A Lecture

ON

JAMES MACKENZIE AND HIS MESSAGE.*

BY

JOHN HAY, M.D., F.R.C.P.,

PROFESSOR OF MEDICINE, UNIVERSITY OF LIVERPOOL.

SIR JAMES MACKENZIE stands out as one of the master minds in medicine: a man who, in the future, will find his place with leaders such as Sydenham, Stokes, Graves, Addison, and Bright. As Sir Thomas Lewis has pointed out, in the *British Medical Journal* of March 15th, James Mackenzie rightly belongs to a distinguished group of men, experimental clinicians—men of Mackenzie's own kidney—Ferrier, Horsley, and Head. He died in January, 1925, and it is now possible, after a lapse of five years, to gauge in some measure, and with some prospect of success, the mark he made on the medicine of his day.

James Mackenzie is the finest example in our time of a general practitioner who by force of character, exceptional intellect, and unremitting industry rose from the ranks of the profession to become an outstanding authority in medicine, with a reputation which is world-wide. The story of his life has been told by Dr. McNair Wilson in a book entitled *The Beloved Physician*, and it is with pleasure that I fully acknowledge my great indebtedness for the vivid and arresting picture he has given us. But, fascinating and illuminating as it undoubtedly is, I feel that his biography hardly does justice to the memory of the man he called master. I would like to convey the impression left on my mind by Mackenzie and at the same time to stress what I believe to have been his message to the profession as a whole, and to the general practitioner in particular—a message which is apt to be missed if one becomes too much interested in the controversial side of his activities.

Born at Scone in 1853, of sturdy Highland farming stock, James Mackenzie was one of a family of seven. These were lean years for farmers, and the Mackenzie family was much straitened. Money was scarce, rents were high, but the hard school of adversity is an environment which makes rather than mars character. His brother, William Warrender Mackenzie, now Lord Amulree, is a most distinguished lawyer, and when he was raised to the peerage the *Times* referred to him as "the greatest living expert on industrial arbitration and conciliation." Another brother, Robert, went into the ministry; he was a man of great literary ability.

James attended the village school, and later the Academy of Perth, where he and his brothers received what every Scots lad of that time received—a sound education; although, if one may judge from his own criticism, he did not entirely approve of the manner in which ability was assessed. So far as I know, he did not distinguish himself in any way. He was not gifted with a retentive memory, nor had he an "index mind," and school honours fall, as a rule, to those who remember rather than to those who think. His was a brain that developed slowly.

For some reason he became fascinated with the idea of being a pharmaceutical chemist; or was it that he was bored with school life, and the chemist's shop was a means of escape? At any rate, at the age of 15 he became a chemist's apprentice at a salary of £5 per annum. He soon realized that he had accepted a mode of life that was monotonous and full of drudgery, but in the five years of his apprenticeship he must have learned a great deal about human nature as he viewed it across the counter—for example, the pathetic belief of the ordinary man in the value of drugs, and the implicit faith of the general public in a "bottle." He came into daily contact with the practitioners of Perth, and there can be no doubt that this period was an admirable training for any man who was to engage later in the profession of medicine.

His apprenticeship at an end, he refused a tempting offer of partnership from his employer—a fine tribute to his character and efficiency—but his mind was now set on becoming a doctor. Before embarking on his university

career in Edinburgh he went to Glasgow and worked as a chemist for a year; there, in his leisure, he read for the entrance examination.

At Edinburgh he worked with determination, but it was not until he entered the wards at the Royal Infirmary that he realized that he had come to grips with the real thing. He had left the physiological laboratories and dissecting room behind him, and was at last in direct contact with the sick human being. Here he found scope for his ability, and gained two medals, which must have done something to restore his belief in himself. In 1878 he graduated, and four years later received the degree of Doctor of Medicine.

A medical man who was Mackenzie's junior at Edinburgh and remembers him well once described him to me as a "gaunt, gauche, determined, ambitious youth, who worked like a nigger." I know little about his early career except that after graduation he held a resident house appointment in the Royal Infirmary, Edinburgh, and he told me he was then offered the position of demonstrator in pathology in the university. Of this great opportunity he was unable to take advantage. Financial reasons made it imperative that he should enter general practice. Accordingly he declined the tempting offer, which was accepted by his friend Sims Woodhead, who ultimately became professor of pathology at Cambridge.

GENERAL PRACTICE AT BURNLEY.

