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THE LIFE AND WORK OF MOYNIHAN*

BY

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"His life was gentle; and the elements
So mixed in him that Nature might stand up
And say to all the world, 'This was a man!'"
—SHAKESPEARE.

When I was asked by the President of this College to deliver the first Moynihan Lecture I was filled with trepidation by the greatness of the task and by my unworthiness to fulfil it. But my fear was soon overcome by the joy that to me who had been so closely associated with the great man for the last twenty-five years of his life it was given to describe his early struggles, his triumphant success, and the part which he played in raising British surgery to the position it occupies to-day. I can remember very well that when I delivered the Hunterian Oration in 1930 on "Hero Worship in Surgery" I had in my mind Moynihan's own heroic qualities and what an inspiration they had been to me. He was in the President's chair at the time, but I little thought that it would ever fall to my lot to descant on this theme.†

His Early Life and Upbringing

The Moynihan family came from Templemore, Tipperary, and most of those of whom any record exists were soldiers. It is said that five Moynihan brothers were killed in September, 1709, in the Battle of Malplaquet. Moynihan's grandfather, Malachi, was also in the military profession. He lived at Wakefield, in Yorkshire, and married Ann Scott, who bore him a son, Andrew, when she was 55 years of age. It was this son Andrew who was the first of his name to win distinction and a place in history, and the story of his short and tragic life forms a fitting introduction to that of his even more illustrious son. Andrew Moynihan entered the Army as a private of the 96th Regiment, and in 1854, when the Crimean War broke out, he held the rank of sergeant. In September, 1855, in the storming of the Redan he killed five Russian soldiers and rescued a wounded officer under heavy fire, receiving himself no fewer than twelve wounds. For this gallantry he was given a commission and awarded the Victoria Cross. The honour was bestowed on him by Queen Victoria at a public ceremony in June, 1857, in Hyde Park. The year before the Crimean War he had married Ellen Anne Parkin, and he was accompanied by his wife to India for three years, 1857 to 1860, where he was engaged in the quelling of the Indian Mutiny. Their

first daughter, Ada, was born to them in India, and the little family returned to England in 1860, the voyage taking from April to July and being made terrible by cholera, which claimed one or two victims nearly every day. Captain Moynihan was transferred to Malta, where for a few years he spent a busy useful life, taking great pains with the training and education of the men in his company. The family was increased to three, two girls and a boy, by the birth of Berkeley on October 2, 1865. Alas! the gallant father only lived for a year and a half after his son's arrival, for he died of undulant fever at the early age of 37. Many traits in Andrew Moynihan's character foreshadowed the qualities of his son. These were his intrepid bravery and his tireless devotion to duty, his absorbing love of his wife and children, and his anxiety to improve the lot of all the men in his company, not only in military efficiency but also in their private affairs. He and his sergeant within one year had taught all his men to read and write. He evidently had a great literary yearning and instinct, which is shown in his diaries and in the fact of his transcribing into these various sonorous phrases which had caught his attention—for example, these lines about Napoleon:

"Whose game was empires and whose stakes were thrones;
Whose table earth, whose dice were human bones?"

But beyond begetting his son and giving him the essentials of his character the father could do no more, and it was left for the mother to bring him up to manhood.

The family of mother and three children returned to England and were faced with the grim problem of the struggle for existence. Those were days before the granting of pensions, and the only income was £1 a week, given by the patriotic fund. The decision to settle in Leeds, which had a momentous sequel, was made because Mrs. Moynihan's married sister lived there and offered them a home. This sister was Mrs. Ball, whose husband was a sergeant of police. Probably the fees for education were paid by Sergeant Ball and by Mrs. Moynihan's brother, Mr. Parkin; so that it is literally true that Moynihan began life as a poor boy in a poor home. His earliest teaching was given him by his sister Ada, whose literary talents were then and for many years the most important influence on his growing mind. His school career was undistinguished and unhappy. First at a dames' school, the Misses Baxendale at Leeds, where he was a fellow pupil with J. B. Seaton, the future Bishop of Wakefield; then from 10 to 15, by the patronage of the Duke of Cambridge, at Christ's Hospital (Blue-coat) School; and

* The first Moynihan Lecture, delivered at the Royal College of Surgeons on April 11, 1940.

