 were patients where the breast cancer was seen either with pregnancy or lactation and 14 were patients where pregnancy occurred following previous breast cancer treatment. In 37 of these patients it was possible to produce a five year survival comparison and this is illustrated in Table V.

Table V

Category	*Number of Cases*	*5 Year Survival*	*Per cent Survivors*
(1) Onset before or during pregnancy	21	7	33
(2) Onset during lactation	6	3	50
(3) Pregnancy following treated breast cancer	10	4	40
(1) and (2) combined	27	10	37

Prognosis

As in most other series the cases have been divided into three categories; (1) where the carcinoma developed before or during pregnancy; (2) where the carcinoma was observed during the period of lactation and (3) where pregnancy followed previously treated breast cancer. From the point of view of 5 year survival it is probably reasonable to combine the first two categories assuming that many

carcinomas found in lactation were present and developed during pregnancy. As in practically all other series the numbers, of course, are small but the 5 year survival, 37 per cent for categories (1) and (2) combined is almost identical to that of Peters (1962) who reported 32.9 per cent in 70 cases. Figures from other series on 5 year survival include White (1955) 16.3 per cent, and Byrd et al (1962), 55.2 per cent. In many reports, however, it is difficult to determine overall 5 year survival rates because of the many qualifications such as operability, presence or absence of metastases, etc. The figures are certainly not very dissimilar to non-pregnant breast cancer patients when comparable age groups and stages are matched.

Practically all previous reports have indicated that the prognosis is influenced to a very great degree by the stage of pregnancy in which treatment was initiated. Our experience is illustrated in Table VI.

TABLE VI
Stage of Pregnancy in which Breast Cancer was Treated

Stage of Pregnancy	*Number of Cases*	*5 Year Survival*	*Per cent Survival*
Treated in 1st Trimester	5	4	80
Treated in 2nd Trimester	3	1	33
Treated in 3rd Trimester	3	–	–
Treated after Pregnancy	8	2	25
Untreated	2	–	–
TOTAL	21	7	33

This certainly suggests a higher survival rate in the first trimester and is very much in keeping with the experience of others. White (1958) found 16.3 per cent survivals in the first trimester, 8 per cent in the second and 9.7 per cent in the third. Peters (1962) reported 25 per cent for the first trimester, none for the second and 11 per cent for the third with a figure of 50 per cent for those treated after the termination of pregnancy.

Prognosis, too, could obviously be expected to bear a relationship to clinical staging and Table VII clearly confirms that the earlier the condition is detected the better the prognosis.

TABLE VII
Survival in Relation to Clinical Stage
(Pregnancy and Lactation)

	Number	*5 Year Survivors*
Stage 1	8	5 (62.5%)
Stage 2	13	5 (38.5%)
Stage 3	3	0
Stage 4	3	0

There were no survivors in the six cases found in Stage 3 and Stage 4 whilst in the remaining 21 patients allocated to Stage 1 and Stage 2 there were 10 five year survivors, i.e., 47.5 per cent. The importance of determining involvement of homo-lateral axillary nodes will be referred to later.

Pathology

The pathology reports were not particularly helpful in this series, possibly because of the fact that almost half of the patients were treated by simple mastectomy, but it is interesting to note that there were 6 five year survivors out of 14 where the tumour was described as 'anaplastic carcinoma', i.e., 43 per cent.

Management

The actual treatment methods or techniques carried out in this particular series are illustrated in Table VIII. The table, if nothing else, demonstrates the involved tortured thinking brought to bear on what can often be a very difficult problem. Three patients were treated either by radiotherapy or some palliative procedure whilst in the remaining 18, treatment was by mastectomy, either simple or radical, in association with post-operative x-ray therapy, therapeutic abortion and/or castration. Most other reports indicate that the prognosis is influenced to a very great degree by the involvement of the homo-lateral axillary nodes, but in this particular series 9 patients were treated by simple mastectomy and consequently no information was available on this point. In the 9 patients treated by radical mastectomy positive glands were reported in five and of these one survived five years. In the other 4 patients with negative glands there were two five year survivors.

Table VIII

Management of Carcinoma of the Breast Associated with Pregnancy

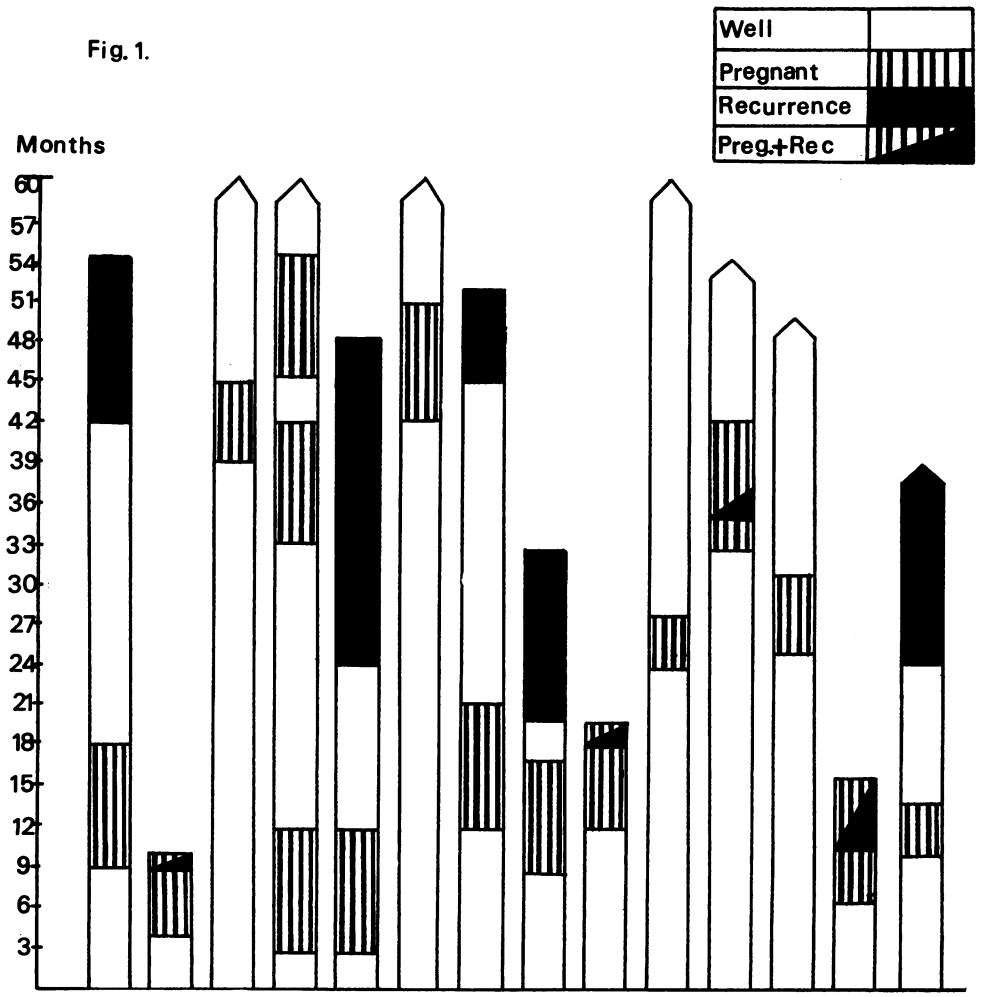
	Number	*Survival*
Radical Mastectomy	2	–
Radical Mastectomy+X.R.T.	4	1
Radical Mastectomy+X.R.T.+X.R.M.	1	1
Radical Mastectomy+X.R.T.+Th. Abortion	1	1
Radical Mastectomy+X.R.T.+Th. Abortion+Oophorectomy	1	–
Simple Mastectomy+X.R.T.	7	3
Simple Mastectomy+X.R.T.+Oophorectomy	1	–
Simple Mastectomy+X.R.T.+X.R.M.	1	1
X-ray Therapy	1	–
Pallaative Therapy	2	–
Total	21	7

X.R.T.=X-ray Therapy X.R.M.=Radiation Menopause

Pregnancy Following Treated Breast Cancer

In this particular group there were 14 patients in which pregnancy occurred following initial control of breast cancer. 10 patients were available for 5 year survival comparison and the position is illustrated in Figure 1.

Fig. 1.



This shows 4 five year survivors, i.e., 40 per cent. Peters reports 32 per cent survivors out of 38, i.e., 72 per cent in a similar group, whilst White in a collected series reports 59 per cent five year survival. The literature certainly suggests that the prognosis in this particular group is good, but it must be kept in mind that this is a very select group in that the very nature of the disease itself eliminates, at an early stage, those patients with an aggressive form of cancer.

Comment

As more reports appear on the association of breast cancer and pregnancy the previously held pessimistic views are being replaced, to some extent, by a more optimistic approach to the problem. This present review would suggest or confirm that a more hopeful outlook is not entirely unjustified, but, even accepting this, it

has to be admitted that the combination often presents difficult, involved and, at times, almost insoluble problems. The treatment of breast cancer, even in ideal circumstances, can often be a depressing subject but, how much more so is it, when the patient is in her early thirties, when she may have small children and when two lives, not one, are perhaps dependent on the advice given or the decisions taken. Anyone who has had to deal with these cases, will readily appreciate the many considerable pressures that come into play so that rational thought and considered approach to the problem are often very difficult.

How then should such patients be handled? Review of the present group of patients and the literature would suggest that there is a great deal to be gained and very little to be lost by not treating the situation as an emergency, necessiating rapid and, perhaps, hasty decisions. A little delay, more observation of both patient and tumour, an attempt at objective assessment, and full discussion with all others possibly involved in treatment and management must be recommended even in the most difficult and poignant presentation. Practically all authors emphasise, too, that in the first instance, the pregnancy should be ignored altogether and the patient assessed for treatment in the same manner as an uncomplicated breast cancer patient. If the criteria are such as to indicate a radical or potentially curable approach then the problem should be dealt with on this basis.

Earlier in referring to Table VI attention was drawn to the fact that, in this series, and in reports from other centres notably those of Peters and White, the results achieved in the treatment of patients in the latter half of pregnancy were much worse than in those patients treated in the first few months. Recognising this, Peters suggests that, whenever possible, radical treatment for cancer detected in the second half of pregnancy should be delayed until the post-partum period at which time there appears to be a much higher survival rate. Obviously, when the initial diagnosis is made in the last few weeks of pregnancy there would be clear advantages in a minimum period of delay until either Caesarean section or induction were considered appropriate for safe delivery, but on the other hand, when diagnosed at an earlier stage it must be difficult not to recommend radical or definitive treatment. It is certainly very hard to understand why results achieved in those cases treated in the latter half of pregnancy should be so poor and also why delay in the treatment of such patients until the post-partum period should, or could, result in any appreciable improvement in results. It may possibly be that in the late stages of pregnancy, surgery on a distended vascular breast is a traumatic insult of such magnitude as to overwhelm the immune and other body defences, and certainly the evidence is such, and the results so poor, as to suggest that serious consideration be given to the policy advocated by Peters.

In this present series it can be seen that almost half the patients treated were submitted to simple mastectomy followed by radical x-ray therapy. This on reflection, was probably not the best approach in many cases, for there are at least two big advantages in radical mastectomy over simpler surgical procedures.

1. Following radical mastectomy there should, in most cases, be no question of radiation therapy, whereas, with simple mastectomy, radiation is considered to play a major role in treatment. Although the x-rays are directed to the upper chest and shoulder, scatter is inevitable and in the Adrian Committee Report of 1960 we note that the gonadal dose received in the treatment of breast cancer has been

estimated at 7.79r. It is not unreasonable to suggest that the foetus, in the early stages of pregnancy and when most vulnerable must be exposed to a similar dose, and this, in most circumstances, must be regarded as unacceptable.

2. In the radical mastectomy specimen an opportunity is afforded to determine the involvement or otherwise of the homolateral axillary nodes. White (1955), Miller (1962), Byrd et al (1962), Holleb and Farrow (1962) and Austin (1960) all refer to this as a most important factor in determining prognosis. This, of course, is true for non-pregnant breast cancer patients, but many reports on this particular association indicate that the prognosis for those patients without metastases is five to ten times better than those with metastases. Possession of such knowledge could, then, be regarded as vitally important when further management is discussed not alone with ones colleagues, but with the patient, the patient's husband or relatives.

The question of the termination of pregnancy inevitably arises in any discussion on the management of these cases and indeed there has been considerable controversy on the benefits of abortion. Many specialists have felt that immdiate termination of pregnancy would improve the survival rate but there is little or no statistical evidence to confirm these views. The information available at present, indeed, would appear to suggest that no clear benefit can be demonstrated from abortion, and this is the view held by White (1955) in reviewing 1,375 cases from 144 published articles. A similar conclusion was reached by Peters (1962) in reporting 70 cases treated at the Ontario Cancer Institute, and a study of recent literature would only appear to confirm this opinion. One accepts that there are many factors to be taken into account in reaching a decision on this particular aspect of management, but equally, in view of the present available evidence, one would hesitate to recommend termination of pregnancy as a routine procedure in the operable breast cancer patient.

Apart from the advisability of therapeutic abortion, radiation or surgical castration will almost certainly come into consideration in the treatment of these patients. In assessing the possible benefits of such a procedure, it must be remembered that oophorectomy, as far as we know, cannot be regarded as a curative measure in the treatment of breast cancer. Review of the literature, too, would suggest that there is no proof indicating that oophorectomy influences the survival rate in breast cancer developing in pregnancy, and clearly there can be little or no indication for recommending castration as a routine measure in early potentially curable cases. Peters, indeed, suggests that in this particular instance the more favourable cases in the younger age group would be deprived of the possible benefits of future pregnancies by such a procedure.

So far reference has only been made to those patients with an early curable breast cancer discovered in pregnancy. If, on the other hand, the patient presents with advanced local disease and/or metastases, then the real problems or difficulties arise If this, indeed, is the position, there can be no one treatment policy to recommend or follow but all the measures mentioned – surgery, radiation, therapeutic abortion, hormone therapy, castration, pituitary ablation, and chemotherapy may be tried singly or in combination. Invariably, the response to treatment recommended is minimal and, in the circumstances, the policy must be one of individualisation with many factors other than clinical ones, playing a more important role in determining or influencing the advice given and the measures

taken. Here indeed lies the real tragedy of breast cancer associated with pregnancy, for very often, in these circumstances, the apparently inevitable end result is the death of both baby and mother. Such an outcome certainly must leave a lasting impression on those associated with treatment and subsequently could very well influence, adversely, individual judgment on the management of even the earliest breast cancer in pregnancy. This, together with the low incidence of the particular association would suggest that centralisation of treatment of such patients, would almost certainly be beneficial. Not least of these benefits would be the fact that sufficient numbers could be compiled to enable proper statistical evaluation of many of the factors associated with treatment. One might best illustrate the infrequency of the association by referring again to the figures here in Northern Ireland which suggest that a general surgeon, on average, sees one such patient every eight to ten years.

Finally, reference must be made to that group of patients where pregnancy follows treatment for cancer of the breast. In this present series, there were 14 such patients and ten were available for evaluation. Four of the 10 were alive and well at five years. Here again numbers are very small, but reference has already been made to the 72 per cent five year survival figure of Peters and the 59 per cent of White in similar, but very much larger, groups. This would appear to be the experience of others, and the overall figures are such as to suggest that patients in this group do even better than breast cancer patients without pregnancy. This, of course, is a select group in that the very nature of the breast cancer eliminates, at an early stage, those patients with an aggressive form of the disease. Whilst this is true, problems will still arise and before offering advice many factors should be considered, i.e., age of patient, size of family, history and extent of the previously treated breast cancer, involvement or otherwise of the homolateral axillary nodes, the histologic grading and previous radiation or chemo-therapy. Many reports would suggest that pregnancy should be delayed for two years following mastectomy and although this is largely an arbitrary determination most would regard it as reasonable. If, however, many of the prognostic factors mentioned are poor then further delay should be advised for, indeed, one must keep in mind the fact that the combination of recurrent and/or metastatic breast cancer and pregnancy is truly a clinical catastrophe (Fig. 1) unlikely to be influenced to any degree by present day therapy.

Summary

Three thousand breast cancer cases, registered at the Northern Ireland Radiotherapy Centre, were reviewed and pregnancy was found to complicate the condition in 59 patients, i.e., 2 per cent. Where only those patients under the age of 40 were considered 19 per cent had concurrent pregnancy or became pregnant after treatment of their breast cancer. In 45 of the patients the breast cancer appeared in pregnancy or lactation and in the remaining 14 pregnancy followed treatment of a breast cancer.

Management is discussed and the advantages of radical mastectomy over simpler surgical procedures is commented upon with the observation that radiation therapy would appear to have little part to play in the treatment of early cases. As in other series there was a higher survival rate in those cases treated in the early months of pregnancy with therapeutic abortion and castration apparently

having little or no bearing on the prognosis. It is suggested that these procedures, if not actually contra-indicated, should certainly not be recommended routinely in the operable or potentially curable patient.

In the cases reviewed it was noted that where breast cancer developed in pregnancy or lactation 37 per cent of the patients survived five years. This is a figure rather similar to other recently published reports and suggests or confirms that the prognosis, where breast cancer is associated with pregnancy, is not very different from similar groups of non-pregnant patients. In the group of patients where pregnancy followed previously treated breast cancer 40 per cent survived five years and the many factors believed to be relevant to the prognosis, or to be considered when advising on subsequent pregnancies are detailed. The review also indicates that one case of breast cancer may be expected for every 7,500 births and it is suggested that because of the infrequency of the condition and the many problems involved in management centralisation of the treatment of such cases might be usefully considered. The importance of objective discussion and assessment of such patients on the same basis as the uncomplicated breast cancer case is stressed. (Some of the points referred to in the discussion are illustrated in six case reports).

Acknowledgments

I wish to express my thanks to the many consultants in Surgery, and in Obstetrics, from all over Northern Ireland, not alone for referring the cases reported but for their continued co-operation and skilled assistance in management. I am also grateful to my colleagues at the Radiotherapy Centre, Dr. A. R. Lyons and Dr. George A. Edelstyn, for permission to use the notes of many of the patients treated by them, to Miss B. Mullan for Figure 1 and to Miss E. Robinson for typing the manuscript.