In 1879 began the second phase of his life. He left Scotland and became assistant in an old-established practice in Burnley, where he lived and worked for twenty-eight years.

Plunged into practice Mackenzie was at once brought face to face with the same problems with which we have all had to deal. It was not long before he recognized that in the majority of his patients in the earlier phases of illness a full and satisfactory diagnosis was impossible. He had to admit that frequently he did not understand the mechanism of many symptoms and signs, and, what was of more importance, he realized that he could not with confidence assess their significance. A man complained of irregular action of the heart, and asked whether it was a serious matter and should be continued with his occupation. A woman would ask if she was justified in marrying and bearing children. An insurance company required information as to the expectation of life in a man in whom a cardiac bruit was present. Mackenzie had to admit that he was unable to give the required information, and, what was more, no one else could. How did he begin? He did what most of us would have done, and bought books, in the belief that in them he would find the help he needed. But in vain.

An outstanding characteristic of Mackenzie was the fearless honesty with which he defined the limits of his own knowledge. He respected facts, not authority. He never hesitated to confess when his knowledge ended and surmise and guesswork began, and he had an uncanny power of defining this limit.

"I put to myself the question: Do I understand the meaning of one single sign or symptom in all its aspects; for example, the mechanism of its production, or the bearing of its cause upon the patient's future health? In this way I was brought to a realization of the fact that I did not understand the full meaning and significance of a single symptom."

He found, for example, that he did not understand the mechanism of such symptoms and signs as pain, the sense of exhaustion, shortness of breath, cardiac irregularity, cardiac murmurs—conditions met with every hour among his patients. Nor was he able to speak with any confidence concerning them in terms of prognosis. He fully understood neither their origin nor their import, and it was not long before he grasped the fact that his fellow practitioners were in no sense better informed. Accordingly he set before himself the task of investigating the nature of the symptoms and signs which he had met with commonly in the course of his practice.

"I had thus placed before me two definite objects at which to aim: (1) understanding of the mechanism of symptoms, and (2) understanding of their prognostic significance. When at this date, forty years after, I look back upon my work I can recognize that it was this simple resolution and these definite aims which guided me to such success as I have achieved."

* The first James Mackenzie Memorial Lecture, delivered at the Institute for Clinical Research, St. Andrews, April 8th, 1930.

He had, therefore, within a few years of starting in practice, clearly defined his aim. He saw that the only way to attain the information he sought was to observe each patient over a number of years and to note how far those presenting certain symptoms or physical signs tolerated illness and the stress of life. This meant years of careful clinical observation and the keeping of detailed records with recurrent analysis of his findings.

It was soon obvious to Mackenzie that it was not possible to do more than focus his attention on a small group of symptoms and wait and see what the future revealed. Certain tragic happenings early on in his practice caused him to interest himself more particularly in the cardio-vascular system, and the early evidences of cardiac failure in pregnant women. Again, the significance and meaning of pain fascinated and intrigued him from the very first, and to this he devoted much time and thought. One of his first publications was a paper on "The study of sensory symptoms associated with visceral disease," which appeared in the *Manchester Medical Chronicle*. Having clearly defined his problem he set out to solve it.

Here, then, is the quest of his life—to understand the mechanism and prognostic significance of symptoms. How did he, "amid the distractions of the life of a busy general practitioner," succeed in reaching his goal? He did it by method and concentration, and still more by pondering constantly on the problems he was investigating; they were ever present in his mind. It meant a careful system of note-taking and routine revision of his findings. Each day he devoted a short time to reading, revision, and thought. At one stage he found the early morning most suitable, before the work of the day began. Later, when I knew him, it was from 9 to 10 on alternate mornings, and during that time he refused to be disturbed. His Sunday afternoons were a kind of field day. Patients in whom he was especially interested would turn in, tracings were taken, records completed. Later, when he was famous, physicians from all over the world would be found at that Sunday clinic in Burnley.

As an all-round general practitioner and a capable surgeon he operated on his own patients—those whose symptoms he had himself watched and noted, often for years. He supervised the period of pregnancy, and carefully studied the response of damaged hearts to the strain of child-bearing. This was his material, his opportunity, similar to that at the disposal of every general practitioner.

The larger number of his patients were cotton operatives, bluff jannock Lancashire folk, who express their likes and dislikes with equal frankness. Mackenzie's downrightness, his bluntness and unselfishness, appealed to them; they trusted him implicitly.