† I am greatly indebted to Dr. D. S. Bateman for lending me an advanced proof of the Biography of Lord Moynihan.

finally at the Royal Naval School at New Cross. It was while he was at the last school that we hear for the first time about his prowess in games. He won distinction both in swimming and in football but nothing noteworthy in scholastic achievement. His own thoughts and ambitions were entirely directed towards his father's profession of the Army, and for a long time his mother's opposition was of no avail to turn him from his purpose.

Medical Education

But at last he gave way, making the compromise that he would first become medically qualified and then enter the Army by the R.A.M.C. There was then no University at Leeds, and he began his medical career by joining the Yorkshire College in 1883 and preparing for the London University examinations. He continued to live with his mother and sisters at Sergeant Ball's house. There was, of course, no collegiate life, and he had but few friends and saw nothing of society. He was then, as later, robust in mind and body, with pale face, bright red hair, and a serious temperament. He had neither time nor money to indulge much in sport or amusements. He went as often as he could to the theatre with his mother and sisters, having to be content with gallery seats. He loved sonorous language, and his memory was so keen that he was able to repeat most of Shakespeare's sonnets. He must have listened to the opening address given to the students in 1883 by Clifford Allbutt, many of the sentiments of which he adopted and repeated in later life. For example: "As to your patient, put yourself in his place. He may not know as you do either your skill or the vanity of his fears. A cripple more or less or a grave-stone more or less is nothing to the solar system, but it is all the world to him." Little did the penurious student of those days dream as he sat on the crowded benches that within twenty-one years he was to acquire the lordly mansion of Carr Manor, then the home of Clifford Allbutt!

His hard work, wonderful memory, and enthusiasm for his tasks ensured him a rapid and brilliant four-years course, and he qualified with the M.B., B.S.Lond. in 1887. Here is a summary of his career in the medical school, with his subsequent medical distinctions, taken from his own account of himself in 1896 when applying for the post of assistant surgeon to the General Infirmary at Leeds.

"I was educated at the Leeds School of Medicine, where I obtained prizes and certificates in the following subjects—anatomy (junior and senior), physiology, materia medica, gynaecology, medicine, forensic medicine, and clinical medicine.

"I am a Fellow of the Royal College of Surgeons of England and a licentiate of the Royal College of Physicians of London. At the London University I have taken the degrees of Bachelor of Medicine, being placed eighth on the honours list; of Bachelor of Surgery, being placed fourth on the honours list; and of Master of Surgery, the highest surgical degree. In this latter examination I was fortunate enough to obtain the gold medal, a distinction gained only seven times by London men, and never before by a provincial student.

"After qualifying I was appointed house-surgeon to the Infirmary for twelve months; and from April, 1890, to April, 1893, I held the post of resident surgical officer to the Infirmary.

"In addition to the time passed at the Leeds School of Medicine I worked for six months in London, and for some months in Berlin under Professor von Bergmann and von Bardeleben. . . . In August, 1894, I was appointed demonstrator of anatomy in the Yorkshire College."

This list of his achievements is of special interest as showing that he was not primarily attracted by surgery. In fact, surgery is almost the only subject in the student's curriculum in which he gained no distinction. It makes one think that one of his favourite sayings in after years—"I am a physician doomed to the practice of surgery"—was more than a mere jest.