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CASE 1. *Patient M.M. Age* 34. *Para* 3

History

6 months history of lump in the left breast.

Attended own doctor in December 1955 when she was 7–10 weeks pregnant.

Pre-Operative Findings

Found to have lump the size of a hazel nut in the upper outer quadrant of the left breast. No nodes.

Treatment

Biopsy excision 15.1.1956.

Pregnancy terminated 21.1.1956.

Radical Mastectomy 24.1.1956.

X-ray therapy February 1956

Pathology Report

Biopsy "Anaplastic spheroidal cell carcinoma".

No residual tumour found in mastectomy specimen.

Subsequent History

March 1958 fourth child born alive and well.

April 1959, fifth child born alive and well.

Well 8 years later.

Comment

Reflection and subsequent history suggests that if pregnancy had been allowed to proceed disease would probably not have been activated.

CASE 2. *Patient K.McC. Age* 29. *Para* 4

History

Noted small swelling in right breast in July 1960. Referred to hospital.

Pre-Operative Findings

2 cm. mobile nodule in inner half of the right breast.

Treatment

Biopsy excision 6.8.1960.

X-ray therapy August 1960.

Pathology Report

"Anaplastic spheroidal cell carcinoma".

Subsequent History

Well until April 1963 when she became pregnant.

In June 1963 complained of bleeding from the nipple.

Mastectomy performed June 1963. Pathology report showed "Intraduct carcinoma".

Fifth child delivered December 1963—alive and well.

No evidence of recurrence or metastases three years later.

Comment

Apparent reactivation of disease during pregnancy.

CASE 3. *Patient D.C. Age* 36. *Para* 5

History

Noted lump in upper outer quadrant of right breast in August 1955. Showed it to own doctor and was operated on seven days later.

Pre-Operative Findings

1 cm. hard nodule which was not attached to skin or muscle. Node felt in axilla.

L.M.P.

24th July 1955.

Treatment

Radical mastectomy August 1955.

X-ray therapy September/October 1955.

Pathology Report

"Anaplastic spheroidal cell carcinoma" commencing in intraduct carcinoma but infiltrating widely. Nodes clear.

Subsequent History

In April 1956 was delivered of stillborn macerated baby.

Further child 1961.

Well 9 years after initial diagnosis.

Comment

Note stage of pregnancy at which x-ray therapy was administered. To-day such a case would almost certainly not be treated by post-operative radiation.

CASE 4. *Patient M.H.. Age* 39. *Para* 1

History

In December 1958 patient noticed three small nodules in the right breast. Attended own doctor and referred immediately to hospital.

Pre-Operative Findings

Three small nodules in the upper inner quadrant of the right breast. No nodes.

L.M.P.

30th November 1958.

Treatment

Biopsy 16.1.1959.

Simple mastectomy 23.1.1959.

X-ray therapy February 1959.

Pathology Report

"Extensive infiltration by a spheroidal cell carcinoma which had originated in widespread intraduct carcinoma but which is now infiltrating".

Subsequent History

Twins born 2.8.1959—six weeks premature.

First child stillborn and macerated.

Well 5 years later.

Comment

Note stage of pregnancy at which x-ray therapy was administered.

CASE 5. *Patient M.T. Age* 26. *Para* 1

History

In February 1960 noted lump in the left breast. Attended own doctor and referred immediately to hospital.

Pre-Operative Findings

Marked thickening in the upper outer quadrant of the left breast. No nodes.

Treatment

Biopsy 22.2.1962.
Simple mastectomy 27.2.1962.
X-ray therapy March 1962.

Pathology Report

"Massive tumour 6 x 5 x 2 cms.—intraduct carcinoma which has spread extensively outside the ducts and infiltrating widely."

Subsequent History

Became pregnant in October 1968—8 months later.
In March 1963 developed recurrence and metastases in scapula.
June 1963—Caesarean section under local anaesthetic.
Child died 2 hours later.
Patient died 1 week later

Comment

The pathology report would suggest that the patient should have been advised against further pregnancy for at least two years. Prognosis probably poor even if pregnancy had not supervened.

CASE 6. *Patient M.C. Age* 42. *Para* 4

History

In August 1962 patient noticed swelling in upper part of chest. Then noticed swelling in outer part of left breast.

Pre-Operative Findings

Large mass in outer part of left breast. No nodes. Hard. fixed swelling upper end of sternum. X-ray showed destruction of the manubrium.

Pregnancy

18.4.1962—L.M.P.
25.1.1963—E.D.C.

Treatment

Simple mastectomy and removal of accessible nodes—27.9.1962.
X.R.T. to chest wall and sternum—October 1962.

Pathology Report

"Anaplastic spheroidal cell infiltrating widely." No mention of nodes.

Subsequent History

Admitted to maternity hospital 7.12.1962. Had caesarean section for placenta praevia.
Child alive and well.
Ovaries inspected but not removed.
Has remained well since. X-rays indicate recalcification of sternum.
Well five years later.

Comment

Not included in 5 year survival results. Following treatment patient was only seen again some days after section.

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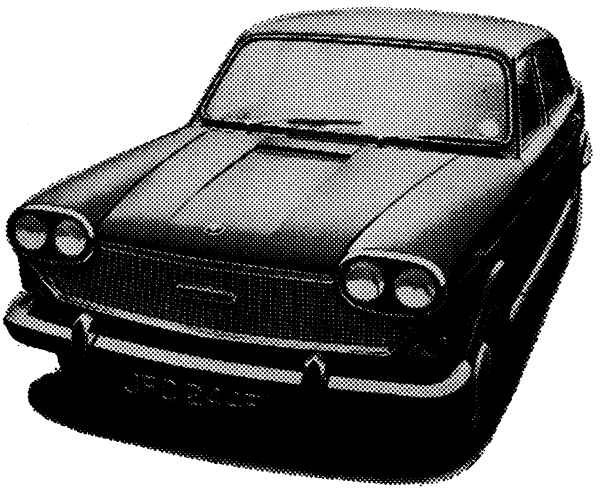

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WORK LOAD AND MORBIDITY IN AN URBAN GENERAL PRACTICE IN 1967

by A. G. McKNIGHT, M.B., B.Ch., D.Obst., R.C.O.G.
and W. E. JACKSON, M.B., B.Ch., D.Obst., R.C.O.G.

TWO SURVEYS have previously been carried out on work load and morbidity in general practice in Northern Ireland. Crawford (1954) in a two year study considered all aspects of work in his practice with special reference to the relationship of work load and morbidity with age. Maybin (1963) considered work load principally in connection with referral of patients to hospital and hospital admissions. His morbidity figures refer only to psychosis and psychoneurosis, and to his midwifery statistics. He also considered briefly clinical pathology and domiciliary consultations. These, so far as we could ascertain, have been the only published works on these subjects from Northern Ireland. In contrast, many studies on work load and morbidity in Great Britain have been published.

We therefore decided to carry out a study of work load and morbidity in our practice in 1967 to ascertain if these differed in any great respect from those studies published previously in Great Britain and Northern Ireland.

The practice is conducted by two principals from central surgery premises situated at Shore Road, Belfast, Northern Ireland. Both principals hold part-time industrial and hospital appointments. A part-time nurse/receptionist and a part-time secretary are employed. A health visitor attends on a partial attachment basis. Surgery attendances have been by appointment for several years. The practice population in January 1967 was 3,987 and in December 1967, 4,007. The age/sex distribution of the practice on 31st October 1967, was as shown in Table I. The practice population shown in this register is always larger than the true practice population, because of inherent delays in the system of National Health Service records.

TABLE I — *Age/Sex Register*

	0–5	6–14	16–44	45–64	65+	*All Ages*
Males	200	366	810	401	124	1,901
Females	176	388	905	482	190	2,141

METHOD – SURGERY ATTENDANCES AND DOMICILIARY VISITS

Only direct doctor patient contacts were noted. Advice given by telephone, or to relatives was not recorded as a surgery attendance or domiciliary visit. The practice nurse carried out our immunisation programmes and routine injections, e.g. cytamen. From 1st January 1967, she also issued and wrote repeat prescriptions which were scrutinized and signed by us (Details are given in Table II).

A total of 852 routine laboratory investigations was carried out – 401 complete blood counts, 95 rhesus and blood groupings, 33 protein bound iodine, 44 R.A. Latex, 41 Paul Bunnell, 140 mid-stream specimens of urine, 95 pregnancy tests, 2 liver function tests and an uric acid estimation. A total of 183 cervical smears was taken from ante-natal patients and patients at risk (35 years and over).

TABLE II — *Results – Surgery Attendances*

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Consultation	1,125	971	1,010	982	1,116	1,067	844	1,016	1,010	1,039	1,053	903
Injections (Nurse)	41	38	39	39	39	29	21	44	43	24	42	19
Prescriptions (Nurse)	623	555	544	479	586	436	415	538	491	377	538	474

TABLE III — *Domiciliary Visits and Maternity*

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
New Visits	183	154	164	179	184	150	134	121	167	169	172	215
Re. Visits	39	38	34	42	48	37	24	36	30	36	41	41
Post-Natal Visits	15	11	24	10	11	31	30	27	20	30	11	25
Confinements	3	2	4	2	2	6	6	5	4	6	3	5

Details of domiciliary visits and maternity work are provided in Table III. During 1967, one maternity case was confined at home – all the others were confined in general practitioner units.

MORBIDITY SURVEYING

Morbidity surveying is carried out by using a disease index system in which the patient is identified by name, date of birth, marital status and social class. The disease index is the Royal College of General Practitioners' classification which is based on the International Classification of disease.

For the purposes of this survey, only those attending with a 'new' disease were entered in the index – thus a patient attending with rheumatoid arthritis for the first time would be entered, but subsequent attendances because of rheumatoid arthritis would not have an entry. If, however, the patient re-attended with, e.g. an upper respiratory tract infection subsequent to the initial visit for rheumatoid arthritis, this would be entered. The outcome of this survey is given in Table IV. As both practitioners and the secretary were new to this work inevitably a few mistakes crept in, but as these were very few in comparison with the total number (7,558) of incidents, they have been ignored.

DISCUSSION – WORK LOAD

The doctor patient contact rate per patient was 3.7 – this included post-natal visiting. If the work of the practice nurse, which in other practices would normally have been carried out by the practitioner, is included, the figure rises to 5.32. This latter figure compares with those of Maybin (1963) whose contact rate appears to be 4.4 by deduction from his tables, and Crawford (1954) whose comparable figure was 3.19.

Many studies have been carried out in Great Britain. Taylor (1954), after studying several practices, found a range of 3.5 to 9.6 as the minimum and maximum contact

TABLE IV — *Morbidity Surveying and Reference of Patients to Hospital*

Class		*Number* *M*	*F*	*Total*	*% of Total*	*Logan and Cushion (1958)*	*Reference to Hospital/ Admission*
1	Infectious Diseases	115	130	245	3.2	—	4
2	Neoplasms	6	19	25	.3	—	9
3	Allergy, Metabolic, etc.	125	189	314	4.2	—	14
4	Blood	5	41	46	.6	—	5
5	Psychiatric	84	292	376	5.0	—	10
6	C.N.S.	285	344	629	8.3	9.5	32
7	C.V.S.	96	159	255	3.4	5.3	40
8	Respiratory	914	1,162	2,076	27.5	23.1	19
9	G.I. Tract	320	402	722	9.6	8.6	55
10	G.U. Tract	69	447	516	6.8	—	58
11	Maternity	—	228	228	3.0	—	41
12	Skin	323	427	750	9.9	8.4	39
13	Skeletal	218	319	537	7.1	6.7	26
14	Congenital	5	2	7	.1	—	1
15	Early Infancy	6	5	11	.1	—	0
16	Miscellaneous	14	20	34	.5	—	3
17	Accidents	217	173	390	5.1	8.2	61
18	Prophylactic Procedures	133	249	382	5.1	—	4
19	Administration	8	7	15	.2	—	0

rates. In more specific studies, the rate of Barnes (1958) in an industrial practice was 4.6, and Pinsent (1950) reported his as 4.1.

We carried out 231 laboratory tests per 1,000 patients at risk. This included all ante-natal blood examinations but not cervical smears. Maybin's figure was 14 per 1,000 patients at risk, but this did not include ante-natal blood investigations, nor pregancy tests. In addition, he used a haemoglobinometer for primary assessment of haemoglobin estimations, whereas we sent all investigations to the Central Laboratory. Barker's (1967) comparable figure for a practice in Essex was 255 laboratory investigations per 1,000 patients at risk.

MORBIDITY

The results of our survey appear to parallel closely those found in the main groups of the study by Logan and Cushion (1958), which was carried out in 106 practices in England and Wales. Their results are included in Table IV.

Maybin's (1963) figure for psychiatric and psychoneurotic patients (Group 5) was 5 per cent, which corresponds exactly to our findings. The rate for this group, in particular, may be the most variable of all the morbidity groups and must result from the interest of the practitioner in this area of morbidity. Waterson (1965) shows very similar results to ours for a country practice in Scotland.

The hospital referral rate of patients for investigation or admission was 104 per 1,000 patients at risk compared to Maybin's figure of 190. Many of these referrals were for confirmatory investigation only – the diagnosis having already been established. This referral rate could be decreased greatly if open access to radiological facilities, including contrast media, were made available to practitioners in the Belfast area.

Conclusion

1. In an urban practice of 3,997 patients, the direct patient/doctor contact rate was 3.7.

2. A nurse/receptionist, used in a limited role, greatly decreased the gross work load of the doctors.

3. Morbidity in an urban practice in Northern Ireland does not differ greatly from morbidity in Great Britain.

4. Hospital referral rate in our practice could be decreased by open access to radiological facilities including contrast media.

Acknowledgements

We would like to acknowledge the help we have received from the Royal College of General Practioners' Records and Statistics Unit, Birmingham, in analysing our morbidity returns and the Northern Ireland General Health Services Board staff for the compilation of our age/sex register. The study would not have been possible without the help and record keeping of Nurse I. Rainey, S.R.N., our nurse/receptionist, and Mrs. P. Hughes, our secretary.

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PHYTO-PHOTO DERMATITIS

By AGNESE KELLY, M.D., D.C.H.
Department of Dermatology, Belfast City Hospital

Introduction

THE DESIGNATION phyto-photo dermatitis is an excellent self-explanatory term for this skin condition. It was first coined by Klaber in 1942. He suggested that this name should be used to describe skin eruptions caused by external contact with plants and their extracts after subsequent exposure to sunlight. This rather interesting skin condition is not seen very often in this part of the world. It is not a 'new' skin disease and on reviewing the literature various authors make mention of the fact that the condition was probably known of in countries such as India, Arabia and Egypt many centuries before Christ.

Our present interest in the subject was stimulated by presentation at our Out-patient Department of a young boy of seven years of age with typical lesions and a typical history.

Review of the Literature

The use of the descriptive term phyto-photo dermatitis replaced that originally used by Oppenheim (1926) when at the Viennese Dermatological Society he discussed forty cases with an unusual skin eruption after sunbathing and exposure to grass in the vicinity of a new swimming pool in the Vienna suburb of Ottakring. This condition he referred to as "Ottakring Dermatitis" and later he and Fessler (1928) presented a paper describing these. In 1932 he gave the condition the more descriptive yet more cumbersome name of "Dermatitis bullosa pratensis striata".

Over the years many plants have been incriminated as the causative agent of this condition by various authors, but it was not until 1940 that Kuske was able to demonstrate that it was the furocoumarine content of the individual plants that acted as the photosensitising agent. Guillaume (1927) showed that the reaction was caused by the impregnation of the skin with the offending substance which in itself was inactive, but became activated by ultimate exposure to sunlight. Jensen and Hansen (1939) by experimentation designated the part of the solar spectrum most effective in producing the reaction after exposure to wild parsnips. It lay in the spectral range between 3,200 and 3,600 A.U.

Rook (1961) reviewed some botanical aspects of plant dermatitis and discussed recent research in plant physiology and biochemistry. Woods (1962) gave an excellent paper on irritant plants. A classification of plant dermatitis is given as well as a comprehensive list of irritant plants wild or cultivated in Great Britain. Under photosensitisers he listed the following :

TABLE I

Family	*Latin name*	*English name*	*Active principle*
Moracea	*Fiscus carica*	Fig	Bergaptene
Rutacea	*Dictamnus albus*	Gas Plant	—
Umbelliferae	*Angelica archangelica*	Angelica	Bergaptene
	Anthriscus silvestris	Cow Parsley	—
	Apium dulce	Celery	Bergaptene
	Heracleum mentegazzianum	Giant Hogweed	,,
	Heracleum sphondylium	Wild Hogweed	,,
	Pastinaca sativa	Parsnip	,,

An even more comprehensive list is supplied by Pathak, Daniels, and Fitzpatrick (1962) and the presently known distribution of furocoumarins (psoralens) in plants is discussed. It is pointed out that only four or five major plant families have been found to contain furocoumarins. The *Umbelliferae* and *Rutacea* are the largest and most important of these. Our attention is drawn to the fact that various plant species reported to cause photosensitisation have been analysed by several workers and shown to contain furocoumarins especially xanthotoxin, bergapten, psoralen, etc. Extensive references on the subject accompanies this article.

Miescher and Burckhardt (1937) at a meeting of the Swiss Dermatological Society showed two hospital gardeners who presented with phytophotodermatitis after working with *Heracleum mentegazzianum*. Kirske (1938) described a similar reaction in a person exposed to the same species under the influence of sunlight.

E. Van Dijk (1964) makes the point that bergaptene (5 methoxypsoralen) is the

FIG. 1

most widely distributed of the furocoumarins in nature and thus most cases of phytophotodermatitis are caused by plants in which this chemical form occurs. Musajo and Rodighiero (1967) discuss the mechanism of action of the skin photosensitising furocumarines.

A recent article by Sommer and Jilson (1967) on the subject discusses phytophotodermatitis caused by the gas plant and the wild parsnips in New England and points in the clinical differentiation of this condition from that of poison-ivy dermatitis are set out.

Case History

A mother brought to the Skin Outpatient Department her seven year old son. On examination the boy had lesions principally on the exposed portions of his limbs.