In such a practice there is no time wasted by unnecessary talking. A tap on the door and straight into the sick-room, and within a few minutes Mackenzie had noted the points that mattered, the result of treatment, any change in the heart rate, or temperature; and often a record of the heart's action was made while the thermometer was warming up. No unnecessary fuss, no hot air. Down to essentials all the time.

For a little over a quarter of a century he worked in Burnley, undoubtedly the most important and momentous years of his life. To aid him in the investigation of the cardiac irregularities he first modified the Dudgeon sphygmograph in such a way that he was able to record the venous pulsations simultaneously with the arterial, and finally, with the help of Shaw of Padiham (a genius of a watchmaker), he invented the ink polygraph—a portable machine which enabled him to take long records, doing away with the necessity for varnishing. The greater part of his heart work was, however, carried out with the simpler instrument—the Dudgeon—and the small strips of smoked paper.

In 1902 he published the results of his investigations in a book entitled *The Study of the Pulse*, and from that moment his reputation was made. It was a new landmark in cardiology. A German translation followed, and both on the Continent and in America intense interest was aroused. It was my good fortune to be asked by the editor of the *Liverpool Medico-Chirurgical Journal* to review the book,

and I remember how absorbed I became as I mastered chapter after chapter, and realized that it opened a new field for work and investigation. I was, moreover, profoundly impressed by the fact that this important contribution to medicine was made by a man immersed in a large general practice—immersed, but not submerged. A vivid demonstration of what can be done by one who is prepared to take advantage of his opportunities—the opportunities which only a general practice could offer, the material for which lay ready to his hand. In those days the reviews in our *Liverpool Journal* were signed, and a year or two later, when Mackenzie and Professor Wenckebach came over to the Royal Infirmary to visit Dr. James Barr's wards, Mackenzie towered above me, and his first words were: "Are you the John Hay who wrote the review of my book in the *Liverpool Journal*?" I bashfully admitted that I was, and wondered what was coming next, and was more than relieved when he said: "I don't mind telling you that you were one of the few men who had taken the trouble to read my book before they reviewed it." That meeting was the beginning of a friendship which was broken only by Mackenzie's death.

Fame was then in the offing. Honours and distinctions were yet to come, but I believe those were the happiest days of his life. He knew in his bones that his work was good, and that at last his views were finding acceptance all over the world. It is interesting to recall that in 1906 Dr. Arthur F. Hurst wrote:

"Of all English physicians, the best known and most frequently quoted in Germany is probably Dr. Mackenzie of Burnley, a prophet who has hardly met in his own country with the recognition which he deserves."

However, distinguished men like Osler, Keith, Wenckebach, physicians, anatomists, physiologists, and others, were finding their way to Bank Parade, impressed by the importance of Mackenzie's work, and desirous of meeting the man himself. His reputation had reached far, and his opinion was sought by medical men and their patients, not only from Great Britain, but also from Canada, America, Germany, and France.

It might be thought that a man who accomplished so much, professionally would find little time for other interests; far from it. Mackenzie was a first-class golfer, a good chess player, quite useful with a billiard cue, and a no mean hand at cards. He had soon learned that, in a life such as his, concentration was an essential feature if he were to accomplish anything, and this faculty he cultivated. No one better "filled the unforgiving minute with sixty seconds' worth of distance run." He was thus able to make the most of every half-hour devoted to his special work. He was at one with Robert Louis Stevenson, who wrote:

"Contend my soul for moments and for hours,
Each is with service pregnant, each reclaimed
Is like a Kingdom conquered, where to reign."

Mackenzie was blessed, or cursed, certainly dominated, by a restless and inquiring mind. By nature a fighter (it was written in his face) he was most "tenacious of any position taken up until the evidence against it was conclusive." Then he frankly conceded the ground, and from his new position began yet again to probe into the unknown. Lord Moynihan would have said that Mackenzie "dwelt in a land of ever-advancing frontiers."

He was not at his best addressing a large audience. His training had not led to his being a good popular exponent, and he was sometimes accused of want of lucidity. This was due in part to the fact that he failed to realize that his audience did not understand the assured basis on which he built up his exposition. He took their knowledge for granted, and sometimes he did not succeed in holding the attention of the meeting. Professor Wardrop Griffith has brought to my memory the first gathering of the Association of British Physicians, when Mackenzie spoke on his tracings, and, like Scrooge, made "a perfect Laocöon of himself," wreathed in some kilometres of polygrams.