But we must return to the point where Moynihan had just finished his undergraduate life and was once more called upon to make a decision as to his medical career. His mind was still set on entering the Army Medical Corps, so that he did not even apply for a position as house-surgeon. He had been dresser to McGill, by whom he was greatly attracted, and when after his qualification McGill told him that he had been appointed as house-surgeon to Mayo Robson he felt he must accept the position even though it postponed his ultimate aim. So in 1887 he became Mayo Robson's house-surgeon for a year, and later on he was to act as assistant to that pioneer in abdominal surgery. It was during this period that in the temporary absence of McGill's house-surgeon Moynihan assisted him in the first recorded prostatectomy. The importance of this was hardly realized at the time, and it was only in after years when Freyer had popularized the operation that Moynihan drew attention to McGill's pioneer work and claimed that credit should be given to the latter for its introduction. Between his house-surgeoncy and his taking up the post of resident surgical officer at the Infirmary he spent a year in postgraduate study in London and Berlin. The fact that he chose Berlin as his place of study is testimony to the great influence that German teaching and practice then held in the surgical world. We are left in complete ignorance of what he learned in Berlin or of what impressions those masters of German surgery von Bergmann and von Bardeleben made upon his mind. Certainly he never referred to them or their work at a later date. On the contrary, he often deprecated the idea of Germany being the surgical metropolis of the world and of German surgeons being responsible for notable surgical advance.

Early Years of Practice

In 1890 he obtained his Fellowship of the College of Surgeons and became resident surgical officer to the Leeds Infirmary. This post, which he held for three years, marks his definite decision to take up a surgical career. It involved his doing a great deal of emergency work, and in this for the first time he had to rely on his own judgment and skill. It also introduced him to a number of the local practitioners whose cases came under his care. So that when his appointment terminated he took rooms in Park Square and set up in private practice. He confidently looked forward to being appointed on the surgical staff of the Infirmary. His first application for this was not successful, however, and he had two years to wait. His hopes for ultimate success were encouraged, no doubt, by his growing intimacy with Leeds' most successful practitioner of those days, Dr. Jessop. His consulting-room was at 33, Park Square, with Dr. Jessop, whose assistant at all private operations he became. In addition to the fees he obtained for this he received a salary as police surgeon and also as demonstrator of anatomy. Those were the days when surgeons also did general medical practice, and Jessop, although surgeon to the Leeds Infirmary and at one time on the Council of the Royal College of Surgeons (1891-1903), was consulted about medical cases such as pneumonia and phthisis. So it is not surprising that Moynihan's first private patients

were also of a general character. The following are the cases which appear first on his books: a cut below the eye, spinal tuberculosis, gout, deafness, pulmonary tuberculosis, and an abscess in the groin. This was his first private operation, for which, with the eleven subsequent visits it entailed, he received a fee of £35 14s. In his second year his books show that he had 120 patients, on many of whom he operated. It is evident, therefore, that his days of penury were over and that he had had a much more rapid path to success than falls to the lot of most young surgeons. In 1895 he married Isabella, the second daughter of his chief, Dr. Jessop—a true union of hearts which was to provide him with his life's companion almost to its very end.

It was in 1896 that he was appointed assistant surgeon to the General Infirmary at Leeds, and in this capacity was associated with Mayo Robson both in hospital and private work and also in the publication of books on the surgery of the stomach and of the pancreas. Obviously this had a great influence in directing his special line of work and in perfecting his technical skill. After Mayo Robson's death in 1933 he writes of him: "I came to him when he was in his formative stage, and the lessons he impressed upon a susceptible youth were quite unforgettable. Mayo Robson must rank among the very greatest surgeons of all time . . . supreme in technical skill, adventurous in search of truth, restless in eager desire to seek better and still better methods of relieving the sufferings of mankind, of infinite resource, tender, compassionate, merciful."

His Rise to Maturity

The next ten years (1896–1906) were the most important in his life for the attainment of his full measure of strength and skill. This period represents that of his assistant surgeoncy, during which he was personally associated with Mayo Robson. 1896 is the date on which he first published a paper. It was read before the Leeds and West Riding Medico-Chirurgical Society in May and published in the *Lancet*. It is entitled, "Case of Acute Perforative Appendicitis followed by Septic Peritonitis: Abdominal Section: Recovery." He said that no such case had occurred while he had been house-surgeon and resident surgical officer. During this decade he published no fewer than seventy-one papers, all of which except seven were about abdominal surgery, and also wrote most of his own important books—namely, those on gall-stones and abdominal operations—as well as those in which he collaborated with Mayo Robson.