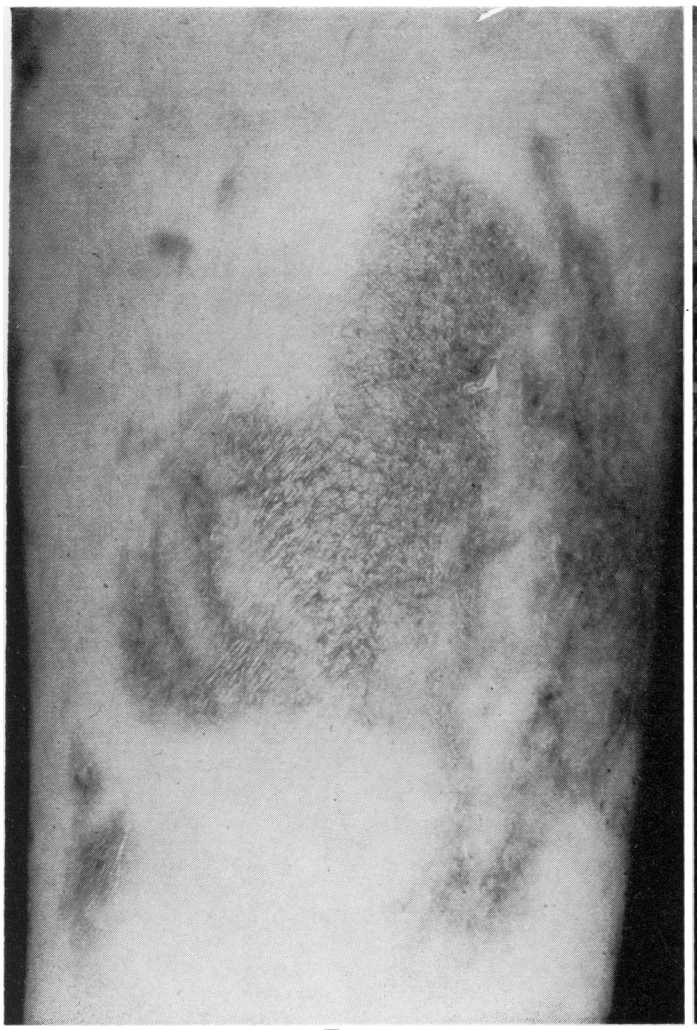

Fig. 3

Fig. 2

The lesions were basically striate and erythematous with massive bullae formation in places and some evidence of purpura. He was mildly toxic and had a slight pyrexia. Mother and child were very helpful. Not only had they already made the diagnosis themselves, but they readily informed me about the condition.

The rash they said had developed after exposure to the 'Ruby' plant and other children in the same district were reported to have similar skin trouble. Four days prior to attending hospital and on a bright sunny day, he and his pals were playing in waste ground in the vicinity of the housing estate where he lived (Fig. 1). Within twenty-four hours of this, his present rash commenced. It was thought best to admit him for observation and he duly arrived and brought with him a specimen of the so-called 'Ruby' plant (Fig. 2). A close up photograph of a lesion on his leg is shown (Fig. 3).

The plant was sent to the botanical experts for identification and was said to be *Heracleum mentegazzianum* of the *Umbelliferae* family.

The estate was visited and I was privileged to see and photograph four other children with a similar skin condition. The rash and the means of acquiring it would seem to be a popular way for some of these young enthusiasts to obtain a few days off school when the occasion arose.

Summary

The condition of phytophoto sensitivity is discussed and a case due to *Heracleum mentegazzianum* presented. Some relevant literature on the subject is reviewed.

Acknowledgements

The late Dr. J. Jefferson encouraged me to present this paper. I would like to thank Dr. R. Hall for his helpful criticisms, Dr. Lowe for the plant identification, the photographer—Miss Ann Fitzpatrick, Sister Adams and our secretary—Miss Doreen Boyd.

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A SHORT HISTORY OF PLASTIC SURGERY

By N. C. HUGHES, F.R.C.S.

Address at Opening of Teaching Session 1968-69, Royal Victoria Hospital

IT HAS for long been the custom in this hospital for a member of the Medical Staff to give the opening address at the beginning of each academic year. Having been entrusted with the task this morning, it is my very pleasant duty, on behalf of the Medical Staff of the Royal Victoria Hospital, to welcome all present, and in particular, all those fresh from conquests in anatomy and physiology, who are now embarking on their clinical studies in this great hospital.

I have no doubt the original purpose of this talk was to tell you, the new students, something of the history and traditions of the hospital, and of the responsibilities which are inseparable from the very great privilege of caring for patients, so I make no apology for directing my opening remarks mainly to you. At the outset let me sympathize with you. Since I occupied your position, the speed of scientific discovery and advance has been staggering and I feel very humble when I consider the amount of knowledge which is expected from you to-day. However, the fact that you have advanced successfully to this stage, probably indicates that your basic education has been such that you are trained to sift information in a critical manner and to absorb principles rather than facts, so that you may gradually build up a total picture in a reproducable form. With so much to learn, I consider this is essential, and your task is possibly made easier now by the developing unity of biology, which, as Hans Popper said, "permits a replacement of memorizing of facts, by the recognition of principles of thinking". No examination system is perfect, and it is unfortunate that the present one fragments your medical course into distinct subjects and presents you with a series of hurdles, each of which must be surmounted before proceeding to the next. Inherant in this somewhat artificial system, is the risk that success in an examination may be interpreted as giving, not only the green light to proceed to the next stage, but also permission to discard all knowledge of the subject you have just passed. Do not fall into this trap. Remember the words of Sir William Osler, one of the great medical writers of all time, who in an address to university students, said "The hardest conviction to get into the mind of a beginner, is that the education on which he is engaged, is not a college course, not a medical course, but a life course, for which the work of a few years under teachers is but a preparation". He went on to say "You can all become good students, a few may become great students, and now and again one of you will be found who does easily and well what others cannot do at all, or only badly, which is John Ferriar's excellent definition of a genius". I hope that you will all fall within one or other of these categories.

During the next few years in the out-patients' department and in the wards of this hospital, you will have opportunities to increase your knowledge, by observation, by listening to your teachers and by examination of patients. Make the most of this time, see as much as you can, overcome your natural reticence and make sure that you are in the front row of the tutorial or around the patients' bedside.

Get into the habit of making careful notes and never be afraid to ask questions. Reject Mark Twain's aphorism, "There's no satisfactory substitute for brains, but silence often creates the same impression". This will never see you through your clinical examinations.

I congratulate you on your choice of career. When you complete your hospital training and become a registered medical practitioner you will find that you are not committed to any one particular way of life, but that many alternatives are open to you. Nevertheless, whether you choose to enter general practice, the hospital service, pure research, preventive medicine, medical administration, or any other branch of the profession, you will have the satisfaction of knowing that your efforts are being directed towards improving the lot of your fellow men.

In a brilliant inaugural address to the Leeds School of Medicine delivered in 1955, Eric Linklater concluded with these words, "I have merely been taking a sidelong glance at some aspects of the profession which you are about to enter, and may adorn, with the purpose of suggesting that, while some of you may die of overwork none of you need perish of boredom". I am confident that my colleagues will agree that these words are still true to-day.

The Royal Victoria Hospital had its beginning in a very humble way in 1792, as a dispensary, in rooms given by the Belfast Charitable Society. Five years later it moved to Factory Row, now Berry Street, where six beds were available for the treatment of in-patients. In 1817, when the population of Belfast was almost 28,000 a £5,000 General Hospital containing 100 beds was opened in Frederick Street; by 1870 the bed complement had been increased to 186. But the population of Belfast increased rapidly and by the end of the century it had been decided to build a new general hospital on a new site. That hospital, revolutionary in design and built at a cost of £300 a bed, was opened in 1903, by which time the population of the town was 350,000. It was named the Royal Victoria Hospital and is basically the hospital you know to-day. Alterations and additions have of course taken place over the years, in order to keep pace with advances in medicine and in an attempt to meet the ever increasing demands made on the services provided. Now, once again, we are faced with the need for a new hospital, and indeed much work has already gone into the planning of this project. It is our fervent hope that you will be able to watch the new "Royal" develop steadily over the coming years.

The most important single development since 1903 is the magnificent new building nearing completion at the Falls Road end of the hospital. This will house all the out-patient clinics, the casualty department and accident reception centre, the department of physical medicine, the medical social workers, the medical illustration department and the records for the entire hospital. With the rapid increase in the cost of hospitalization the emphasis to-day lies more and more on out-patient investigation and treatment. This new building, the best of its kind in the British Isles, should enable us to offer to the patients a higher standard of medical care, in conditions of greater comfort and privacy than they have hitherto enjoyed. It also provides much improved facilities for teaching. Dr. Ted Howell, head administrator at the Henry Ford Hospital, Detroit, stressed the over-all importance of the out-patient clinic in the hospital plan when he advised "Hang your hospital around the ambulatory clinic". Our ambulatory clinic opens in a few weeks time, let us hope that the new hospital will not be long delayed!

Plastic and Reconstructive Surgery

This morning I have chosen to tell you a little about my own specialty, Plastic Surgery. I do so for two reasons, first because I think it might be of some interest to sketch the origin and development of this field from ancient times, through the middle ages down to the present day, and second, because it gives me the opportunity to pay tribute to a few of the men who, in my lifetime, have been responsible for advancing the specialty to the position which it now holds.

At the outset I am immediately faced with a difficulty of definition. Most specialties fall within well defined limits based on anatomical area or systems and their names are self explanatory. The terms genito-urinary, neuro- or gastro-intestinal surgery present no problem. But not so plastic, or reconstructive, surgery as it is sometimes called. The work of the plastic surgeon defies any simple definition, as it ranges over almost any part of the body and the dividing line between it and the other fields of surgery is indefinite and depends to a considerable extent on the ability, experience, and interest of the particular surgeon. The patients fall into all age groups and they may require reconstructive procedures for congenital malformation, injuries, or destruction of tissue incident to disease or the treatment of disease; very many suffer from malignant disease so that much destructive surgery has often to precede the reconstructive effort. The objectives of plastic surgery, however, are clear – namely the restoration of function or the improvement of appearance or both.

The origin of certain types of reconstructive surgery is of considerable antiquity, and even to-day many of the principles laid down in ancient times are still applicable. The Hindoos brought many types of reparative surgery to a high point of development and earliest Sanscrit documents dating from 1500 B.C. describe a method of nasal reconstruction using local cheek flaps. Later this was replaced by the forehead flap technique which is still known as the Indian method. Susruta, fifth century A.D., states that a certain Hindoo caste, the Koomas, made use of skin grafts from the gluteal region. It is probable that certain itinerant Arabs learnt surgery from the Hindoos and transferred the knowledge via Arabia to Egypt. Both Galen (130–210 A.D.), a Greek physician of the Hippocratic School and Celsus (35 B.C.–7 A.D.) of the Alexandrian School, describe reparative operations on the face, nose, lips and ears and discuss the transplantation of tissues.

In the early fifteenth century Branca of Catania in Sicily was repairing noses using the forehead flap Indian technique. His son Antonio, in order to avoid the scarring of the forehead, developed the method of applying a skin flap from the arm to rebuild the nose. This is still known as the Italian flap method. In 1597 Gaspar Tagliacozzi (1549–1599), a professor of anatomy at Bologna published his book describing the arm flap method of rhinoplasty and cheiloplasty. This book was illustrated with twelve remarkable wood cut plates which depict the method very clearly. However, these reparative procedures met with opposition from the ecclesiastics of the time who regarded such operations as meddling with the handiwork of God. Indeed as recently as 1788 the Paris Faculty forbade face repairing altogether. So fervent was the opposition to Tagliacozzi that his remains were eventually exhumed from the convent where he lay, in order that he might be reburied in unconsecrated ground.

Butler, in the first Canto of Hudibras, in 1663 refers to Tagliacozzi thus :

"So learned Tagliacotius, from
The brawny part of Porter's bum
Cut supplemental noses which
Would last as long as parent breach ;
But when the date of Nock was out
Off dropped the sympathetic snout."

Due to opposition from the church the development of reconstructive surgery was delayed for almost two hundred years. However, during the nineteenth century there was a re-awakening of interest in plastic surgery and reconstructive procedures were being carried out extensively in Europe and also in England and America. Transplantation of skin, cartilage, bone and fat and the repair of certain deformities such as cleft lip and cleft palate took place.

As a result of the introduction of methods of general anaesthesia at the mid-century extensive new fields for surgical endeavour were gradually opened up, and, towards the end of the century and in the early years of this century, interest was largely directed to exploring the exciting new possibilities which had been made feasible by access to the abdomen and other deeper parts of the body. As a result little effort was directed towards developing the age old techniques which of necessity had been confined mostly to the superficial areas. However, war has always provided a great stimulus for reconstructive surgery and the First World War was no exception. Being largely trench warfare there was naturally a far greater preponderance of maxillo-facial injuries than in any previous conflict, and in the early days no special organization had been established to cater for these difficult cases.

I would now like to continue the story by telling it through the lives of some of the people who have played all important roles in the development of the specialty in this country.

Harold Delf Gillies was born in Dunedin in 1882, the son of a Scotsman who had emigrated to New Zealand. He received his early education in Wanganui College and his medical training at Cambridge and St. Bartholomew's Hospital, graduating in 1908 and proceeding to the Fellowship of the Royal College of Surgeons in 1910. A distinguished sportsman, he rowed in the Oxford and Cambridge boat race in 1904 and played golf for the University, being at one time the tenth ranking amateur golfer in the British Isles. In later life he was an avid and expert fly fisherman and a keen artist. Tall and athletic, he had an impish sense of humour and was an inveterate practical joker, traits no doubt inherited from his great-great-uncle, the immortal Edward Lear.

His early interests centred on oto-laryngology but at the beginning of 1915 he went to France with the Red Cross as a general surgeon attached to the Army. There he met Charles Valadier who was just opening the first British jaw unit. Influenced by Valadier and by the writings of a German, Lindermann, on the good work which the enemy were doing in treating jaw fractures and wounds around the mouth, he became intrigued and, when an opportunity for leave came in June 1915, he went to Paris to see the famous Morestin from Martinique who was rumoured to be performing unbelievable feats of surgical reconstruction. This, I feel, may well have been a turning point in Gillies career and one which played a vital part in the subsequent development of plastic surgery. Many years later he wrote of his

meeting with Morestin, "I found him at the huge rambling Val-de-Grâce Hospital. He was a strange and moody octoroon, whose dagger-like sharpness was accentuated by his pointed moustache and tapering beard as well as the agility of his long thin hands. In the space of a single moment he could reveal the gentleness of a kitten and the savagery of a tiger. He received me kindly and I stood spellbound as he removed half of a face distorted with a horrible cancer and then deftly turned a neck flap to restore not only the cheek but the side of the nose and lip, in one shot. Although in the light of present-day knowledge it seems unlikely that this repair could have been wholly successful at that time it was the most thrilling thing I had ever seen. I fell in love with the work on the spot".

He returned from leave bursting with enthusiasm about plastic surgery and succeeded to such good effect in convincing the authorities of the need for a specialized unit to treat face and jaw injuries that at the end of the year he was sent back to England to establish a centre at The Cambridge Hospital, Aldershot. This opened in January, 1916, but soon it became obvious that a much larger unit was required. In August, 1917, the unit moved to the Queen's Hospital, Sidcup, Kent – a specially constructed 320 bed hutted hospital, later increased by a further 200 beds to accommodate Colonial units. Here facial injuries from the British, Canadian, Australian and New Zealand forces were treated in one hospital under the care of their own medical officers who worked together in friendly rivalry and healthy competition. Gillies' enthusiasm and drive played a great part in building up this unit and he introduced many of those things which a modern plastic surgery department takes for granted. Dental collaboration was provided on the spot; medical illustration was covered by Henry Tonks, a Fellow of the Royal College of Surgeons who abandoned surgery and became not only Professor of the Slade Art School but one of the great artists of his day; photographic records were kept and "continuation of treatment" beds were arranged in a nearby hospital. When the war ended in 1918 and the colonial units left, much work still remained to be done.

Thomas Pomfret Kilner born in 1890, the son of a schoolmaster at Manchester Grammar School, graduated from Manchester University in 1912. His intention was to enter into general practice, but the war intervened and he enlisted and served first in a Casualty Clearing Station and then in a General Hospital. By 1918 he had decided to follow a surgical career and it was at this stage that the War Office posted him to Sidcup, where he joined Gillies in a partnership which was to last until 1931. Small of stature, Tommy Kilner was a meticulous craftsman with an orderly mind and great organizing ability. He brought to the unit a wide experience in general surgery and was quick to pick up the principles of plastic surgery.

Gillies and Kilner were responsible for translating the lessons of war injury to the needs of peace time and for extending the boundaries of the specialty far beyond the restricted field of facial restoration. Between the two wars they were the only surgeons in the British Isles who devoted themselves exclusively to plastic surgery. Kilner perfected the craft of the specialty and was responsible for setting new standards in the care of children with clefts of the lip and palate. Gillies, a man of unique creative talents, bubbling over with ideas, developed the tube pedicle flap (conceived independently by Filatow in Russia at about the same time), the onlay eyelid graft, the palate push-back and a host of other original procedures.

One other person played a vital part in the progress of the specialty. In his book "The Art and Principles of Plastic Surgery", published in 1957, Sir Harold Gillies wrote : "As I look back to-day the two great things from Sidcup that have meant the most to me are the discovery of the tube pedicle and of Ivan Magill".

Ivan Whiteside Magill graduated from this medical school in 1913 and at the end of the war joined the unit at Sidcup as an anaesthetist. With every other patient's face either wrapped in bandages or held together with metal fracture splints it was not long before he realized that the experience was "not going to be an anaesthetic picnic". Over the ensuing years he gradually evolved the technique of large single tube endotracheal intubation using either the oral or nasal route, a development which completely transformed anaesthesia and one which made feasible many surgical procedures which had previously been impossible. Every surgeon whose field is north of the diaphragm is indebted to Sir Ivan Magill, and every anaesthetist owes much of his present freedom to the clear airway ensured by endotracheal intubation. I am glad to say Sir Ivan is reported as fit and well and still taking an active interest in his specialty.