He was best by far in an informal discussion with a few sympathetic and like-minded men, where his premisses were accepted and his downrightness was not misunderstood. In such an environment his enthusiasm was

contagious. I should like to have been one of the small group of men on the liner bound for Canada, in 1906, for the meeting of the British Medical Association—a circle including Ashby of Manchester, Clifford Allbutt, Sims Woodhead, and other distinguished men. With them Mackenzie discussed the whole question of heart-block, and opened his mind on the subjects which held his attention. On his return I remember his childlike delight at the enthusiastic reception accorded to him in Toronto, a delight not so much in his personal triumph as in the recognition and acceptance accorded to his views.

That was in 1906. Two years later, at the age of 55, he had a severe attack of angina pectoris lasting two hours. This was the first manifestation of the dread disease which slowly encroached on his physical reserves, and which, fifteen years later, caused his death. One might mention here, for it is of some medical interest, that his brother, the distinguished clergyman and author, died from angina at the age of 64, and angina also caused the death of a sister.

MACKENZIE'S LIFE IN LONDON.

After twenty-six years of general practice in Burnley Mackenzie decided to move to London. It was admittedly a bold step for a man of 54, but he was eager to enter the medical life of the metropolis and there to expound more fully the views he held. Accordingly, in 1907, he took his courage in both hands and to London he went. The result was a phenomenal success, and is, I believe, without parallel in the history of Harley Street.

For the first year, as was to be expected, his practice was negligible, but his leisure enabled him to finish and publish a comprehensive and liberally illustrated textbook on *Diseases of the Heart*, with which everyone is familiar. It had a remarkable reception, rapidly ran into a second edition, was translated into German, French, and Italian, and was directly responsible for a welcome increase in his consulting work. From then onwards he experienced no further financial troubles.

In London he met with much kindness, and it was not very long before he was on the staff of the Mount Vernon Hospital, and that of the West London, and some years later he was offered, and accepted, a position on the full staff of the great and renowned London Hospital, where he was placed in charge of a fully equipped heart department and appointed lecturer in cardiac research. During the eleven years in which he practised in London he gathered round him men of the calibre of Thomas Lewis, Cushing, Parkinson, Cotton, Windle, Price, and others—all keenly interested in cardiology, and to this group he was a source of inspiration. Essentially a kindly soul, he made friends both in and out of the profession. His life was full of many interests, and his private work overwhelming. But nevertheless he managed to publish books and write numerous papers. He lived at Northwood in Middlesex, and in order to have some leisure for thought he made it a rule to keep Sundays free from all professional engagements, a rule which was only rarely broken.

Then came the great war, and he was swept into the maelstrom. He was asked by the Government to help in organizing one branch of the medical service. It was manifest to all that the medical men of the country had failed to differentiate between organic and functional disease of the heart, and they were unable to assess the extent of cardiac disability, when present. In fact, they did not possess sufficient knowledge to separate the fit from the unfit. There was no one in Great Britain better equipped to give advice in such a problem than Mackenzie. It was the old question which he had spent his life in solving.

If Mackenzie had been asked for some test by which to gauge how far the medical profession of the country had grasped his teaching, how far they had understood the significance of "the response to effort" as an index of the efficiency of the heart, he could not have devised anything more searching than the war. Thousands and thousands of fit men were being rejected all over the country, and the military hospitals both at home and in France were becoming hopelessly congested with cases of so-called heart disease—the beds they occupied being urgently needed for more

serious conditions. In desperation the War Office appealed to Mackenzie for help. This he gave ungrudgingly. In collaboration with Sir Thomas Lewis he organized a scheme which was effectual, and must have saved this country some millions of money and rendered efficient thousands of men. Incidentally, it did much to spread among the members of our profession a more accurate knowledge of the diseases and disorders of the heart.

During his residence in London he was the recipient of many honours. He delivered the Oliver-Sharpey and the Schorstein Lectures, and in 1914 the George Alexander Gibson Memorial Lecture in Edinburgh. He was elected Fellow of the Royal Society in 1915, and in the same year he received the honour of knighthood. These and other honours came to him and gladdened his heart. He had good friends in plenty, a life full of interest, of patients more than enough, a delightful home in the country, everything to make a man happy and contented, and he was successful as the world judges success. But there was something lacking; there was a seed of restlessness and dissatisfaction in the mind of this man of more than 60 years. He became more and more aware that the life he was leading in London was a hindrance rather than a help to the working out of the ideas which were ever present in his mind. Conscious of the need for the investigation of the earlier stages of disease, the subjective manifestations of disordered function, he realized that he must be free of his consulting practice and the distractions of life in London. He yearned to be off again on the old quest. At an age when most men are beginning to think of retiring gradually and restricting their activities, this old warrior, conscious of advancing heart disease, is full of plans for a fresh adventure.