An event of great importance happened in this period, and that was his first visit to America in 1903, when he met the Mayos, Murphy, and Crile. He was invited to take part in the discussion on William Mayo's paper on gastric surgery at the American Medical Association Meeting at Philadelphia. This marks the beginning of his close association with these great American surgeons, and also of his career as a public speaker. He would not, of course, have had this invitation to America had not visitors from that country already been to Leeds Infirmary and watched the work of Robson and Moynihan. But when he got to those crowded and enthusiastic meetings in Philadelphia, and still more when he found himself able to address such meetings with ease and assurance, he naturally felt himself uplifted with the feeling that the ideals of surgery were worthy of devotion and that the great world was open to him in which to develop these ideals and to preach his gospel. Anyone who can visit the great American clinics and meetings without being

moved with enthusiasm must be dull indeed. And such Moynihan certainly was not. Even if he had not had it before, he came back from America with the uplifting thought that surgery was an inspiring ideal and very much more than a mere art or craft.

"To be an enthusiast is to be the worthiest of affection, the noblest and the best that a mortal can be."—
WIELAND.

Various facts also show how much he was influenced by the American trip. He brought back some rubber gloves and, although he had been used to wearing a clean white coat for operating, he now adopted the habit of the complete change of clothes and the wearing of cap, mask, and gloves, which was then a novelty but which has since been adopted as a general routine by all serious surgeons. Then there is the fact that his most important surgical work—namely, *Abdominal Operations*—was published by the American firm W. B. Saunders Company of Philadelphia, and one surmises that the idea of writing this book originated when he was in that city. He actually began it on his return in 1903, and it was completed in 1905. The book was an immediate success, and especially in America. J. B. Murphy wrote on receiving a complimentary copy: "The medical profession is greatly indebted to you for placing in its hands such a practical working guide to abdominal surgery. . . . I have just returned from the Mayos, Rochester, where we had the meeting of the American Society of Clinical Surgery. . . . Your book was one of the interesting topics of conversation at that meeting, for you have many admirers in that society, and justly so, for you have been the pioneer of so many important changes." This was only one of many of the letters of appreciation which he received from eminent surgeons in America. The book ran into four editions by 1926, and continues to be the standard work on the subject to-day. I cannot refrain from quoting some sentences from the preface to the last edition, because they illustrate so exactly his attitude towards the high ideals of surgery. "Surgery is not only a matter of operating skilfully. It must engage in its service qualities of mind and heart that raise it to the very highest pinnacle of human endeavour. A patient can offer you no higher tribute than to entrust you with his life and his health. To be worthy of this trust we must submit for a lifetime to the constant discipline of unwearied effort in the search of knowledge and of most reverent devotion to every detail in every operation that we perform. Of all the temples in the world none is more sacred than the operation theatre. Since no joy is greater than that of service in such a sanctuary, no responsibility is greater than that which falls daily to our lot."

There is one other matter of great importance in Moynihan's future career which probably took origin in this first American visit, and that is his wish for the close association of surgeons in the pursuit of their art. To one brought up in the narrow provincialism of the English surgery of those days what a revelation it must have been to see the large and enthusiastic meetings of men from all over a continent drawn together by the common bond of their scientific calling! His own burning zeal for the lofty ideals of surgery must have made instant response to the enthusiasm of his American colleagues, so that on his return to these shores he reflected on the need for a closer union of British surgeons, for up to that time association had hardly extended beyond the bounds of single cities. Such reflections were later on given concrete shape in the Surgical Club and the Surgical Association which he founded. It was during this period too, while he was still assistant surgeon, that he established as a routine his