British hospitals were slow to accept the new specialty and it was the North Stafford Royal Infirmary who gave the lead to the country by sponsoring a Plastic Unit. In 1934 St. Thomas' Hospital was the first teaching hospital in London to appoint a plastic surgeon, Kilner, to its staff. St. Bartholomew's, Gillies' own hospital, to which he had been attached since 1918 as an assistant in the Throat Department, did not accord him the distinction of formal recognition as a plastic surgeon until 1936, and then in charge of eight beds only.

Archibald Hector McIndoe, born in Dunedin in 1900, qualified in medicine in the same city in 1923 and immediately joined the staff of the Mayo Foundation in Rochester. There he worked with Charles and William Mayo and Counsellor. His main interest was in pathology and abdominal surgery and in these subjects he took the degrees of Master of Science and Master of Surgery at the University of Minnesota. After seven years, when his future at the Mayo Clinic was assured, the United States Government introduced legislation making it compulsory for all foreign nationals working in the country to take out American citizenship. Archibald McIndoe would have none of this, he was British and intended staying so, and he had no hesitation in packing his bags and leaving to start afresh in England. Some time previously, Lord Moynihan, when visiting the Mayo Clinic, had been so impressed by McIndoe's ability that he had told him should he ever choose to come to London he would have a job for him. In the event this failed to materialize and so at the age of 30 McIndoe found himself "on his uppers" in London without a job and with a wife and very young family to support. He fell back on his distant cousin, Sir Harold Gillies, and thus it came about that one of the best trained abdominal surgeons in the country took up plastic surgery.

Within a short time he was appointed to the staff of St. Bartholomew's, St. Andrew's, Dollis Hill and the North Staffordshire Royal Infirmary and in 1938 he became Consultant in Plastic Surgery to the Air Ministry. He created the Plastic Surgery Unit at the Queen Victoria Hospital, East Grinstead, which soon became the largest centre in the country. There he transformed both the treatment of and the attitude adopted towards burn casualties. A master of his craft, McIndoe added much to plastic surgery, but over and above that and perhaps his greatest achieve-

ment was the way he built up the morale of countless patients suffering from hideously disfiguring burns. He appreciated the human problems which these patients faced, and with his dynamic personality quickly gained their confidence and then set about removing the load of anxieties which beset them. By the end of the war his reputation was world wide. At the time of his death in 1960 Sir Archibald McIndoe was Senior Vice President of the Royal College of Surgeons of England and had he survived for but a few more weeks he would almost certainly have been elected President of that College which he had served so well.

Air Vice Marshal George Morley, delivering the first McIndoe Memorial Lecture in 1962, painted a graphic picture of the reasons for his great success in getting things done with these words "McIndoe had a clear and decisive mind ; he knew exactly what he wanted. To those who could help to further his aims he would state his case tersely and convincingly. But he would 'turn on the heat' as he used to say, or else his quite devastating charm of manner to convert those who wished to obstruct. He was equally potent with his pen". It was my privilege to work with Archie McIndoe for the three years before I returned to Belfast in 1950 and to count this straightforward likeable colonial as my friend.

The last man to whom I would like to pay tribute is another New Zealander, Rainsford Mowlem, who qualified in Dunedin in 1924. Three years later he left his homeland and in 1931, after a thorough training in general surgery, he also fell under the spell of Sir Harold Gillies and was converted to plastic surgery, despite the advice of many of his seniors who regarded the specialty as offering little opportunity or prospect. He first worked at Hammersmith L.C.C. Hospital and later at St. James, Balham, and it was not long before he joined Gillies and McIndoe in practice in Harley Street. On the outbreak of war he established the unit at Hill End, St. Albans – an outpost of St. Bartholomew's Hospital. A fast skilful operator with a commonsense approach to his work and a ready grasp of essentials, he proved to be another outstanding teacher. By his friendly manner he did much to spread the knowledge of plastic surgery amongst other subdivisions of surgical practice. At the zenith of his career he retired and now enjoys life in the Mediterranean sunshine.

During and after the second world war these four men, Gillies at Basingstoke, Kilner at Roehampton and later at Oxford, McIndoe at East Grinstead and Mowlem at Hill End and later at Mount Vernon, were responsible for training very many young surgeons in the art and craft of plastic surgery. All outstanding teachers, each in his own way played a major part in writing the history of modern plastic surgery. If I appear to have devoted more attention to one than to another it is only because I did not have the opportunity of getting to know them all equally well.

In 1362 Guy de Chauliac, the leading surgeon of the fourteenth century, completed a great textbook of surgery. In the prologue to this work he acknowledged the debt he owed to those who had gone before him. "We are" he said "like children standing on the shoulders of a giant for we can see all that the giant can see and a little bit more".

This then is the pattern of progress. It is our privilege to profit by the work of previous generations, it is our responsibility to strive to advance a little further so that succeeding generations may benefit.

HISTORY OF THE MATER INFIRMORUM HOSPITAL

By RORY S. CASEMENT, F.R.C.O.G.
Mater Infirmorum Hospital, Belfast.

Lecture to Ulster Medical Society, 31st October, 1968

IT HAS always been my belief—and my limited experience has confirmed it—that one of the most difficult parts of any piece of writing is to give it a title. It becomes, of course, relatively simple when one has a neatly categorised scientific subject, where one starts with the title and proceeds from there. Even here there can be difficulties, if one wishes the audience to know clearly what is in store. For example, "Thoughts on dyspareunia" might well be, and should be, soberly scientific, but it could be mildly irreverent or it might be frankly obscene. There is a case to be made for doing the job first and putting a label on it afterwards.

Unfortunately I didn't do so. I was, of course, flattered to be asked to address this Society; I was pleased that it should be on this particular subject; and I was foolish enough to forget that I have no claims to be an historian of any sort or description. I can only ask you to accept the definition of some witty Irishman, whose name I cannot trace—that "A title, sir, is but a peg on which to hang a few thoughts."

All that I can hope to convey to you is a little potted history of our origin and growth, some of the thoughts and flavour of our forbears, and perhaps, if I am fortunate, some sense of identity and purpose that springs from those origins and those earlier generations—that elusive but very real thing that we can call a a tradition.

I am indeed glad to talk to you on this subject, and for two reasons; for the uncomplicated, and I think pardonable one, that I take a pride in my hospital, which has never known any sort of affluence, and has, with remarkable persistence, survived through some very difficult times. The other reason is that "the Mater" is a topical subject. In the early part of the year the "News Letter" carried a modest headline: "1968—the Year of the Mater." Now, I do not take everything that the "News Letter" says as gospel, or even prophetic, but I found it encouraging to read a sympathetic account of our difficulties, and an optimistic forecast of an early end to these. The year is growing old; but while a medical training does not foster any unduly optimistic view of life it does teach us that we must not abandon the patient while there is life. And there is still a great deal of vigour in this particular patient. On a note of optimism, therefore, I think it right and proper that if the prodigal—after long absence—is to return to the bosom of the family, they should refresh their memories of what kind of brother he is—or was. One dreadful thought does occur to me—that I may be rather like the man who invites his friends to a party and then bores them to tears with not only this year's holiday pictures, but the whole dreary collection. Anyhow, I promise not to take too long, and I hope that you will grant me the indulgence usually given to such well meaning fellows.

The story of the Mater takes us straightaway to the arrival in Belfast of the Order of the Sisters of Mercy, who established this Hospital. They came originally

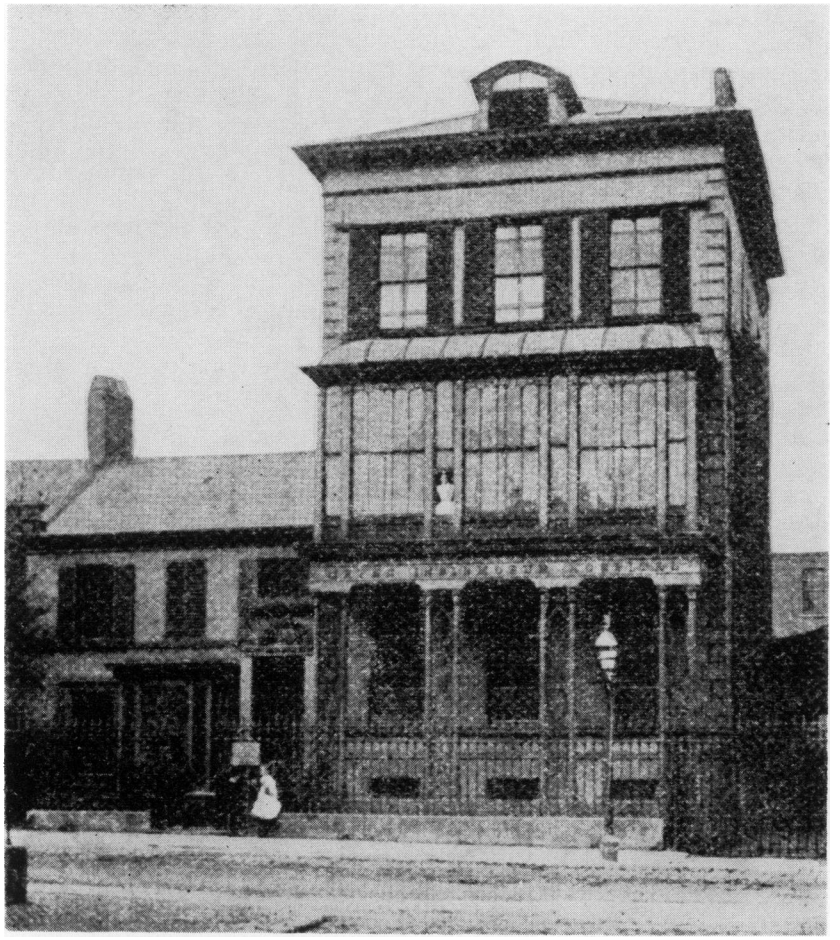
to start a school. The first reference to them, or at least I think it is the first, came from the pen of Mary Ann McCracken, in a letter written to a relative when she was an old woman of 87 years—old, but still alert and interested. "We have got a model school and a nunnery in Belfast, both well worth coming to see. I have visited both, and was quite delighted with them; they are such spacious buildings, and the nuns are so pleasing in their manners—but I think, with the same desire to be useful, they could be more so if at perfect liberty." Strange, that one hundred years later, Mary Ann's wish should be fulfilled—when the Sisters walk the streets freely, chattering gaily away, and even compete in their Austin 1100 to hold up the traffic on the Crumlin Road.

The Sisters of Mercy had been long established in St. Paul's Convent, Crumlin Road, before the notion of a hospital was conceived. When the Catholic Bishop of the time—Dr. Dorrian (Fig. 1)—entertained the idea he turned naturally to this Order; for since they went with Florence Nightingale to the battlefields of the Crimea, their fame as a nursing order was worldwide.

1. *The Late Most Rev. Dr. Dorrian*

The first reference to the Mater comes in a small devotional pamphlet published for the nuns by the Ulster Examiner in 1876. They had just erected a small grotto, or shrine, in the convent grounds—to the Mother of God, to implore her help in establishing a hospital for the poor of the city and the province. "All offerings will be funded, until a sufficient sum can be raised to secure an edifice worthy of the people of Belfast, and suitable for the reception of its sick and suffering inhabitants; where all their wants, spiritual and temporal, will be carefully attended to, and where the sufferers will enjoy the fullest rights of conscience". It was a noble ideal, and its practice has continued down the years. Some money was collected, and in 1883 Dr. Dorrian purchased for £2,300 the building known as Bedeque House, and spent a considerable sum in conversion (Fig.2). It was opened as the "Mater Infirmorum" or Mother of the Sick. The cottage next door was made into a dispensary, with small wards upstairs. The house itself had been built in 1823 by a Mr. Gordon A. Thompson. Of him the record says: "This beautiful house had rich stores of curiosities and relics gathered in many lands. He had previously led a Bohemian life." A suspicious—if not sinister—juxtaposition of sentences. In a work he called "Early Australian Reminiscences" he described himself as "a relic of the past century", having been born in 1799. He died on June 8th,

1886, at Bedeque House—not in Belfast but in West Melbourne. There is, alas, no portrait; and the rich stores of curiosities and relics were, no doubt, converted into pills and surgical dressings.



2. *The original Mater Infirmorum Hospital, Bedeque House,* 1883

The anonymous scribe goes on to say: "We consider it to be part of our work as a chronicler, to give a short description of the hospital at its opening. Though apparently unmeaning for our generation, the description will be of interest to those who come after us". To this, my own reaction is: "Stout fellow!" You may prefer to endorse his next remark, which reads: "We fully confess that we are ambitious enough to write for posterity, though some humorous mortal may say that we are taking advantage of it".

I will spare you the full description; but I think that one or two sentences are worth quoting: "The attics are occupied by the Sisters". "From the windows of the hospital good views are obtained of Cavehill and Hannahstown mountains, and the bracing airs of these higher latitudes are always playing about the venerable

old pile". Lastly, from the same source: "We may justly say with Duncan—'This hospital hath a pleasant seat; the air nimbly and sweetly recommends itself unto our gentle senses'." He is recalling—and what a strange and nostalgic thought it now is—the lovely garden at the rear of the hospital with its pretty conservatories, its flower-beds and its hothouses.

From Dublin, where the Order had another Branch, the Sisters imported an experienced nurse to come and organise the new venture. She was Sister Mary Magdalene from the Mater Misericordiae Hospital. She found herself in charge of a much smaller institution—some 34 beds; small, but in the context of the times, ambitious enough. And so, modestly, but full of hope and sustained by charity, the Mater Hospital began.

For its size it had quite an impressive Medical Staff. The Consultant Physician was Alexander Harkin, M.D., F.R.C.S. James Fegan, Esq., F.R.C.S.I., was its Surgeon. On the Visiting Staff were Alexander Dempsey, M.D., F.R.C.S.I.; Peter O'Connell, M.D.; J. McStay, L.D.S., R.C.S.Eng. The Resident Surgeon was one F. C. Dwyer, B.A., M.D., B.Ch.—a pleasing combination of the Arts and Sciences—the loss of which combination I think we may still regret

The Hospital was scarcely in business before all concerned with it realised that its accommodation was quite inadequate. The first quarterly report says: "The public are aware that the amount of bed accommodation is very limited; yet during the last 3 months 50 patients have received medical care in the wards; of these, 3 were moribund on admission and died. The remainder were cured or much relieved. Considering that the majority of patients were medical cases, a mortality of 6 per cent is a rather low average—and tends to confirm the opinion entertained—of the suitability of the house for the purpose to which it has now been converted, and of the excellence of its sanitary arrangements". In the same period 675 patients attended the dispensary. The Surgeon Dentist attended once a week, which was quite an innovation for the times.

In the first annual report of 1884, the cry for more beds became louder; more so again the following year. This year saw the death of Dr. Dorrian. Before his death he gave instructions for the erection of a wing for 50–100 patients and plans were drawn up and approved by him. When he felt that his health was failing, he handed over the hospital to trustees—that it be enlarged, so as to make it suitable for medical education; and should this condition not be carried out, he required the Sisters to utilise the gift for other charitable purposes.

Dr. Dorrian appears to have been quite a remarkable man. During his entire Espiscopate he had consistently aimed at establishing a University College in Belfast, having all the facilities of higher education, including a medical school—of which the hospital would form an integral and essential part. It is easy now to say that such a project was grandiose and even unwise; that it would have further divided a community which was even then split, and which still struggles uneasily and slowly towards unity and a common purpose; but it must be remembered that, at that time, Catholics were forbidden by their Church to attend the Queen's College.

In his work, "The Making of Modern Ireland," Professor J. C. Beckett of Queen's University, Belfast, tells the story of the Queen's Colleges, established by Peel in 1845. They were, he says, intended as a measure of conciliation to all

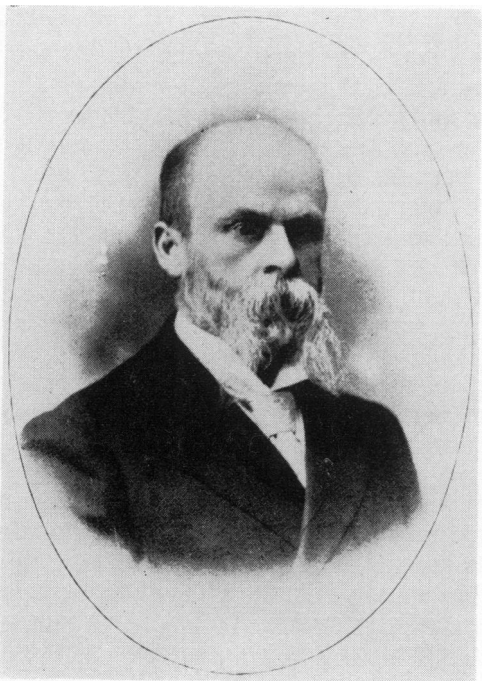
sections of the population but were not a success. Trinity, though it offered degrees to all, was for the established Church—its Scholarships and Fellowships were confined to that Church. The new Colleges were to be secular institutions, though arrangements were made by which the various denominations could provide for the pastoral care and religious instruction of their own students. But the scheme was attacked by all—Anglicans, Presbyterians and Roman Catholics. The latter continued their opposition and in August 1850 an episcopal synod at Thurles issued a formal condemnation and warned the laity to shun the colleges. They acquired the unfortunate, and not wholly justified title of "The Godless Colleges of Peel". Hence the remarks of that long dead chronicler which I would specially commend to all who have sought their education in the South: "They have consequently to seek their medical education in Dublin, and any person acquainted with that city knows the dangers—the terrible dangers—to which they are exposed. It is very few indeed who can steer their course free of the moral danger which is spread over the city. Many a young and promising life is blasted there for ever, which under other circumstances might have had a glorious future".

So the cry for more beds is linked to the notion of medical teaching. It would be interesting to know if the same dark suspicions of Dublin life were entertained by the worthy gentlemen who were at the same time pressing for expansion of the old General Hospital into the new Royal Hospital. Aside from this, it was, of course, no mere coincidence that the Frederick Street establishment was also contemplating expansion. Belfast at the close of the century was very poorly provided with hospital accommodation. The population explosition between 1841 and 1891 was quite remarkable. From 75,308 to 255,922 it almost quadrupled. Burdetts Hospital Annual of 1883 shows that as regards hospital facilities we stood at the bottom of the list among the major cities of the British Isles (Fig. 3).