ST. ANDREWS.

In 1918 he said farewell to Harley Street, and, at the age of 65, began a new phase of activity in St. Andrews. In this city, small if judged by its population, but great in renown and graced by an ancient and honoured University with a notable School of Medicine, it was not long before Mackenzie had gathered round him all the local practitioners, infected them with his own enthusiasm, and founded an institute. He formulated a scheme for the investigation and prevention of the diseases that are common among the people, a scheme to stir up and encourage research into the earliest manifestations of disease, and he began to organize on a large scale work similar to that which he had carried out alone in his practice at Burnley.

The keynote of his renewed enthusiasm is to be found in *The Future of Medicine*, published in the following year. In this book Mackenzie reviews the present and indicates the lines along which future advance in medicine should proceed.

The methods of the past fifty years have resulted in a great advance in knowledge concerning disease, notably that phase of disease characterized by physical signs—in other words, the later and terminal phase. Our knowledge, on the other hand, of the first and second stages, the predisposing and the early stages, is admittedly most incomplete. These are the stages of symptoms rather than physical signs, and the methods of investigation applicable to the later phases of disease are not wholly applicable to the analysis and elucidation of subjective symptoms. Mackenzie held firmly that this important and relatively unexplored field of research can only be satisfactorily investigated by those in general practice. It is they, and they only, who are in close touch with the patients during the earlier phases.

Unfortunately the education of the medical student is faulty, in that it does not prepare him for dealing intelligently with the clinical material comprising the larger proportion of his practice. He is taught for the most part on patients in whom disease is fully developed, and it is on such patients that he is examined in his final. In short, he is not educated to make full use of his opportunities.

It is a book worth reading, and if at times his presentation of the problem is a little distorted, who can deny that there is much truth in the indictment?

For four years he worked hard here in St. Andrews, organizing the work of the Institute and training his

colleagues in methods of research. Gradually his liability to anginal attacks increased and he had reluctantly to return to the warmer climate of the South of England, physically infirm, but mentally alert, his brain active and critical. In November, 1924, he wrote to me:

"For the last year I have been able to do no work, but it has been the most profitable year in my life, for I have sought for an explanation of the various phenomena met with in clinical medicine. I have been carefully going over physiology textbooks and testing the explanations, and I have got a new outlook on physiological problems."

Nearing his end but, as ever, seeking after the truth, testing the explanations and finding a new outlook. "So with the throttling hands of death at strife, ground he at grammar." On January 26th, 1925, he died in a prolonged attack of angina pectoris.

MACKENZIE'S ACHIEVEMENT.

One may ask, What has Mackenzie accomplished for medicine? Can it be gauged? So much of what he fought for is now accepted and taken for granted. It is, however, beyond question that Medicine has been placed on a different and higher plane by his work and teaching. At a time when the growing tendency is to worship the machine, and when the wonderful technique of the laboratory has become an obsession, Mackenzie has brought back to us a sense of proportion. He invented machines and utilized laboratories, but he never allowed them to blind him to the essentials of clinical medicine. To Mackenzie the bedside of a patient is the place for a physician. He knew only too well that clinical acumen tends to be lessened by a too great reliance on instrumental and laboratory methods. The obsession of the instrument is prone to make us indifferent to the significance of symptoms and unfamiliar with the "face of disease."

Before Mackenzie, our knowledge of irregular action of the heart was chaotic. He analysed the arrhythmias, separated the dangerous from the innocent, defined and distinguished them, and produced order in the place of chaos. From this chaos he dug out auricular fibrillation and rationalized digitalis therapy. This in itself is worthy of a monument.

He blew the old theory of "back pressure" into thin air, though it is true that one still hears of it occasionally from the mouths of those blind to the facts and deaf to the truth. But what is of still greater importance, he taught the real significance of cardiac failure and how to recognize its earliest manifestations, for it is cardiac failure that a doctor fears and must foresee. He proved that the response of the heart to effort, the area of cardiac reserve, is the true touchstone by which to estimate the gravity of murmurs and irregularities, a fact which is still far from finding general recognition.