incomparable technique and those strenuous habits of unremitting toil which enabled him to get through so much work without any appearance of haste or effort. He was of fine physique and he never seemed to be tired. He had unbroken good health and enjoyed every moment of his life. Of abstemious habits in the matter of alcohol and tobacco, he was nevertheless no fanatic, although as regards smoking he held rather extreme views, which did not recognize either the soothing or the stimulating effects of this habit. He went to bed at ten and rose at six, devoting the hours before breakfast to his writing. He took great care of his hands, keeping the skin from getting rough or cracked; while constantly, in idle moments, he practised feats of manual dexterity—for example, knotting and unknotting a piece of string with the fingers of one hand, both right and left. His operative technique presented nothing showy or spectacular. He was fond of saying, "A good surgeon must have an eagle's eye, a lion's heart, and a lady's hand." In watching him one had the same feeling as when witnessing the performance of any expert at a game. Everything seemed so easy that there was nothing in it. Precision born of practice and exact anatomical knowledge, gentleness as though the tissues had to be caressed into health, and excessive care over every detail—for example, that of stopping haemorrhage or suturing corresponding surfaces together—were the characteristics of every operation. Speed in operating was the result of his precision and not the object of his method. He wasted no time, because he knew exactly what he was going to do and the best way to do it. But the operation itself was only a part of his care of the patient: the preparation beforehand and the treatment afterwards were also the subjects of unremitting attention. He may have been able to make a diagnosis in a moment and almost by instinct; yet he did not trust to this, but every detail of history and symptoms was recorded and every method of physical science—for example, x rays and biochemistry—was called upon to elucidate the condition and to guide in the details of treatment. Neither did he consider his task done when the operation was over. Not only did he regularly visit and see the dressings but he studied the patient's character by spending as long as possible in talking to him during his recovery. And, lastly, he kept track of his patient after he had left and until his final recovery or the reverse.

It was the combination of knowledge, skill, gentleness, and care which made him the most consummate master of the art of surgery.

Full Surgeon

In 1906 he became full surgeon to the General Infirmary at Leeds, a position he held for twenty years, until he had to retire under the age limit. It was in the first few years of his full surgeoncy that he concentrated on the subject of duodenal ulceration and its differential diagnosis from gastric ulcer. This work he summarized in his book *Duodenal Ulcer*, which was published in 1910. In connexion with this work he developed his famous phrase, "the pathology of the living." This was a plea for the study of disease in its early stages, by examination of symptoms and also by observation of the living tissues of the body before they had become distorted and destroyed by the lethal process.

"The surgeon can see and handle the organ or organs affected at the time they are exciting the suffering of the patient, not at the time, months or years later, when all bounds have been overstepped by the unchecked extension of the disease, in parts laid waste by a late infection. At the

time when symptoms are being caused, the pathological changes are open to examination: that is the advantage which comes from the study of the pathology of the living."

Surgical Club

In 1909 he was appointed professor of surgery at Leeds, and this stimulated him to take the first step towards bringing together the leaders and teachers of surgery who shared his ideals. He wrote the following letter to twenty-eight provincial surgeons on July 2, 1909.

"Dear —, It has long been in my mind to suggest to a few of the provincial hospital surgeons the need for the formation of a small and informal 'Society of Clinical Surgery.' The object of this society would be to hold meetings, say twice yearly of two days' duration, at one of the hospitals as the guests of one or more of the staff. Operations could be performed, demonstrations on cases and specimens held, and general conversation and discussion follow. Such meetings should ensure closer friendship among us and make for better work. I propose to ask a few men to Leeds on Friday and Saturday, July 23 and 24, for the purpose of discussing the whole matter. Harold Stiles, Alexis Thompson, and Rutherford Morison, whom I have recently had with me here, are all in favour of this scheme. I propose to arrange for operations on Friday morning and afternoon, and for a series of demonstrations on Saturday morning. It would give me great pleasure to hear that you would view this scheme with favour and that you will be able to come to Leeds for these two days.—Believe me, yours very truly, B. G. A. MOYNIHAN."