No.	Name of Town.	Population.	Number of Out-Patients.		Number and Class of Institution.	
			Total Number.	Number per 1000 of population.	General.	Special.
1	Liverpool	517,951	249,826	482	5	12
2	London	4,221,452	1,762,527	417	36	71
3	Edinburgh	261,979	101,991	389	2	6
4	Dublin	352,090	130,176	369	8	15
5	Bristol	221,665	79,254	357	2	4
6	Leicester	142,051	50,023	352	1	...
7	Brighton	115,402	39,563	343	1	5
8	Birmingham	561,147	174,135	310	2	12
9	Newcastle	186,345	55,488	292	1	6
10	Manchester	505,343	129,168	255	3	10
11	Wolverhampton	82,620	19,515	236	1	1
12	Leeds	367,506	74,674	203	1	3
13	Sheffield	324,243	58,608	180	2	5
14	Gateshead	85,709	15,270	178	...	2
15	Belfast	255,896	42,131	162	2	8

3. *An entry in Burdetts' Hospital Annual of* 1883

To further the project of the new Mater Hospital, a public meeting was held on September 25th, 1895, in St. Mary's Hall. The Bishop—now Dr. McAllister—announced that Mountview Terrace—seven terrace houses adjoining the old hospital—had been purchased for £2,600 and that plans were being drawn up for a new hospital of about 150 beds. Out of 14 designs submitted to Mr. Drew, President of the Royal Institute of Architects of Ireland, the winning design had been submitted by Mr. William J. Fennell (Fig. 4). Fennell also designed the Water Commissioners' office in Royal Avenue—demolished in 1966—and was also the architect of the old Maternity Hospital in Townsend Street. It must, says C. E. B. Brett, in his book "Buildings of Belfast", have been a source of irritation to him that outsiders were brought in to design the Royal Victoria (Henman & Cooper of Birmingham).



4. *William J. Fennell, architect of the New Mater Hospital*

One is a little peeved to find the same author dismiss the Mater as "A rather depressing exercise in sub-Tudor red brick", but one's partisan feelings are mollified to find that the unusual design of the Royal was described by critical medical men at the time as "a cross between a factory and a goal".

A letter round that time, in the Irish News, announced the award, and the losers received their small honoraria—plus a consolation prize in the shape of a quotation from Paul to the Corinthians—"They that run in the race, all run indeed, but one receiveth the prize"—I Cor. 9, 24.

The High Sheriff of Antrim—Henry James McCance—presided at the meeting in St. Mary's Hall. There was present also a very forthright gentleman called

Samuel Young, M.P., who said, with obvious feeling: "It is certainly a pleasure to me to meet an assembly not collected for political or religious warfare or strife. There is one matter that one may cavil at. It will be under Catholic auspices, it may be said. It will be none the worse of that. Why should I not join heartily, though the mode of carrying out the operation may not be according to my theory".

It was, in fact, a well attended meeting, representing all sections of the community. The Ulster of that time appears to have been enjoying a brief spell of quiet and to be settling down to some sort of modus vivendi. The memory of the bitter sectarian riots of 1886 was fading, and the scene was temporarily peaceful—apart from a little quiet fun smouldering here and there.

On the same page of the paper which advertised a collection for the Mater we can read a speech of Parnell, then in his heyday. Two Orangmen are appearing in Court in Portadown over some small fracas. Two Hibernians are evening the score before a Magistrate in Dungannon. Lower down the page, a grisly little paragraph announces the public hanging in St. Stephen's Green of two youths convicted of robbery with violence. It sheds an interesting light on the stern, calm and utterly confident portraits of our forbears.

This inaugural meeting produced a good response, but the project lagged for a number of years. The new Bishop was then in poor health, and seems to have had a strong streak of caution. He was unwilling to go ahead with plans until more money was to hand. It was left to his successor, Dr. Henry, to expedite matters. By this time, as seems usual, the original £20,000 required had expanded to £50,000.

Accounts of collections make dreary enough reading, but there are one or two items of interest. One such is the penny collection. Each parish had its band of ladies—known as Zealatorices, presumably zealous women—who called in every home once a week and asked for a penny—no more. They brought in £1,000 a year. The second item was on a grander scale and was known as the Railway Set-off Scheme. The three railways were not at all helpful. Two of them, in fact, refused to subscribe a penny and only the County Down Railway ultimately gave a subscription. The fund raising committee, therefore, organised a scheme to cover every town served by a railway station. Each ran its concert, whist drive, or what have you, and the project was, it appears, a great success. Finally, there was the great bazaar—five days of concerts, exhibitions and sales of work in the Ulster Hall, which netted £10,000. Various posters were on display to encourage the generous. The whole collection operation is very reminiscent of that used by the Anti-corn Law League in England of an earlier date.

Part of the hospital appears to have been opened as early as 1899, when the Secretaries of the Royal University of Ireland notified the Medical Staff that the Mater Hospital had been added to the "list of institutions from which the University received certificates for degrees in Medicine". Again—and it indicates both the scarcity of beds and the urgency of the situation—in August of that year the Bishop asked the Medical Staff to open the wards of the East Pavilion for the reception of patients attacked by the typhoid epidemic. This was the notorious epidemic which ran into 27,000 cases in Belfast.

The building was now complete (Fig. 5), the formal opening was on April 22nd, 1900, and the ceremony was performed by the Lord Mayor, Sir Robert McConnell. Nice things were said by everyone, from Sir Robert to the Marquis of Dufferin and Ava, and Mr. Wolff of Harland & Wolff, who arrived a little late for the launching, but was still, apparently, in time for the champagne.

5. *The Mater Infirmorum Hospital,* 1900

The recognition of the Mater, as a teaching hospital by Queen's University, dates from the implementation of the Irish Universities Act of 1908. This legislation was the work of Augustine Birrell, the Chief Secretary. The Royal University was abolished, and two new Universities established in its place—the National University of Ireland and the Queen's University of Belfast. This was essentially a political solution. Birrell started with the conviction that he must satisfy the claims of the Irish Bishops, who demanded some measure of effective control, and the new National University, although formally non-denominational, was so organised as to fulfil this condition.

Protestant opinion could hardly be expected to regard such a system as satifactory: its establishment was only made possible by excluding Queen's College, Belfast—which was turned into an independent university, not, says Professor Beckett, because of a strong local demand but because there was nothing else to do with it. One of the oddest quirks of this whole settlement—and one of the least remembered things about him, in Ulster at any rate—is that Sir Edward Carson was a consistent supporter of Roman Catholic claims in the controversy over university education.

The adjustments required in the existing Queen's University by this Act were entrusted to a body known as the Belfast Commissioners. Representatives of the Mater Staff approached this body, to lay down before them their case for teaching.

"We hope," they said, "that the Commission will devise a plan whereby this valuable clinical hospital will be utilised and become a source of strength to the University". Judge Shaw, the Chairman of the Commissioners, welcomed the deputation and stated that he sympathised with its objects, as widening the bases of support for the new University. He then asked Sir Donald McAllister, President of

the General Medical Council, to speak on the medical aspects of the question. Sir Donald agreed that the University could approve lecturers in Clinical Medicine and Surgery in any recognised hospital, and from there examiners would be selected in rotation. And so, on the recommendation of the Senate, the Mater Hospital was included among the institutions recognised for teaching purposes. A member of its staff was appointed as one of the four "University Clinical Lecturers" chosen each year to represent the Staff of the Teaching Hospitals on the Faculty of Medicine, and to act as internal examiners in the degree examinations.

Teaching began, when on 9th October, 1908, the new Bishop, Dr. Tohill, agreed without any demur to the opening of a Clinical School. It was a source of deep satisfaction to the staff and the end of a long fight. Dr. Henry had maintained inflexibility to the end, his opposition to anything less than a second University. They threw themselves into the job of teaching with energy and enthusiasm, and with very considerable success. I should like to quote you an extract from a letter to the Commissioners of June 13th, 1910, from J. B. Moore, then Secretary of the Staff:

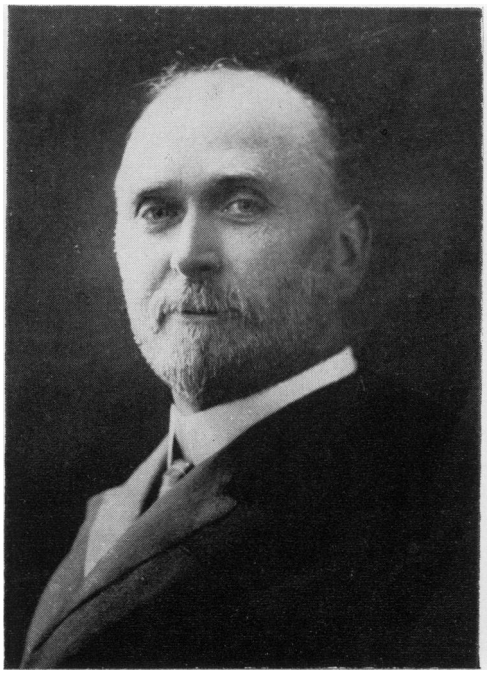
> "We are convinced that the Clinical School of the University, as far as the two main subjects of Medicine and Surgery are concerned, should be based on the two large General Hospitals, which are equipped for and have been giving efficient clinical teaching, viz., the Royal Victoria Hospital and the Mater Infirmorum Hospital.
>
> "The latter hospital has now had a clinical class for two winter and two summer sessions, and the efficiency of the teaching given in its wards is strikingly demonstrated by the attached list of prizes for fourth year students of the University at the sessional examinations at the end of the winter session 1909–10.
>
> "The class at the Mater has been small, yet the Commissioners will observe that out of nine prize-winners seven were Mater students and that in Medicine and Surgery, all the four prizes were carried off by Mater Hospital students".

There follows a nice "throw-away line: "While we do not attach too much importance to these results, we feel justified in drawing the Commissioners' attention to them, as proving that the teaching of the Mater is efficient, and that it attracts the best men of the year."

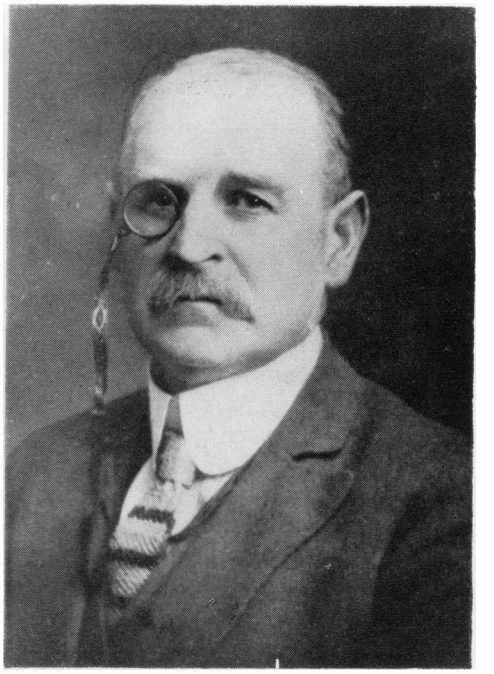
It was an auspicious start, and there followed a fruitful period of growth and expansion to around the end of the World War I. The links with the University were strengthened. Royal and Mater were quite closely and happily linked and there was a free interchange of students. The sectarian lines were only faintly visible and were more easily crossed.

The late W. J. Wilson was our first pathologist, a man beloved of many generations of students, both then and when he left for the Department of Hygiene in Queen's, as it was once called. He was followed by Professors Symmers, Drennan and Young, all on the Staff of the Mater. Last, but by no means least in the line is, of course, Sir John Henry Biggart, who still, when in lighter mood, occasionally refers to himself as the last of the Honorary Consultants.

W. W. D. Thompson — later Professor of Medicine — began his career as



6. *Sir Alexander Dempsey*



7. *James Bernard Moore*

Clinical Pathologist in the Mater in 1912 and was later a Physician on the Staff, until he left in 1919 to take up an appointment in the Royal Victoria.

Three men, prominent, in those early days of the Mater, deserve special mention. Time does not permit me to talk of too many. First in seniority is Sir Alexander Dempsey (Fig. 6). He began practice in Donegall Street in 1854 and was on the Staff from the beginning of the Hospital. He and Drs. William McKeown and John Moore established the Northern Ireland Branch of the British Medical Association and he subsequently became its President. He was also a President of this Society. In 1880 he was appointed a magistrate, acted for some time on the Joint Board of the Belfast and County Asylums, and was on the Visiting Committee of the Belfast Prison. He was active in the settlement of the University question, was a member of the National University Senate and a member of the Governing Body of University College, Dublin. He was a Fellow of the Royal Society of Medicine, London, and of the British Gynaecological Society, and a Fellow of the Royal Academy of Medicine of Ireland. Indeed, a man of distinction. He was knighted in 1904 by His Majesty King Edward VIII, and his firm signature sprawls across the Minute Book of the Medical Staff Committee for the next 15 or 16 years.

James Bernard Moore (Fig. 7) graduated from the Queen's College, Cork, with honours in 1890, after a brilliant undergraduate career that bristled with prizes and exhibitions. From Cork he went to St. Mungo's, Glasgow. At this time he seems to have been chiefly interested in Pathology and left St. Mungo's with the first prize in practical Pathology.

He started in practice in Belfast on the Mountpottinger Road in 1894 and joined the Assistant Staff of the Mater in 1896, becoming a member of the Senior Staff in 1900. Surgery became his dominant interest and he became a Fellow of the Royal College of Surgeons, Ireland, in 1909. His subsequent career spans the two World Wars, and I recall him vividly when I first went to the Mater as a student. A good teacher, terse and pungent in his descriptions; not a man to suffer fools gladly. He was the only man I have ever known who consistently finished the Sunday Times crossword before lunch.

He was a reticent man and not given to talking much about himself. A pity, for his professional lifetime covered a lot of changes and many turbulent times in this city. There are two stories, which I owe to his son, Dr. Seamus Moore, which shed some light on him and the times in which he lived.

In World War I he was appointed a Consultant Surgeon to the British Army and was a frequent visitor to Victoria Barracks. This became something of a trial to him in 1916 when the Army in a literal sense took him to its bosom. On all calls to the barracks he was provided with an armed escort who called for him at his home in Clifton Street, marched him through the gates, followed him to the operating theatre and remained at the doors to lead him out and march him home again. He could never decide whether this was in recognition of his value, or because of a suspicion that he was at the same time acting also as Consultant Surgeon to the Irish Republican Army.

Rather later—in the troubled 20's—he earned a compliment of another kind. At that time a well known sniper of reasonable efficiency had established himself by night at the base of the statue in Carlisle Circus. From this strategic point, complete with rifle, sandwiches and Guinness he used to enliven the hours of darkness by taking a pot at anything which moved between North Queen Street and Carrick Hill, which practice made night calls to the Mater something of a gamble. Nemesis—in the shape of an acute appendix—struck this warrior one winter evening, and he was carried groaning into the Mater. During his stay he was only known to speak once. That was while he lay on the operating table, while Barney Moore stood by with knife poised, and the anaesthetist dribbed on the chloroform. His words were heartfelt, colourful and unprintable. I can only give you a rough translation: "God damn my four-lettering soul; the four-lettering Fenians have got me and they're four-lettering going to finish me off". Well, he survived and returned to active duty! His sole tribute to the Hippocratic Oath was to cease firing when J. B. Moore appeared in Clifton Street on his errands of mercy to the Mater..

John O'Doherty, who spent some 30 years on the Surgical Staff, was probably the last of the truly general surgeons. He was prepared and willing to remove the thyroid, or any expendible part from that to the uterus, and was equally at home with the bougie or the curette.

Small, rotund, with as many waistcoats as an onion, he peered out on the world from behind enormous glasses and had an enormous interest in everyone and everything. He was equally informal with dustman or duchess. There is indeed a delightful story of his conversation with a distinguished lady during a royal tour of the hospital. They disappeared down a corridor on their own, John linking her familiarly by the elbow, and talking away happily, ten to the dozen. A fascinated

houseman, treading as close as he dare on the heels of the great, heard the familiar opening: "There was a fellow once . . ." and the story went on to describe a treatment which Mr. O'Doherty held in great contempt—the enclosure of a limb in plaster for long periods for compound fractures and the like. "And then," said he, "after a year they took it off". "And was his leg better?" asked her Ladyship, trapped in fascinated horror by his eye. "Not at all, dear; it fell off."

As a teacher he was never dull. Some of his axioms might be dubious; they were certainly memorable. I can recall one that still puzzles me: "What you can cut you can tie", or should it be, "What you can tie you can cut"?

He could be generous, and on one occasion he personally donated half the cost of some X-ray apparatus. Unfortunately, like so many donors, he attached a little string to the gift, and had decided views on where it should be set-up. The Staff disagreed, and told him briefly, if inelegantly, where he could put it. It seems, however, that all was settled amiably, and a more satisfactory arrangement was made.

The period which stretches through the 20's and the 30's was a difficult and unhappy time, not only for the Mater but for the whole city; a time of bitterness and bloodshed that kept all our hospitals busy, but strained friendships and soured relationships.

In the mid-thirties there came again a time of growth and expansion that saw the building of a new nurses' home and a new extern department. The latter was built on ground belonging to the jail and an Act of Parliament was needed for its transfer. In the end it realised only half its projected size because of the unfortunate proximity of the prison.

In 1945 the Maternity Unit was opened. It is interesting to find in old records that a Maternity Wing was actually in operation in 1912—St. Mary's Maternity Hospital, in Lonsdale Terrace. However, it fades out during World War I when it appears to have been used for an overflow of war casualties and it was never reopened.

The present building (Fig. 8) comprised at first two terrace houses—soon to be three—adapted to the purpose at a cost of about £20,000. The cost was high, for the end result could never be really satisfactory. The opening ceremony was quiet for it was only seen as a modest beginning, and no one concerned ever hoped or dreamt that it would still be in existence some 23 years later. I had the privilege —if not the pleasure—of being the first House Surgeon. It was no pleasure, for my ignorance was colossal, and I had an even greater and more wary respect for the problems of obstetrics than I have now. It is still our ambition and our hope to escape to a better environment, and the notion of teaching obstetrics, which goes back to the early years of the century, is with us still, and still concerns us vitally.