He spent his life investigating the mechanism of pain, and this study found its final expression in the masterly volume on angina. Important and valuable as are his contributions to the study of visceral pain and cardiovascular disease, he would, I know, have said that they were only *examples* of the method of research which he preached in season and out of season—a method of research applicable to every branch of medicine. His message was a call to the study of symptoms, for better and more intelligent investigation of the patient; he believed in the intensive study of the patient at the bedside, and he held that future progress in medicine depended largely on those who will study the symptomatology of the early phases of disease. It was this belief that in the end led to his dramatic decision to give up his lucrative practice in London and start the Institute at St. Andrews.

There is a certain type of clinical research which from its very nature must inevitably be carried out on patients in the pre-institutional stage—in fact, on patients who are only beginning to feel ill. Such material is in the hands of the general practitioner alone. It is not to be found in the wards of a general hospital, and is not satisfactorily studied in an out-patient department. This pre-institutional research, if it is to yield a full harvest, must be correlated with the type of intensive investigation which is most fittingly carried out in hospitals and associated with laboratories. In other words, the general practi-

tioner must become one of the team, his position frankly recognized and his co-operation welcomed.

You have shown here in your Institute for Clinical Research how this theory can be put into practice. The full realization of your hopes is, I believe, to be found in close co-operation with the School of Medicine here in your great University; and in a lively co-ordination of your clinical activities with the research work carried out in the hospitals of Edinburgh and Dundee. In the complete scheme of clinical research your work is pre-institutional and complementary to that more fittingly carried out in the hospital and laboratory.

The life-history of disease must be followed up and recorded from the first moment of discomfort, the earliest malaise, right on to the post-mortem room. In any such comprehensive scheme work of the type done here in St. Andrews is essential, and to disregard such work will only result in a one-sided and unbalanced conception of disease.

In the realm of Medicine, as in the world of Art, no one can achieve anything of moment whose mind is dominated by greed or who measures success by dividends. Fortunately for our profession, there are many restless eager minds in every branch who are not satisfied to work merely in order to make a living, or for the fun of the thing, or for the pleasure associated with work well done. Such minds find the keenest satisfaction in tackling one or other of the problems which they encounter in their work—problems of prognosis, problems of symptomatology. These men are investigators by nature; they have inquiring minds, they yearn to become, in some real sense, of service to their generation. Unfortunately, many of them are obsessed by the idea that research is the prerogative of those on the staffs of our hospitals, or workers in laboratories, and soon, in the rough and tumble of building up a practice, their earlier enthusiasm fades, and their vision is dimmed. They are entitled to recognition, a recognition which carries with it financial backing and professional status.

To such men the story of Mackenzie's life comes as an inspiration and a stimulus. He is the great example of what can be done and accomplished, not in spite of the burdens of general practice, but in virtue of the very opportunities afforded by such a practice. Let any young practitioner early in his career interest himself in some problem of symptomatology, ponder over it, become familiar with the literature, define as well as he can the limits of knowledge, rid his mind of all that is not fact in relation to it; then collect from the material of his practice those cases which bear on this problem, follow those patients through the years, and I am confident that he will not only add to our knowledge of medicine, but that he will also find in such work both pleasure and an abiding delight.

THE OCCIPITO-POSTERIOR CASE:

ITS DIAGNOSIS AND MANAGEMENT.*

BY

DOUGLAS MILLER, M.D., F.R.C.S.ED.,

PHYSICIAN, ROYAL MATERNITY HOSPITAL, EDINBURGH; ASSISTANT
GYNAECOLOGIST, ROYAL INFIRMARY, EDINBURGH.

THE frequency with which the occipito-posterior case causes difficulty and anxiety in labour is acknowledged by all who engage in midwifery practice. Its importance in this respect is reflected also in the formidable contribution which it makes to what may be called the casualty work of a large maternity hospital. A review of the emergency admissions to the Edinburgh Royal Maternity Hospital over a period of three years shows that approximately one-sixth of the total number have been cases of this kind—a high proportion when the wide variety of obstetrical conditions which may necessitate hospitalization is considered. The extent of dystocia which this complication may produce was illustrated, further, in the discussion on unsuccessful forceps cases¹ at the Annual Meeting of the British Medical Association in 1928, in which it emerged that the cause of failure in almost one-third of 558 such cases was a posterior position of the vertex.

* An address delivered to the North Northumberland Division of the British Medical Association, Berwick-on-Tweed, February 11th, 1930.