Almost all of the recipients were in favour of this scheme. I regret to say that Bristol was the only university city which appeared indifferent to the call. First one and then a second surgeon having refused to join, it was not until 1913 that someone in that place was found responsive to the ideal. However, founded the club was, and it was first named "The Chirurgical Club." It was later on, in 1929, renamed "The Moynihan Chirurgical Club" in compliment to its founder, and in 1932 adopted as its motto the words "Without Frontiers" as expressing simply its purpose and ideals. The importance of the foundation of this club is far wider than the mere influence it had on those fortunate few who belonged to it. In the first place it introduced the idea of a community of interest among surgeons scattered over Great Britain, it formed the travelling habit; while the annual visits to foreign clinics brought about an interchange of ideas which no mere reading of literature could have effected. These ideas made such an appeal to British surgeons that many other similar surgical travelling clubs sprang up, and they are still increasing and flourishing. But the numbers of a surgical club are necessarily limited, and there was still need for a wider organization which should include all British surgeons. It was in the spring meeting of the club in 1913 at Oxford that I first heard Moynihan discuss the question of the formation of the Association of British Surgeons. Sir William Osler, then Regius Professor of Medicine, was one of our hosts. He had brought over from America the notion of co-operative work and discussion, and had founded the Association of Physicians in this country. He urged that a similar organization of surgeons should be formed. Moynihan determined to undertake the task, and if it had not been for the war this would probably have taken shape much earlier than it did.

In 1912 Moynihan received the honour of knighthood, and it was in the same year that he was elected on the Council of the College of Surgeons. At that time the Council was composed almost entirely of London men, and it was only occasionally that some intrepid adventurer from the North was elected to its ranks. As a provincial

member of the Council he had had two notable predecessors. Joseph Hodgson of Birmingham was elected in 1849 and became President in 1864. Then there was Moynihan's own father-in-law, Dr. Jessop, who served on the Council from 1891 to 1903 and was Vice-President in 1901-2. For the last fourteen years the provincial surgeons have had an informal but effective arrangement by which the voting for membership on the Council was organized. This was suggested by Moynihan and carried out by the Moynihan Club. Its effect has been that six to eight provincial surgeons have become members of the Council, the ideal aimed at being that all the universities in England and Wales with clinical teaching should be represented. This, too, is typical of the influence he exerted—the widening of the basis of surgical representative institutions and the provision that the surgeons of the provinces should have the recognition which was their due and should contribute their share to the advancement of the science and teaching of surgery.

“British Journal of Surgery”

It was in the year when Moynihan was elected on the Council of the College that the idea of founding a journal exclusively devoted to surgery first took shape. This idea was born in Bristol. Some of us had tried to keep abreast of current surgical literature by a book club in which each member took in one of the foreign surgical journals, chiefly American, French, and German. We were depressed by the reflection that there was no such journal devoted entirely to surgery in the British Isles. Attempts which had been made in the past had had only a short-lived success. I discussed this with Mr. Hartland Wright, who was then the head of the publishing firm in Bristol. We came to the conclusion that the failure of previous attempts was chiefly due to two causes: namely, that the publications had in the main been London journals, in which provincial surgeons had had but little part, and that too much had depended upon one man. Mr. Wright expressed himself as willing to undertake the financial responsibility of starting a surgical journal if an editorial committee could be formed representative of all the British Universities and of as many other teaching hospitals as possible. It was the occasion of my first meeting with Moynihan, which occurred in the examiners' room at the College of Surgeons, the very room where our monthly meetings took place for more than a quarter of a century. I explained the scheme to him, and he agreed to the calling of an informal meeting and to taking the chairmanship of our enterprise. He had already a close association with the leading surgeons all over the provinces, and his new position on the Council of the College brought him into touch with the most influential men in our profession in London. So that with his influence and his inspiration the launching of the new venture was assured. After a few months of preliminary work the first number of the *British Journal of Surgery* was issued in July, 1913, and that journal has continued as a quarterly ever since. Sir Rickman Godlee, at that time President of the College of Surgeons, wrote the Introduction and said: “In all other countries, in both hemispheres, where the study of surgery is most active there are special journals devoted to the subject. In Great Britain alone the progress of surgical thought and enterprise is for the most part only recorded in publications which embrace the whole subject of medicine and whose pages are largely occupied with general matters of purely local interest. In such surroundings they may well escape the notice of our foreign brethren. And yet we are all brothers working