The most recent chapter in our history, since 1948, is familiar to us all, and I would only mention briefly the fascinating growth of the Young Philantrophists Association, which has virtually maintained this hospital since 1948. It was originally a small society of young men who raised money for the Mater in the usual way of concerts, dances and other social functions—once a common enough feature of all voluntary hospitals. In the early 1950's they mushroomed into the Y.P. Pools—a large and thriving organisation which has provided the major slice

8. *Maternity Unit of the Mater Infirmorum Hospital*

of our income ever since. They are something of a "silent service"; they have constantly sought publicity for the hospital—never for themselves.

So much for our story. I might perhaps finish with a few extracts from the old Staff Minute Book, which even through the rusty ink and the illegible doctors' writing gives us some idea of the flavour of the place, and the people who ran it.

They were not without a sense of their own importance. It is recorded on July 6th, 1912: "The gong shall be sounded when the Surgeon or Physician on duty arrives".

They were men of discretion. There is, in the early days, a guarded reference to a man who achieved the rare distinction of causing a mutiny among the theatre staff. One is left tantalised and speculative as to what he said or did to provoke a body of women notorious for their loyalty.

Women were relegated to their proper place in the scheme of things. One reads in 1902 of the appointment of one Janet Pirret of Glasgow and Winifred Thorp of London as House Officers, and feels that, for their time, the Staff were a liberal and enlightened body of men. Alas, the truth emerges in 1905—"for a number of years we were obliged to appoint female medical officers, and while the Medical Staff have no reason to complain of the manner in which they discharged their duties, they were not suitable for all the various duties of a large general hospital". Damned with faint praise!

There is no doubt that in those far-off happy days a Resident Medical Officer was considered fortunate to be alive and to tend to his betters. In 1901 £30 per

annum was thought to be a very reasonable emolument. In 1912 they clearly repented of such generosity and the stipend dropped to £20. They were sacked, too, in a casual fashion that might well be the envy of any modern industrialist—usually for such serious offences as appearing in court and collecting fees intended for their seniors or persistently appearing late on the morning round. One such death sentence has, I think, a truly classic ring: "That Dr. X, having left the hospital without the permission of the Medical Staff, a vacancy be declared in that office."

They found it easier to give exact definitions than we in our more sophisticated age—as in a reply to a question by the Bishop: "An anaesthetist, my Lord, is a person who attends in the morning and gives chloroform during operations".

Very little of interest appears during the 20's. There is one exception—an indignant outburst, when on the night of June 7th, 1922, the hospital was subjected to machine gun and rifle fire for 45 minutes during the hours of darkness. On the following day the Staff drafted a telegram of protest and demanded immediate military protection. They sent it, with admirable impartiality to: The King, the Rt. Hon. Lloyd George, the Rt. Hon. Winston Churchill, and Mr. Michael Collins, of the Irish Republican Army. Presumably someone sent help, or the situation, through public protest, was not repeated; and the record subsides again into the humdrum account of ordinary business.

By and large, of course, those things which are—to the lay mind—dramatic, are taken for granted by doctors. The really important things are tucked quietly away in case histories; the triumphs and failures are itemised in sober and unsensational terms.

One recalls, for example—and very vividly—one of the nights when the city was heavily bombed; when a land mine exploded no more than 100 yards away from the hospital; when the Nurses' Home was in flames and when, at one point, bodies were stacked high against the wall of the jail which runs towards the mortuary, because there was nowhere else to put them. The Staff recorded it in three lines of dry and unemotional prose.

One closes the book with mixed feelings—some regret that so little is set down; that only the odd flash of a personality illumines the faded ink; some sense also of an achievement and of a continuity of a tradition; some feeling of encouragement to retain and pass on what one has received—and the wry reflection also that one has trespassed too long on your patience, and that perhaps, good hospitals should be like good women—they should have no history.

PATHOGENESIS AND CONSERVATIVE MANAGEMENT OF VENOUS THROMBOSIS AND PULMONARY EMBOLISM

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TODAY THROMBOSIS and embolism are the commonest causes of death after a major abdominal operation (Muir, 1968). Since 1960 thrombosis and embolism have been the leading cause of maternal death in England and Wales (Jeffcoate and Tindall, 1965). Morrell, Truelove and Barr (1963) confirmed a marked increase in the decade 1952 to 1961. These findings contrast with the reported incidence in African races (Lee, Davies and Florentin, 1966). Smith, Dexter and Dammin (1965) in post-mortem studies in Boston found pulmonary embolism to be the single most common cause of death. Frieman and his colleagues (1965) also from Boston, found evidence for old or recent pulmonary emboli in 64 per cent of a group of consecutive autopsied patients. Sevitt and Gallagher (1962) also demonstrated a high incidence of venous thrombosis and pulmonary embolism in those dying after injury or burning.

During a twelve-month period through 1967-68 twenty patients were seen with venous thrombosis and its complications; a marked increase in the Department of Surgery at the Royal Victoria Hospital (Rogers, 1968). One thousand six hundred and fifty patients were admitted during this period and there were two diagnosed deaths from pulmonary embolus. In three of eight patients with clinical signs of deep venous thrombosis, pulmonary emboli complicated management. Six pulmonary emboli treated were "silent", that is, without signs of peripheral thrombosis (Table I).

TABLE I

An outline of the clinical features presented by twenty patients with venous thrombosis studied from a twelve-month period through 1967-68

	No. of patients
Total number of patients	20
Number of deaths from pulmonary emboli	2
Total number of patients with pulmonary emboli	10
Number of patients with "silent" pulmonary emboli	6
Deep venous thrombi of lower limb	8
Septic pelvic thrombophlebitis with pulmonary embolus	1
Superficial venous thrombosis of the lower limbs	4
Subclavian vein thrombosis	1

Rational management of any clinical problem in medicine requires an understanding of pathogenesis. In venous thrombosis the importance of stasis of the blood has not been sufficiently emphasised. Therefore, this paper is divided into two sections; a discussion of factors influencing thrombus formation, and a clinical study of twenty patients with venous thrombosis and its complications.

Part 1 : FACTORS INFLUENCING THROMBUS FORMATION

The triad of factors which initiate thrombosis in vivo are stasis of the blood, physical changes in the vessel wall and alteration in the blood itself (Virchow, 1856). Although the biochemical stages of coagulation are now established, the precise initiating mechanisms can still only be expressed in terms of Virchow's triad. Therefore, treatment of thrombosis has remained nonspecific and aimed at reversal or prevention of these factors. Recently an important morphological distinction between arterial and venous thrombosis has influenced therapy (Wessler, 1962). Traditionally a distinction has been made between clots formed from blood in a test tube and thrombosis within the vascular tree. Wessler (1962) observed that thrombi formed in slowly flowing blood in veins have a similar structure to in vitro or post mortem clots. Histologically these stasis thrombi consist of fibrin and red cells ; whereas arterial thrombi are white and consist mainly of platelets (Mustard *et al.*, 1962 ; Wessler, 1962 ; Poole, French and Cliff, 1963 ; Rosenburg and Dintenfass, 1964 ; Gurewich and Thomas, 1965 ; Salzman, 1965). This morphological differentiation is not absolute but varies as a function of blood velocity (Mustard *et al.*, 1962 ; Dintenfass, 1964). It must also be emphasised that the fundamental initiating event in both arterial and venous thrombosis is formation of a platelet nidus (Poole and French, 1962) ; but subsequent thrombus accretion in veins is fibrinous (Robertson, Moore and Mersereau, 1959 ; Wessler, 1962 ; Allison, 1965).

The importance of such a distinction is further clarified by evaluation of factors initiating thrombosis, and the relation of methods of treatment to those factors.

Stasis of the Blood

Clinical and experimental evidence has accumulated to support the above morphological observation that venous thrombosis occurs primarily because of stasis of the blood (Gibbs, 1951 ; McLachlin and Peterson, 1954 ; McLachlin, McLachlin, Jory and Rawling, 1960 ; Wessler, 1962 ; Bauer, 1964 ; Kernohan and Todd, 1966). However, Martin and Stefanine (1960) and Wessler (1962) have shown that stagnation of the blood is insufficient cause alone and hypercoagulability and/or vessel wall injury (Mustard *et al.*, 1962) is necessary to initiate thrombus formation. Therefore, prevention of venous thrombosis should be based on reversal of stasis of the blood i.e. improvement of venous return, before, during and after illness or operation.

Alteration in the Constituents of the Blood :

(a) *The Platelet* – In vitro measurement of platelet adhesiveness shows an increase, together with a rise in platelet count, after trauma (Dawbarn, Earlam and Evans, 1928 ; Wright, 1942 ; Owren, 1963 ; Emmons and Mitchell, 1965). Wright (1942) initially suggested that this change in adhesiveness might indicate a tendency to post-operative leg thrombosis. Hirsch and McBride (1965), Owren (1965) and Bygdeman, Eliasson and Johnston (1966) have confirmed this tendency. Recently evidence is accumulating that a rise in platelet adhesiveness is not specific to the post-traumatic state (Mitchell, 1968) nor constantly an indication of a thrombotic tendency (Pinto, 1968).

Heparin and prothrombin depressants have little effect on platelet aggregation and adhesion to the vessel wall when given in a dosage conventionally used for treatment

(Best, Cowan and MacLean, 1938 ; O'Brien, 1961 ; Berman, 1963 ; French and Poole, 1963 ; Robb, Jacobson and Jordan, 1963). The search continues for a safe and effective inhibitor of platelet aggregation. However, when found, the agent is more likely to be useful in the prevention of arterial thrombosis.

(b) *Plasma Coagulation* – A hypercoagulable state occasionally arises because of a disturbance in the dynamic equilibrium between the intrinsic coagulation mechanism and the fibrinolytic system (Astrup, 1958 ; Wessler, 1962). A large proportion of intravascular coagulation syndromes, independent of operation or trauma, have a neoplasm as their underlying cause (Mosesson, Colman and Sherry, 1968). Consumption coagulopathy is an extreme example of this syndrome in which disseminated microvascular coagulation produces systemic hypofibrinogenaemia and thrombocytopenia by consumption (Rodriguez-Erdman, 1965 ; Mosesson, Colman and Sherry, 1968). At present there is no consistently positive test for the presence of hypercoagulability (de Takats, 1966 ; Hume, 1966). Local hypercoagulability or reduced fibrinolysis (Silver, 1966) may initiate thrombosis in the absence of systemic changes.

Small amounts of heparin inhibit fibrin clot formation (Poole, 1959 ; Berman, 1963 ; Salzman, 1965), and this natural anticoagulant is at present the drug of choice for treating venous thrombosis and pulmonary embolism. Once the coagulation mechanisms of the blood are enzymically blocked by heparin the lytic effect of the plasma comes into play (Jorpes, 1962) possibly catalysed by the action of heparin (Hajjar and Moser, 1962).

The marked reduction by heparin of the incidence of fatal pulmonary embolism, recurrent venous thrombosis, chronic venous insufficiency and severity of inflammatory thrombophlebitis, initially demonstrated by Bauer (Jorpes, 1962) has been confirmed many times (Murray, 1947 ; Cosgrieff, 1950 ; Fuller, Robertson and Smithwick, 1960 ; Stamm, quoted by Jorpes, 1962).

There is some evidence that prothrombin depressants are useful in the postoperative prevention of pulmonary embolus (Sevitt, 1962 ; Skinner and Salzman, 1967). However, a large body of clinical experimental evidence demonstrates the superiority of heparin in the treatment of venous thrombosis and pulmonary embolism (Warren and Belko, 1957 ; Carey and Williams, 1960 ; Fuller, Robertson and Smithwick, 1960 ; Engelburg, 1962 ; Jorpes, 1962 ; Diamond, 1964 ; Laufman, 1964 ; Ker;nohan and Todd, 1966 ; Reeve, Hunt and Argall, 1966).

(c) *Blood Viscosity* – Most coagulation studies are carried out in static in vitro conditions, but thrombosis occurs in flowing blood. Factors of internal friction between the constituents of blood and the vessel wall must, therefore, be considered in the mechanism of thrombosis. Applied to biology, the science of flow and deformation of matter, is labelled biorheology.

With slowing of microcirculatory blood flow, red blood cells tend to aggregate in rouleaux and lie in the axial stream of the vessel. The smaller white cells and platelets are displaced towards the vessel wall (de Takats, 1966). The platelets situated near the vessel wall are in a zone of higher shear rate which increases platelet adhesiveness and aggregation may occur (Dintenfass, 1968). The plasma protein content of this zone is especially important in the microcirculation as shear rates are very high in the narrow space between cell and vessel wall (Wells, 1964 ; Litwin, 1965). Abnormal plasma proteins are found at times in conditions of chronic

intravascular coagulation (Mosesson, Colman and Sherry, 1968) and may cause thrombosis by increasing plasma viscosity.

Dintenfass (1968) has demonstrated an in vitro disproportionate increase in blood viscosity at low rates of shear in patients with venous thrombosis and coronary occlusion when compared with normals. He has also confirmed in his rheological studies the importance of slowing of the blood in the initiation of coagulation and thrombosis.

Part 2 : CLINICAL STUDY

Fourteen of the twenty patients studied were female and the mean age was fifty-five years. Clinical deep venous thrombosis in the lower limbs presented as early as two days and as late as forty-four days after operation. Pulmonary emboli occurred at a mean time of eleven days after operation. The majority had intro-abdominal surgery before developing venous thrombosis but many other aetiological factors were present (Table II).

TABLE II

Causal factors in venous thrombosis and pulmonary embolism

	No. of patients
Post-operative	
Upper gastrointestinal	5
Lower gastrointestinal	2
Urological	2
Thoracotomy	3
Mastectomy	1
Malignant disease	4
Obesity	9
Venous disease of the lower limb	
Previous deep venous thrombosis	2
Varicose veins	5
Prolonged immobilization 20 days	4
Cardiac disease	2
Sepsis	
Pelvic post-partum	1
Wound	4
Septicaemia	1
Respiratory insufficiency	4
Idiopathic	3

Four patients with deep venous thrombosis had haematological investigations in an attempt to establish the presence of a hypercoagulable state (Table III). No patients with a consumption coagulopathy were revealed, nor was any reliable pattern of results to indicate an increased tendency for thrombosis established. On one occasion a patient with no obvious cause of thrombosis (patient No. 1 – Table III) demonstrated increased platelet adhesiveness with high levels of fact VIII and fibrinogen in the absence of increased fibrinolysis which could be interpreted as a hypercoagulable state. However, subsequent haematological investigations were near normal.

TABLE III

Haematological investigations carried out in 4 patients with deep venous thrombosis of the lower limbs (D.V.T.)

Cause D.V.T.	*Platelet count (/cu.mm.)*	*Platelet adhesiveness (%)*	*Fibrinogen (mg%)*	*Factor VIII level (%)*	*Partial thrombo-plastin time (secs)*	*Heparin tolerance test (% of control response)*
Normal values	200-300,000	20–35	250–400	100	29–45	100
1.						
Idiopathic	250,000	Increased (50)	320	348	36	–
2.						
Small bowel	550,000	40	175	270	45	65
malabsorption	399,000	–	230	265	40	80
3.						
Idiopathic	148,000	50	185	100	40	100
4.						
Post prostatectomy	175,000	30	180	120	32	80

(In the idiopathic case platelet factor III, platelet aggregation response to adenosine diphosphate and the prothrombin level were normal. The euglobulin was slightly reduced and the thrombin titre was 1.64 against a control of 1.32.)

An additional patient with pancreatic absesses and duodenal fistula developed spontaneous bleeding after resolution of his deep venous thrombosis and pulmonary embolism. Investigations demonstrated excess fibrinolysis causing bleeding through the duodenal fistula which was controlled eventually with epsilon-amino-caproic acid. This patient illustrated a disturbance of the delicate balance between coagulation and fibrinolysis. Initially heparin was required to reverse hypercoagulability and then epsilon-amino-caproic acid to counteract excess fibrinolysis.

DIAGNOSIS

Eight patients were treated for clinical evidence of unilateral deep venous thrombosis of the lower limbs. In all cases there was calf tenderness, oedema causing increase in diameter of the limb, a "doughy feel" of the calf muscles and mild fever and tachycardia. The mild fever and tachycardia constantly developed just after the diagnosis was made. Six of the eight patients had a positive Homan's sign. In five patients oedema of the thigh and tenderness over the femoral vein indicated proximal propagation of thrombus into the ileo-femoral venous system. Ten patients were treated for a clinical diagnosis of pulmonary embolus. The clinical signs are shown in Table IV.

Particular clinical signs divide sufferers into two basic groups. Those with mild or moderate clinical response to emboli and those with major or massive emboli.

It is often difficult to distinguish the manifestations of lesser emboli from the features of post-operative sputum retention and its sequelae. Pulmonary emboli are clinically different because of acute onset with pleuritic pain and splinting of the chest wall and tachypnoea to a disproportionately greater extent than other signs (Berger, Ryan and Sidd, 1968). Haemoptysis to confirm the diagnosis was present

TABLE IV

Symptoms and signs of 10 patients with pulmonary embolism

	Number of Patients
Chest pain	
Pleuritic	6
Retrosternal	1
None	3
Haemoptysis	3
Cough	3
Tachypnoea out of proportion to other signs	9
Pyrexia	6
Pleural friction rub	2
Peripheral circulatory failure	4
Right heart failure	3

in only three cases in this small series (Table IV). Generally this group of patients do not show symptoms or signs of peripheral vasoconstriction because of reduced cardiac output.

Two of the four patients with major pulmonary embolus died within twenty minutes of lodgement of the embolus. In one patient a diagnosis of cerebral vascular accident was made before death five days after a nephrectomy for pyonephrosis. At post mortem a massive pulmonary embolus was found and the presence of clinically undetected venous thromboses in the lower limbs confirmed. This form of presentation is unusual but well recognised (Levine, 1968). The other patient had been treated with heparin for a post-abdomino-perineal deep venous thrombosis. The heparin was stopped before full mobilization of the patient.

The other two patients with large emboli showed evidence of reduced cardiac output. One patient with septic emboli to the lung had no pain but fainted when sat upright. The other patient had severe retrosternal chest pain, dyspnoea and signs of poor cardiac output with hypotension and peripheral cyanosis. The electrocardiogram showed right heart strain and there was clinical evidence of right heart failure. This common type of presentation must be distinguished from myocardial infarction. Also occasional clinical confusion may arise in the differential diagnosis of concealed post-operative haemorrhage (Reeve, 1966) and septicaemic shock (Berger, Ryan and Sidd, 1968).

Specific changes in the chest x-ray did not aid the diagnosis of pulmonary embolism in this series. Elevation of the diaphragm and basal collapse were common findings. In two cases the chest x-ray was normal pre-operatively and after pulmonary embolus.

In eight patients a lung scan was performed after intravenous injection of istopically labelled macroaggregated human serum albumin. The small radioactive aggregates become temporarily lodged in pulmonary capillaries. An area of low radioactive count indicates an area of low pulmonary blood flow. This test is safer than angiography but does not share its specificity in the diagnosis of pulmonary embolism (Sabiston, Durham and Wagner, 1965). The findings helped to reinforce the clinical diagnosis in this series. The incidence of false negative diagnosis is virtually nil (Berger, Ryan and Sidd, 1968).

Conservative Management of Thrombosis and Embolism

Prevention

Thromboembolism is primarily a disease of hospitalization and prevention should be the aim of physician and surgeon. Pre-operative chest x-ray and electrocardiogram would aid early diagnosis by comparison with such investigations repeated during a possible embolic episode (Henderson, 1964). The lower limbs should be examined each day of a patient's admission.

Continued pre-operative exercise and early post-operative movement and ambulation is the basis of the general aim to prevent venous stasis. In patients with post-operative complications and prolonged or restrictive illness early mobilization is difficult and prothrombin depressants have been used to prevent venous thrombosis. This must not absolve one from a responsibility to restore active full muscle movement and thereby promote venous return. Keely and Schairer (1964) report only two deaths from a total of five pulmonary emboli after four thousand four hundred and forty-eight operations while applying this basic aim.

The use of one way stretch cotton elastic bandages to promote venous return (Meyerowitz and Nelson, 1965) is advisable throughout the hospital stay for all patients with varicose veins, previous venous thrombosis, cardiac and respiratory disease and obesity as all are vulnerable to venous thrombosis (Barker, 1959 ; Reeve, Hunt and Argall, 1966). Pre-operative heart and lung function should be supported and improved (Allison, 1965 ; Kernohan and Todd, 1966 ; Reeve, Hunt and Argall, 1966).

There is good evidence that most deep venous thromboses commence during operation (Pinto, 1968). Venous return is improved by elevation of the legs (Wright and Osborn, 1952 ; McLachlin, McLachlin, Jory and Rawling, 1960). A bolster under the tendo Achilles will both elevate the legs and relieve compression of veins, through calf muscles, flaccid under anaesthesia.

Certain dangerous situations may arise when patients are got out of bed early after an operation. Homans called attention to the danger of compression behind the knees by the edge of a chair when sitting for long periods. An increased incidence of thrombo-embolism has been noted in normal individuals after prolonged sitting in underground air-raid shelters (Simpson, 1940), in front of television (Naide, 1957) and in cars on long journeys (Keeley and Schairer, 1964). Post-operatively patients are directed to walk while standing and if they must stop, to sit or lie down with the legs elevated.

Treatment of Deep Venous Thrombosis

Suspicion as well as confirmation of the diagnosis is an indication for treatment of thrombophlebitis. The foot of the bed is elevated and one-way stretch cotton elastic bandages are applied to both legs from toes to upper thighs. As well as promoting the venous return the bandages act as an accessory muscle pump and prevent oedema. When the thrombosis occurs in a limb already oedematous as a result of previous thrombosis, diuretics are used to help mobilise the fluid, Any aetiological factor, such as cardiac failure, is treated. Analgesics and sedatives are given as required, but usually heparin rapidly relieves the pain. Antibiotics are used only for those patients developing pulmonary infarction after pulmonary embolism, unless there is some other compelling indication.

Each patient is given a loading dose of 10,000 units of intravenous heparin followed by a continuous intravenous infusion of heparin in a standard dosage of 30,000 units in each twenty-our hours. This is delivered per each twelve-hour period in 500 ml. of a 5 per cent solution of dextrose in water (Reeve, Hunt and Argall, 1966). This method was chosen as being superior to intermittent four-hourly intravenous injections through an indwelling needle, which results in adequate prevention of coagulation for only part of this interval (Biggs and McFarlane, 1957). The regularity of this method depends on the workload of the house staff. Lack of punctuality leads to lack of protection. Local problems, such as phlebitis, are rare with a continuous infusion of heparin and did not occur in this series. The dose of heparin is so calculated that if by mischance the whole amount is rapidly infused, no problems should result. Serial subcutaneous injections produce a sustained level of heparin in the blood which makes rapid neutralization by protamine sulphate difficult (Gurewich, Thomas and Stuart, 1967). Most serious haemorrhagic complications reported have been in association with the subcutaneous or intramuscular routes (Knight and Valentine, 1962; Morrison and Wurzel, 1964; Amador, 1965).

Lee and White "coagulation times" accurately indicate heparin levels in the blood (de Takats, 1961), and can be used to govern individual heparin requirements such that spontaneous bleeding is rare (Reeve, Hunt and Argall, 1966; Gurewich, Thomas and Stuart, 1967). Heparin dosage is varied to produce a coagulation time of from two to three times normal (16 to 24 minutes). Some patients appear sensitive and require less heparin while some are resistant and require more (Dewhurst and Poller, 1965; Reeve, Hunt and Argall, 1966). Both groups of patients are more prone to complications (Reeve, Hunt and Argall, 1966). Two of the three patients in this series who were heparin resistant had no obvious cause of thrombosis.

Eight of the nine patients with unilateral deep venous thrombosis studies were treated with a continuous intravenous infusion of heparin. The ninth patient treated by serial subcutaneous heparin developed a pulmonary embolus during treatment and was left with residual chronic deep venous insufficiency. Ten courses of

TABLE V

Results of treatment of 14 *patients with venous thrombosis and pulmonary embolism with a continuous intravenous infusion of heparin*

	No. of patients	*Recurrence*	*Chronic venous insuffiency*	*Pulmonary hypertension*	*Complication of heparin therapy*	*Deaths*
Deep venous thrombosis of the lower limb	5	2	0	–	0	0
Thrombosis and embolism	3	1	0	0	0	1
"Silent" pulmonary embolism	6	0	–	0	0	0

heparin by continuous infusion were given, as there were two recurrent deep venous thromboses treated (Table V). The heparin therapy produced early resolution of the clinical features of thrombophlebitis, particularly the pain, tenderness and resultant anxiety. One patient developed a fatal pulmonary embolus after stopping heparin therapy and before she was fully mobilised.

Bruising of the buttocks is usually the first sign of heparin overdosage, preceding haematuria (Reeve, Hunt and Argall, 1966), and the buttocks should be examined every morning and evening while patients are receiving heparin, just as are the legs. However, such signs are considered along with the coagulation time in deciding on continuing dosage.

The patient is allowed to walk with legs firmly bandaged, carrying his infusion apparatus, once his signs and symptoms are going. The heparin dosage is stopped forty-eight hours after no tenderness can be elicited in the calf or along the line of the femoral and iliac veins provided that the patient has been ambulant (Bauer, 1964). If there is no recurrence, he is discharged from the hospital four to five days after stopping therapy. The usual period of treatment is ten days.

The patients are sent home with their legs still bandaged. After about one month one way stretch heel enclosed cotton elastic stockings are worn for at least six months after discharge from hospital. Patients should continue to keep the foot of the bed raised at home, and should avoid the prolonged dependency of their legs associated with extensive car travel. Reduction of weight is advised for the obese.

Patients are informed about their problem, and their medical attendants are properly notified, so that early care can be instituted if a recurrence occurs.

The most important measure in the long term is the restoration and maintenance of a normal venous return. This is primarly based on the continuance of adequate exercise. Prothrombin depressants are unnecessary and probably ineffective (Mosesson, Colman and Sherry, 1968) in long-term management of venous thrombosis (Reeve, Hune and Argall, 1966). In patients with consumption coagulopathy heparin is the only long-term effective treatment until a common underlying neoplasm is eradicated (Mosesson, Colman and Sherry, 1968).

Four patients in this series were treated for superficial thrombophlebitis alone. Three had varicose veins, one occurred postoperatively. In each case, conservative therapy was planned, the foot of the bed was elevated, local and systemic anti-inflammatory agents were used and the legs were bandaged. In one patient a very severe inflammatory reaction with vesication initiated the use of heparin and antibiotics were given for secondary infection.

Treatment of Pulmonary Embolism

Two of the ten patients in this group died within minutes of their embolus. They were not given heparin. Heparin is the only form of therapy in such a situation which has any success (Kernohan and Todd, 1966). Fatal pulmonary embolism is uncommon once a large dose of heparin has been given intravenously (Barritt and Jordan, 1960). Six patients were treated by heparin infusion intravenously by the method already described (Table V). In all cases there was rapid relief of pain and resolution of physical signs supporting the theory that heparin inhibits pulmonary vasoconstrictive and bronchoconstrictive reflex phenomena associated with pulmonary embolus (Thomas, 1965).

The foot of the bed is elevated and bandages applied to the legs whether deep venous thrombosis is clinically evident or not. Treatment is continued for ten or twelve days. Recent angiographic studies in man have shown that resolution of pulmonary emboli may take place within this period (Fred and others, 1966). Again full activity is established before stopping heparin therapy. Underlying heart disease is common (Sasahara and others, 1966), and must be adequately treated.

Conclusions

In contrast to arterial thrombosis, venous thrombosis occurs primarily because of slowing of the blood flow. Hypercoagulability and/or vessel wall injury are, however, necessary to initiate thrombosis in veins.

Prevention of venous thrombosis should be based on reversal of stasis of the blood, that is, improvement of venous return, before, during and after illness or operation.

At present heparin is the anticoagulant of choice for the treatment of venous thrombosis and pulmonary embolism.

The principals of conservative management and results of treatment of venous thrombosis and pulmonary embolism using a continuous intravenous infusion of heparin are presented.

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A FAMILY PLANNING SERVICE IN A TEACHING MATERNITY HOSPITAL

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THE Royal Maternity Hospital, Belfast, has had a family planning clinic since 1940 where general advice on family planning is offered. It is hoped to show in this paper how well received and used such a service is and how useful a means it is and could be in teaching doctors and nurses.

The clinic owes its continued existence to Dr. Olive Anderson who for nineteen years conducted a fortnightly session. Advice was only to be given to women who had a medical reason for avoiding pregnancy and this condition still holds, though the interpretation of "medical" has been broadened.

It appears from records of the early years that the number of patients seen annually was not large. It was thirty-nine in 1941 and forty in 1959. After Dr. Anderson retired it was held simultaneously with the post-natal clinic but still only fortnightly.

Table I shows the annual attendances from 1960 onwards. There is a small but steady increase to 1964, probably due to direct referral from the post-natal clinic.

TABLE I
Annual attendance at Family Planning Clinic (1)

Year	*New Patients*	*Reattendances*	*Total*	*No. of clinics*
1960	32	20	52	18
1961	32	28	60	20
1962	40	69	109	23
1963	52	81	133	23
1964	60	108	168	24
1965	176	201	377	49
1966	334	570	844	90
1967	1,009	1,221	2,230	102
1968	881	1,356	2,237	99

In 1963 oral contraceptives began to be prescribed which may account for the increased total attendances. In 1965 the clinic was held weekly which produced an immediate increase in numbers as all new patients could be referred on the same occasion as their post-natal visit. But, of course, someone had to refer them. The medical staff of the Royal Maternity Hospital has given encouragement and support to this work and about this time brief talks were given to each new group of housemen. This is no longer done as the process of education starts earlier now during student years and recent generations of housemen are already aware of the need for family planning. In May 1967 weekly talks to patients in the lying in wards were started and Table II shows the subsequent attendances. This is very

TABLE II

Attendance at General Family Planning Clinic and Post-Natal Clinic

	F.P.C.	*P.N.C.*
June 1st, 1966 – May 31st, 1967	460	1,420
June 1st, 1967 – May 31st, 1968	1,200	1,587

Referrals (sample of 200)

From P.N.C.	*From R.V.H.*	*G.P.*	*Others*
150	31	10	9

useful both for increasing attendance and for speeding up the first interview at the clinic. The drop in new patients for 1968 is in the second half of the year and is probably related to the fact that talks to in-patients were discontinued for 2–3 months owing to the author's absence for 6 weeks. At present the family planning service includes the following arrangements:

(1) *Group talks to patients*

Any patients who wish to can assemble in the day rooms of two wards once a week for a group talk. They are given a brief printed list of methods and are told:

(i) that they can come to the family planning clinic on the occasion of their post-natal visit;

(ii) that they should discuss the matter and the method with their husbands before that;

(iii) that their general practitioner or health visitor will be informed if they want to use oral contraceptives or safe period methods, and in the latter case the nurses in the wards will instruct them in the use of temperature charts before they go home.

The actual methods are described in more detail and questions are invited and any patient who wants to talk privately may do so.

This arrangement is not ideal as, owing to quick turnover of patients, not everyone can come to the talks. Also, very recently delivered or sick patients cannot get to the day room. Consideration has been given to making a tape to be played in the ward several times a week but this has not been done as it was felt it might give offence. Ward sisters are very co-operative in giving information about individual patients in need of advice.

(2) *Clinic sessions*

A clinic for general advice is held weekly simultaneously with the post-natal clinic. Patients are mainly referred from this but do come from other sources. Table II shows a sample of referral sources. There are supplies of all usual contraceptives available at this clinic and as far as possible choice of method is left to the patient.

Until 1963 the chief method was the diaphragm; now very few are fitted. Most patients choose the intra-uterine device or oral contraceptives. As far as possible patients are referred to their general practitioner or nearest family planning clinic

for follow-up, but it is made clear that anyone can return to the Royal Maternity Hospital clinic if in difficulties.

A separate session for intra-uterine device – insertion and check-up – has been held since early in 1966. All patients coming to this have already been seen and approved for the method, either at the Royal Maternity Hospital or at other family planning clinics. As far as possible the insertions are done in the first half of the menstrual cycle and as many patients as can be are referred to their nearest clinic for follow-up. A rota of housemen helps at this clinic.

(3) *Teaching of students and nurses*

For the past three years, medical students at the Queen's University have had a lecture on family planning included in their course of lectures in gynaecology. In addition, any student may attend the family planning clinic during his obstetric internship. This is not, however, compulsory, so it is only the more interested students who come.

Each new intake of pupil-midwives has a lecture on family planning, including the showing of a film on methods, and particular emphasis is laid on the safe period method using basal temperature charts so that nurses on the wards will be competent to teach this method.

In a community such as Northern Ireland, with a high proportion of Roman Catholics, it is important to have good facilities for instruction in the best use of the safe period. At the same time it is also important not to use the communal situation to hinder the giving of adequate advice on other methods to those who want it.

There are several gaps in this service which could be filled. The patient-orientation should take place more frequently, at least twice a week, and perhaps have visual aids – films or film strips. The teaching of medical students is not sufficient and there is a case to be made for compulsory attendance at the clinic with, perhaps, a conscience clause. But if this were done more sessions would be needed as an average of twenty-two patients per session does not leave time for teaching. Nor is there sufficient time to deal with some of the personal problems that often come to light in this work and it would be useful to have a separate "counselling" session for these and perhaps for the more leisurely discussion of sterilization with both spouses before they make a decision about this.

A maternity hospital, especially a teaching one, is the ideal place for a family planning service for three reasons. First, it contains a captive population of highly motivated women, a few of whom may never be seen again till their next confinements. They already know the hospital staff and may be prepared to take advice from them when they would not follow up referral to new contacts. Second, the two most popular methods of contraception now are the "pill" and the intra-uterine device – both belong to gynaecology and should maintain some contacts with hospital departments for many reasons. Finally, and very important, student doctors and nurses training at the hospital can learn something of contraceptive techniques and be made aware of the need for family planning.

My thanks are due to the medical and nursing staff of the Royal Maternity Hospital and in particular Sister Good and Professor Pinkerton for their great encouragement and support in this service.

BOOK REVIEWS

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AN INTRODUCTION TO HUMAN PHYSIOLOGY. By J. H. Green. (Pp. 185; figs. 211. 28s). London: Oxford University Press, 1968.

MOST teachers of physiology are suspicious of short introductory texts for medical students. They usually feel that brevity has been attained by having the subject treated in a superficial manner. The present book is an exception to the rule. Green has now produced the second edition of this very popular text. The book which was published in 1963 provides an introduction to human physiology together with a brief introduction to biochemistry. It is especially written for medical students who are just starting their course or have had some knowledge of physics, chemistry and biology. It would also be useful for dental students, physiotherapy students and as a textbook for a short course in physiology. The earlier edition has always been popular with students. Though the attractive low price may have contributed to this popularity the clarity of the style and the diagrams must also have been a factor. The new edition has been considerably revised and new chapters have been included, but the successful formula has not been radically altered. There has also been some expansion but not enough to make the book unnecessarily bulky. Though it is a pleasure to recommend the book to people starting courses in physiology such a recommendation is unnecessary since they will probably buy it anyway.

I.C.R.

GRANT'S DISSECTOR. By J. C. B. Grant. Sixth Edition. (Pp. xvi+451; illustrated, 62s 6d). Baltimore: The Williams & Wilkins Co., 1967.

THIS book is a guide to the dissection of the human body. The more important structures are indicated in bold type and the less important in italics. The text is well written and the illustrations straightforward. There is, however, little attempt to teach the principles of anatomy in this book, but these are well presented in the author's Method of Anatomy. Although the book illustrates many of the dissections, students normally would require additional visual aid, and the author has given references throughout the text to plates in his Atlas which will be of great help. Instructions for the dissection of the foetus and the bull's eye have been added to this edition.

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SPINAL CORD INJURY. By Valdimìr Benes. (Pp. 202; figs. 27. 45s). London: Baillière, Tindall & Cassell, 1968.