hand in hand for the advancement of our science.” In writing the Introduction Sir Rickman said he was “endeavouring to justify the journal's existence.” But this justification had been amply made by its welcome by surgeons all over the world, and by their continued support in increasing numbers for the twenty-seven years that have since elapsed. This early and this lasting success we owe chiefly to Moynihan's leadership. He brought to the work not only his consummate skill and tact, but his peculiar and at that time unique knowledge of the surgeons and surgical work of this country. He suggested that we should secure a representative from every teaching school in Britain, in Scotland, and in Ireland. In this way a large committee was obtained representative of London, provincial, Scottish, and Irish schools. He then suggested getting support from the leading teachers in India and in the British Dominions. Two great British surgeons there were who were inclined to look askance at this new venture of surgical journalism. However, Sir William MacEwen had his clinic visited and described in our first number, and Sir John Bland-Sutton contributed an article on the surgery of the spleen to our second. These were the kind of master-strokes which Moynihan, that born leader of men, conceived and brought to a successful issue. As regards the actual conduct of the journal, two or three facts are worthy of record. In the first year we had an anxious time wondering where our next supply of material was to come from. In our second year a fateful decision had to be taken, and at that time a wrong decision would have involved our premature decease. Many thought that the war was only to be a matter of months and that the publication should be suspended. But Moynihan had a larger vision: he at once saw how we could seize the opportunity of the Allied military operations to obtain articles on war surgery and also draw into our circle contributors, readers, and subscribers from the Belgian, French, and American worlds of surgery.

The first year of anxiety, the second of crisis, and four years of war were followed by twenty years of peaceful prosperity and progress. Presiding over our monthly meetings, Moynihan set a wonderful example of punctuality and genial good-fellowship. He was never late and never ruffled, and every member of the committee felt that it was a pleasure and not a burden to work under his leadership. It was a happy prescience on the part of Professor Gask and Sir D'Arcy Power to suggest in 1936 that we should wait no longer to show our appreciation of his chairmanship. This took the form of a silver statuette by Omar Ramsden and 1,000 guineas, which Moynihan presented to the College and which has since been used as the “Moynihan Memorial Fund” for the purchase of books for the library.

To return from this digression to the course of Moynihan's career, the five years between his becoming full surgeon and the outbreak of war were years of growing success, happy friendship, and enjoyment of the rewards of his labours. The Surgical Club had two meetings a year, one at home and one abroad, and at each of these he made new friends and disciples. Of those at home none were nearer or dearer than Robert Jones and Harold Stiles. With these two many of his plans for reorganizing the profession were worked out. Among the younger men he found Braithwaite, who became his assistant both at hospital and in private, and remained associated with him in this capacity for fifteen years. Braithwaite wrote of him later:

“He was a hard master but just, demanding the utmost in one's power; he trained himself to develop and preserve all

his faculties for the service of his profession and expected others to do the same. He gave all the remarkable energy, unsurpassed skill, and exquisite gentleness he possessed fully and freely to his work. He made no excuses for himself and would accept none from his subordinates. He was never completely satisfied with any operation, always thinking he might have done something a little better, ever striving after an ideal which none could reach. He often said that an operation was a religious rite which demanded sacrifice and attendant ceremonial from us all; he was the arch-priest, we his acolytes. In the operating theatre he was very stern and silent—no sound must be heard during the administration of the anaesthetic, and during the operation all must speak if at all in whispers—the gravest incident did not make him raise his voice or hurry his activity. . . . With it all he inspired us with such admiration as must be very rare. We loved him very dearly and would have liked to show it more than we dared do; but he knew more than we thought, and his letters reveal a depth of affection which he could not bring himself to show in any other way."

When the period of their close association was over Braithwaite presented the bust of Moynihan by Wilcoxon to his chief as a memento, and this was later given to the College.

The time had come (1910-14) when Moynihan could enjoy some of the rewards of success, to play as well as to work. He bought a house in Norway, and a yacht in which he took his family each year for their summer holiday. Just before the war he purchased Carr Manor at Meanwood, a few miles outside Leeds. It was a stately mansion situated in a beautiful garden and grounds, where he loved to entertain his friends.

(To be concluded)

THE ISOLATION OF TYPHOID, PARATYPHOID, AND DYSENTERY BACTERIA FROM FAECES AND URINE

A COMPARATIVE STUDY OF SOME CULTURE MEDIA

BY

A. CHARLOTTE RUYS, M.D.

(From the Laboratories of the City Health Department, Amsterdam)

During the last few years several new media for the isolation of pathogenic enteric bacteria have been published, but no general opinion of their value for routine purposes is available. In order to find out which are the most reliable methods for daily work I made a comparative study of the following six media: the old ones of Endo and Müller and the newer ones of Wilson and Blair (1931; Wilson, 1933), Kauffmann (1931), Ruys (1934), and Leifson (1935).

Eberthella typhosa

In the isolation of *E. typhosa* from faeces and urine the results with Wilson and Blair's old standard medium (glucose-bismuth-sulphite-phosphate-iron-sulphate-agar) exceeded those obtained with the culture medium of L. Müller (tetrathionate broth), which is often spoiled by the growth of *proteus* bacteria. The Wilson medium is highly selective; so it is possible to make rather heavy inoculations, giving a better chance of success. Some difficulties in the preparation of the medium were over-

come when we used ferrous sulphate crystals precipitated in alcohol; the solution contained so little ferric salts that it was perfectly clear. Also, we employ only freshly prepared media. After pouring the mixture into Petri dishes it is allowed to evaporate and cool without covering. Without further drying the medium is ready for use; it should not be stored.

A few drops of the faeces suspension are smeared on the surface. Besides this we always mix some of the fluid medium in dishes with 1 c.cm. and 4 c.cm. of the faeces suspension, a method also recommended by Wilson (1938). In most cases these pour-plates are superfluous, but sometimes they give a positive result which could not be obtained otherwise. In one case, only once were both pour- and smear-plates positive, but the pour-plates alone yielded typhoid colonies on four occasions. Neither by the Endo plates nor by the Müller broth could typhoid bacilli be isolated.

TABLE I.—*E. typhosa* isolated from Faeces and Urine with Three Differential Media. (Total Number of Positive Specimens, 222)

With Endo's medium positive	96	Only Endo positive	1
" Müller's "	133	" Müller "	14
" Wilson-Blair's "	198	" Wilson-Blair positive	57

Table I indicates that it is not sufficient to rely on Wilson and Blair's medium alone. As the tetrathionate broth was not very satisfactory I tried Kauffmann's medium, which consists of tetrathionate broth, bile, and brilliant-green. It is recommended by that author as an improvement on the plain Müller broth. The results are recorded in Table II.

TABLE II.—*E. typhosa* isolated from Faeces and Urine with Four Differential Media. (Total Number of Positive Specimens, 96)

With Endo's medium positive	35	Only Endo positive	0
" Müller's "	49	" Müller "	6
" Kauffmann's "	47	" Kauffmann positive	4
" Wilson-Blair's "	86	" Wilson-Blair "	26

These figures show that the plain tetrathionate broth is not inferior to Kauffmann's medium. The increase in the numbers of positive results may be accounted for by the larger number of media employed.

Salmonella

The medium of L. Müller gives satisfactory results, but it also stimulates the growth of *B. proteus*, which from time to time spoils the cultures. In order to avoid the overgrowth with *proteus* bacteria I tried several chemicals and media, and finally found that the addition of 2 per cent. Esbach's reagent (1 per cent. picric acid and 2 per cent. citric acid) to brilliant-green broth (1:100,000) gives a good culture medium for *Salmonella* which inhibits the growth of *B. proteus* to a large extent.* The results of several years' routine practice are recorded in Table III.

TABLE III.—*Salmonella* isolated from Faeces and Urine with Three Differential Media. (Total Number of Positive Specimens, 616)

With Endo's medium positive	..	..	..	..	151
" Müller's "	..	..	..	..	419
" Ruys's "	..	..	..	..	551

For over a year I also tried Kauffmann's medium in comparison with the previously mentioned media, but,

* In experiments on the swarming of *B. proteus* in agar media the inhibiting effect of Esbach's reagent was first pointed out by Dimitrijevic-Speth (1929).