EDWIN SMITH'S papyrus of 1700 B.C. describes traumatic paraplegia as "a disease not to be treated." As recently as 1942 Elsberg in his classic monograph on spinal lesions wrote that "a complete transection" of the spinal cord is lethal." Yet, less than 20 years later, reports from spinal treatment centres indicated that 70 per cent of patients with severe spinal cord injury can survive, usually to an acceptable life. Dr. Benes' book describes how this transformation has been brought about.

Dr. Benes, of the Neurosurgical Clinic of Charles University, Prague, records his experience with 241 patients who suffered severe spinal cord injury. The chapters on diagnosis, the principles of conservative treatment and the management of sequelae such as urinary infection and bedsores can be particularly recommended to those who wish to learn about modern methods. Improvement in the quality and duration of life after spinal injury depends on the measures described in these chapters.

To the specialist, the book's chief interest lies in the controversial section on treatment. Dr. Benes advocates early spinal cord decompression for most patients with severe cord injury. Many will agree that surgery can benefit the patient with an incomplete spinal cord lesion who is undergoing progressive neurological deterioration. The majority of patients however show evidence of severe spinal cord damage from the time of injury. Dr. Benes' results do not provide convincing evidence that such patients are helped by surgery. But this section, provocatively written, repays study as one of the few attempts to compare the merits of surgical and conservative treatment in the early hours after injury. Now that survival is likely, the early management becomes more important than ever.

The book concludes with chapters on likely developments in rehabilitation. The need for spinal injury treatment centres is, of course, axiomatic. In the technical field Dr. Benes sees more hope in cybernetic prostheses ("the semi-artificial nervous system" of Wiener) than in nerve anastomoses or by pass operations. Future advances may derive more from engineering than from medical science. D.S.G.

HAEMATOLOGY IN DIAGNOSIS AND TREATMENT. By M. Maizels, M.D., F.R.C.P., F.R.S.; T. A. J. Prankerd, M.D., F.R.C.P., and J. D. M. Richards, M.A., M.D., M.R.C.P.(Edin.), M.C.Path. (Pp. xii+319; plates v. 70s). London: Baillière, Tindall & Cassell, 1968.

To many house physicians the diagnosis and treatment of patients with haematological disease presents problems. This difficulty has its beginnings in the summary fashion in which most textbooks of medicine deal with these disorders. It arises also from a frequent lack of any basic knowledge of laboratory procedures and their interpretation which is so essential in the management of haematological disease. In the absence of such a groundwork it later becomes difficult for the clinician ever to achieve competence in this field or to keep abreast of the rapid advances which are being made in it.

The book is written mainly for medical students and for the post graduate who has not specialised in haematology. It provides a concise and very readable account of the subject. The main emphasis is given to the clinical features of blood diseases but laboratory aspects are dealt with sufficiently to make their rationale clear with avoidance of detail which would quickly discourage reading by the average medical student. The reviewer felt that some parts of the book could well be improved. For example, the section on lymphoma is rather too condensed and in the account of acute leukaemia, insufficient distinction is made between the disease in the adult and in childhood, especially as regards treatment. The colour plates are also disappointing. However, these are not major criticisms and the book can be recommended to medical students as offering a good groundwork in haematology which they will find to be of considerable value at the time of their later clinical responsibilities.

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The book is divided into a number of sections, each dealing with a historical period during which the successes and failures of research and development of vaccines and antisera for prophylactic and therapeutic use are succinctly described. The text bristles with the names of pioneers in this field who have added their quota to the sum of current knowledge and practice. Early chapters deal with active immunisation by the use of living virus by Jenner, living and attenuated bacteria or viruses by Pasteur and killed bacterial vaccines by Almroth Wright. The rival theories of cellular and humoral immunity are reviewed, followed by the great advances since 1900 which include the development of antitoxins for therapeutic use, toxoids for active immunisation, B.C.G. for tuberculosis, vaccines for plague, cholera and whooping cough, and improved vaccines against enteric fevers. After 1920 the discovery of viruses led to the production of viral vaccines against influenza, the success of which is complicated by the occurrence of mutants and the short duration of protection. Outstanding success, however, followed the development of virus vaccines against yellow fever and poliomyelitis, and vaccines against rickettsial infections.

Closing chapters detail developments in protection against measles with serum, vaccines and gamma globulin, and current research on active immunisation against mumps, measles and viral hepatitis. The book concludes with sections on chronology, biographical notes, a short bibliography and a glossary of terms.

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CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY. Vol. II – Thorax and Abdomen. Revised by G. J. Romanes, B.A., Ph.D., M.B., Ch.B., F.R.C.S.Ed., F.R.S.E. Thirteenth Edition. (Pp. vii+271; illustrated; boards 45s, paper 30s). London: Oxford University Press, 1968.

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An important revision in this volume is a new dissection of the heart, which by a series of three coronal slices allows the demonstration of all parts of the heart as they lie within the thorax of the living. The dissection of the pelvic viscera is carried out on a median section which gives a clearer view of the structures examined on the lateral pelvic wall and tracing of vessels and nerves to the proximal parts of the lower limbs. Further, the male and female pelvis are treated together so emphasising the similarities and differences in the two sexes.

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By judicious pruning in the new edition room has been made for much new material. The volume remains as before very fully illustrated with many beautiful colour plates as well as diagrams and black and white photographs.

Mr. N. Ruben has contributed three new chapters on optics. The text of these, together with the diagrams, will do much to elucidate a subject often not well enough understood. Other chapters deal with squint, common surgical procedures and the manifestions of general disease. To diseases and injuries of the central nervous system several chapters are devoted. There is a section on ophthalmology in the tropics by Mr. E. J. Somerset.

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THE TREATMENT OF MENTAL DISORDERS IN THE COMMUNITY. Edited by Gerald R. Daniel and Hugh L. Freeman. (Pp. 88. 16s). London: Baillière, Tindall & Cassell, 1968.

THIS small book contains the proceedings of a one-day symposium on the subject held in November, 1967. Some of the chapters have the disadvantage that the anecdotal style acceptable in a verbally presented paper does not come across well in the written word.

Following the introduction by Sir Denis Hill there is A. A. Baker's chapter on Psychiatric Nursing in the Community. He stresses the particular skills which nurses, rather than social workers, can bring to community work. N. E. Crumpton's chapter on drug treatment reviews earlier work and presents some uncontrolled observations on Fluphenazine Enanthate. The rest of this chapter touches on, without contributing significantly to, the subjects of drug abreaction and antidepressive treatment.

D. F. Early has a chapter on Industrial Rehabilitation with much practical advice based on his experience in Bristol. Freeman contributes a long but scholarly chapter about the structure of the services, in which the integrated service in Salford is described. M. Silverman's chapter is also based on a description of a service – that in Blackburn, centred on a General Hospital Psychiatric Unit. He gives some figures for the number of patients in various categories treated in recent years, stressing the extremely small number who had to be transferred to the backing mental hospital. J. A. Whitehead contributes a chapter on Community Care for Elderly Psychiatric Patients. This describes the psycho-geriatric unit at Severalls Hospital, Colchester. He stresses the need for assessment in the community and describes the development of a domiciliary emergency service for the elderly, to deal with medical or domestic emergencies; the equipment carried varying from drugs to tools for household repairs. Whitehead also discusses drug treatment for the paranoid syndromes of the elderly.

This book is inevitably patchy, the section on drug treatment being particularly weak. It cannot be recommended as contributing much of value to the general practitioner. It can be recommended to any psychiatrist who is planning to develop community services as a source of some other centres ideas and useful references. W.O.McC.

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BACTERIOLOGY AND IMMUNOLOGY FOR STUDENTS OF MEDICINE. By F. S. Stewart. Ninth Edition. (Pp. 612; figs. 76. 55s). London: Baillière, Tindall & Cassell, 1968.

THIS new edition of the former "Bigger's Handbook of Bacteriology" sustains a consistent level of excellence, and amply fulfills the author's stated intention to present "the fundamental principles of medical microbiology and immunology" in a clear and systematic manner which makes the reading and understanding of even complicated portions of the text simple.

While intended for the student of medicine the author does not indicate whether this is aimed at under-graduate or post-graduate level, and perhaps rightly so. There can be a few engaged in the field of medicine who would fail to find profit and instruction in its pages and it can be recommended to all those with a particular interest in Pathology and Microbiology, not merely to the under-graduate and post-graduate medical student, but also to the science microbiologist and the more senior technician. As a work of reference for the busy consultant it provides a concise survey of whole fields of interest and a convenient quick refresher on topics where time has worn familiarity away.

At 600 pages the book is still not too heavy to hold in the hand, and it is well made, bound and set in easily readable type. It would be an improvement in successive additions if a freer use of the coloured illustration could be made and perhaps the scale of some of the line diagrams could be enlarged. It is a pleasure to recommend this book to all those with any interests in the field of microbiology. W.S.

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THIS book describes the achievements of an experiment in comprehensive medical care started in 1952 for hospital general medicine out-patients in the New York Hospital which has been used extensively in training medical students.

The term "comprehensive care" included the co-ordination of professional and lay services, the continued responsibility of one physician, consideration of physical and psychological aspects of the illness and of preventive as well as curative measures and recognition of the relevance of social and economic factors to the patient's illness. Previously, care, although of high quality, was said to have been "too often episodic, fragmentary, inadequately organised and imperfectly supervised". An important aspect of the study was the determined effort made to assess the value of the programme on the training of the medical student.

There are many challenging questions and ideas in this book. "Patients commonly attended several clinics at once and not infrequently received conflicting orders from several physicians". "One of the major difficulties in seeking a clearer understanding of what constitutes good medicine is a lack of concrete explicit criteria". ". . . medicine should become more scientific in the sense of admitting data now commonly left out of consideration". "Such data would add breadth" by including "more attention to the patient's environment; depth; to include some comprehension of his inner motivations; and duration, to relate the patient's present condition to his past and future".

Details of the many different methods of teaching employed in the programme are given including students watching through a one-way glass screen, patients being interviewed, and the contributions of the various specialists are described. The paediatricians, psychiatrists and consultants in preventive medicine played a particularly important part but the obstetricians and surgeons also participated.

The book ends with a courageous analysis of the views of New York hospital staff and students about the programme. Although the majority in both groups approved of the programme a substantial minority did not.

This book will be of special interest to medical educators and to those interested in the fundamental question: What is good medical care and how do we provide it? J.P.

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New methods include the use of the latest plastics, for impression taking and for the actual making of supports and prostheses. Latex foam is incorporated in some appliances.

This book is mainly useful for chiropodists and for students taking the examinations of the Society of Chiropodists. It would be very useful in orthopaedic clinics as a help to the nursing staff ; it would also be of value to physiotherapists, and to surgical splint makers, including the makers of surgical footwear.

It is a valuable book and can be recommended highly. R.I.W.

IRISH PEASANT SOCIETY. By K. H. Connell. (Pp. ix+167 ; figs. 6. 35s). London: Clarendon Press: Oxford University Press, 1968.

THIS book consists of four essays, the first of which is about illicit distillation. It was mainly in the 18th century that the poverty-stricken peasantry comforted themselves with cheap poteen, and had little to lose in self respect or in the eyes of their neighbours by detection either in its distillation or consumption. In a remote rural community barter was an important way of doing business, and poteen was a common way of paying at least part of the rent. It is of interest to note that north west of the Limerick-Newry line the great offence was the illicit distillation of poteen, to the south east it was the illegal sale of much ordinary untaxed whiskey from the ordinary distilleries. It was all very much "agin' the Government", but lacked the rancour or bitterness of political or religious strife.

The essay on illigitimacy before the famine reads, like the melodrama is was, in terms of sordid seductions and squalid obstetrics. From the medical standpoint much of the interest centres in the accounts of the frightful loss of infant life in the foundling hospitals of Dublin and Cork where mortality rates of as high as two thirds of all admissions were at times recorded. Numerous abandoned infants, debilitated and probably already infected, were admitted into conditions of terrible overcrowding, and there can be little doubt that gastro-enteritis would carry a dreadful mortality rate. The author states, "But, as an Irish priest demonstrated (not simply to his own satisfaction), early in the present century 'Orangeism and illigitimacy go together ; . . . bastards in Ireland are in proportion to the Orange Lodges'."

The account of ether drinking is interesting. This was common in the middle of the last century, and was centred in the Sperrin Mountain area. It was cheap compared with whiskey or even poteen, was produced industrially in Britain whence it could be imported, and was for long untrammelled by any legislative control. To anyone brought up in the mysteries of ether anaesthesia, the wonder is that it could be drunk at all, even when diluted by more acceptable vehicles.

The last essay, on catholicism and marriage in the century following the Famine, is the most powerfully, and most clearly, written of the four. After the Famine the gradual improvement of the potato crop allowed for the division of farms and the setting of an increasing number of married sons. To this there was an inevitable limit. Over and above the basic rural economy that this imposed there rose the increasing absolutism of the Catholic Church. "The greatest curse to the Irish Nation," the author quotes, "has been Maynooth, because it has fostered the ordination of peasants' sons", and nothing in their further education was to prepare then to advise their future parishioners on their economic or matrimonial affairs. Celebate themselves, they preached the idea that even the normal biological phenomenon of courtship was sinful.

This book is for the social historian rather than the doctor. Above all, it is for the Irishman, for it uncovers a sorry lot of dirty linen. R.W.M.S.

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THAT a fourth edition of this book has been called for since it first appeared in 1960 is a clear indication of its value and of the need which it is filling in surgical literature. It is also a testimony to the industry of the author who has carried out a very critical revision and whilst including much new material has avoided any overall increase in the size of the manual. The book is still the best introduction to the principles and techniques of plastic surgery and there must be few surgeons who would not find much of value within its covers. It should certainly be studied by all those who are in any way concerned in the treatment of injuries. Its popularity is such that I find it the most difficult book to keep in my possession. N.C.H.

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Some of the newer techniques received more detailed consideration than well established methods, and it is perhaps thought that the registrar or other reader will be more in need of information on these subjects. Nevertheless a discussion of a page and a half on the use of short-lived tracer isotopes for the study of exchangeable potassium and sodium seems out of proportion to the ten or twelve lines on histological examination of operation specimens, and the three lines on cervical and vaginal smears, and to the absence of any reference to needle biopsies of organs.

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In general the standard of revision of the various sections has been excellent, discussing many recent developments in therapy in perspective. A disappointment was the lack of discussion of much recent work relating to the management of acute myocardial infarction, and in this section there is no mention of the use of pacemakers for acute heart block, quinidine is the only drug mentioned for ventricular arrhythmias, and cardioversion is not mentioned.

The format of the book has been changed, and the text is much more readable in double columns. There has been an improvement in the order of the sections in the book and new sections added on "Anticoagulant therapy" and "Ill-health due to drugs". The appearance of short bibliographies at the end of some of the sections is new, and would be helpful throughout the book. Again there is the valuable glossary of proprietary and approved drug names: it is a practical and useful textbook. R.J.A.

REPORT ON THE HEALTH OF THE COUNTY BOROUGH OF BELFAST FOR THE YEAR 1967. By James McA. Taggart.

ALTHOUGH I am no great admirer of the News of the World, when I read this report I kept recalling its subtitle 'all life is here', and I recommend the report as bedside reading. Belfast is no mean city. Its latitude is 54° 35″ North and longitude 5° 55″ West which is important for the masters of 8,682 vessels which entered the port in 1967, coming from some 265 different foreign ports as distant and mysterious as Bandar Mashur (3 ships) and Zyghi (1 ship).

The birth rate was 20.1 per 1,000, and 92.6 per cent of the births were in institutions. The death rate was 10.9 per 1,000 and cancer of the lung a major preventible cause of death.

It was a bad year for gastro-enteritis (602 cases and 22 deaths) but good for slum clearance and the development of health centres and 48.95 inches of rain fell (33.65 inches in 1959).

The staff of the Department of Health permeated everywhere. They inspected abattoirs, they measured air pollution, they discovered 40,029 nuisances and abated 27,667 of them. They took 215 katathermometer readings in dance halls, tested 594 drains on complaint of rats; inspected 1,220 hairdressers, gave 79 antifly treatments to 30 stabling yards (who could have thought there were still 30 stabling yards in Belfast), seized unsound food (from 1 ton 17 cwt. of currants to 7 lbs. of sugared almonds), visited bakeries (196), pharmacies (270) and rag flock premises (54), analysed countless items of food and drugs from ale to Yorkshire relish and found an orange containing metallic mercury.

They fumigated, controlled mosquitos, treated sewers and prosecuted an ice cream man whose ice cream was deficient in fat. They worked in antenatal clinics, in residential nurseries and in the school medical services. There were 52 health visitors, 10 trainee health visitors and 67 district nurses.

This report records what they did. They did a lot and few people will ever thank them for all they did do. They made Belfast a better and a cleaner and a finer city and each of us who lives or works in the city is indebted to them. I advise medical students to read this report: it is an easy and an interesting way to learn enough to fix any examiner who might ask about public health for 'all life (and death) is here'. O.L.W.

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THIS is a most refreshing and interesting book to read as a textbook of minor surgery—a subject which can be neglected all too readily.

The section under 'General Survey' deals with the subject in considerable detail, and the section under 'Regional Survey' describes the numerous so-called minor conditions seen under various headings, i.e. 'Head', 'Neck', 'The Eye', etc.

One could not criticise this book except perhaps to mention that in some areas it seems to go beyond what might be termed 'minor surgery', e.g. the drainage of a pleural effusion.

The reviewer hesitates to recommend yet another book to undergraduates, but they would find it helpful.

Certainly it is a book for all general practitioners and all casualty departments. M.B.

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The chapters on surgical diagnosis and technique should be extremely helpful for all junior surgical staff. Surely the term 'mixed parotid tumour' should be dropped.

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NEEDLE biopsies of the liver have played a very important part in all the recent advances in diagnosis and treatment of liver disease. In this field Dr. Scheuser, working with clinical colleagues including Dr. Sheila Sherlock, has had an important place. Here he sets down clearly and lucidly, and with many beautiful microphotographs in black and white and in colour, what can be learnt from such biopsies. The book will be of great value to pathologists as a clear exposition of what can and what cannot be done. The findings and variations are discussed under the different clinical conditions, and the clinician will appreciate wherein may lie the difficulty of a firm differential diagnosis on histological study alone, and will appreciate the value of a correlation of all observations.

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