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JAMES MACKENZIE AND RESEARCH TOMORROW*

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Some of my predecessors in this Lecture have spoken of their personal links with the man in whose honour it is given, but when Sir James Mackenzie died in 1925 I was a schoolboy, living in Devonshire, unaware that I should ever become a doctor. I did not know then that for a while I should live in St Andrews and that three of my own children were to be born there in the care of one of Mackenzie's practitioner colleagues.

I came to St Andrews in a world of war and uncertainty, sharing with the many some knowledge of the work Mackenzie had done there, without enquiring deeply into its nature. Spells of service leave came and went, and later a move south, to an industrial general practice, not I imagine dissimilar to that Sir James had known in Burnley. My link is not with the man so much as with the surroundings in which he sought to put into practice the principles he had learned in the previous 40 years. Thus it seems appropriate for me to consider Mackenzie's work, in its later stages, paying particular regard to the Institute of Clinical Research in the Royal Burgh of St Andrews. It is probably true also that less attention has been paid to his work there than to his work as a London cardiologist, or even as a practitioner in Burnley.

In her lecture in this place a year ago Dr Annis Gillie told us of the man from Perthshire, of his entry to medicine and his coming to the hard discipline of an industrial general practice. She showed us how he was influenced to study objectively things which had hitherto been beneath the notice of the intellectual *élite* of medicine of the day; and how he set himself to supplement memory by records. You will recall that his interest in what was later to become the science of cardiology arose paradoxically from his practice of obstetrics, when the death of a young mother in childbirth directed

*Given in the Great Hall of Tavistock House, London, on 24 November, 1962. Reproduced by courtesy of the Editor of the *Practitioner*.

him to the study of the kinds of stress under which the heart might fail.

It was in the Burnley years that Mackenzie was subjected to those influences with which we in general practice today are so familiar. He knew the difficulty in mental adjustment required of the newcomer to general practice. He too felt disillusioned when he realized that so much of what he had learned in hospital was of so little practical value, and he taught himself to work interruptedly, yet at the same time maintaining accurate records, as general practitioners are doing today. He did not know the cloistered peace of the university campus and the methodical efficiency of the hospital ward. Indeed to secure quiet in which to work he was sometimes constrained to deal summarily and effectively with contesting drunks in the street below his window.

Much of Mackenzie's work was done at a folding mahogany table-top desk, bound with brass corners and leather-lined after the fashion of the day. Through the kindness of Professor Mair I was able to do some of the preparation of this lecture at this very desk. The desk was empty save for two things, a polygraph tracing in red ink on a long paper strip and a fragment of the clinical notes made on a patient in early congestive failure. It was the notes, written in a thin precise hand, which affected me most, for here were the kind of notes that only a general practitioner could make, and, indeed, only another general practitioner could understand. As I read them, each observation recorded with terse clarity and economy of words in familiar patterns and an understandable sequence and order, I was struck by their timelessness and humbled by the thought that today not one of us could improve upon them.

I need not repeat Dr Gillie's account of the move to London, to obscurity at first and then to fame and eminence which puzzled him and even appeared to him in some sense misguided. In the London years he reached the highest eminence a consultant could achieve, knighthood, appointments at the London Hospital and Mount Vernon, and a very large private practice. He was acclaimed as a cardiologist, indeed by some as the founder of the new specialty, but he did not see in this the proper fulfilment of his life's work.

The decision to leave London and return to general practice in the provinces must have seemed incredible to his metropolitan colleagues, yet we can understand the motives behind the move without the least difficulty. Dr A. Maitland Ramsay has quoted a

letter which Sir James wrote on the day before he died. He said:

"When I left London I dared not tell anyone the real reason of my leaving for it would have been looked upon as a piece of folly. For years I had been gradually becoming convinced that the whole tendency of research was on the wrong lines; it was devoid of fundamental principles, was haphazard and could not supply the kind of knowledge which would enable us to solve medical problems. It was with the object of searching for this principle that I undertook, at the age of 65, the burden and responsibility, which were very heavy, of starting an Institute for the purpose of this quest."

I wish, then, to concern myself particularly with his work in St Andrews, drawing freely on the Reports of the Unit he founded there, and his other writing. His book *The Future of Medicine* was published in 1919 and reads today as freshly as last week's *Lancet*. Examination of the problems of research, of medical education and practice as he saw them then may help us now to see our way through the state of change at present affecting medical care all over the world.

The St Andrews Institute for Clinical Research was founded in October 1919. Such is the relevance of its terms of reference[1] to our present discussion that I give them in some detail. These were:

1. To investigate disease before the occurrence of any structural change in any organ of the body with the view of providing a diagnosis at a period earlier than is possible by the methods now in use and in order to obtain a knowledge of the circumstances that favour the onset of disease.
2. To investigate minor symptoms and maladies which interfere with efficiency or comfort with the object of determining:
   (*a*) the mechanism of their production
   (*b*) their bearing upon the future health of the patient.
3. To study the conditions under which the patient lives (food, work, surroundings, etc.).
4. To record all cases and keep in touch with the patients who have been seen with the aim of discovering the relation between environment, ailments, and subsequent disease.
5. To follow up patients in order to observe the outcome of complaints.
6. To conduct research into the early symptoms and predisposing causes of consumption.
7. To conduct research into the early symptoms of ill-health in children.
8. To provide postgraduate courses of instruction for the training of general practitioners in methods of clinical research which they may employ in their private practices.
9. That trained general practitioners should undertake the research associated with specialists in charge of departments for bacteriology, chemistry, radiology.

St Andrews was selected as a suitable place for the institution for a number of reasons. The city was small and compact, with an unusually static population. This allowed the circumstances of each patient to be known and individuals could be observed for years

while records of the development and progress of their maladies were kept. An association with St Andrews University was established from the start, in particular with the departments of anatomy and physiology.

To the general practitioners of the city, who joined in his work from the beginning, he said:

> The reason, therefore, I have asked you to join in the investigation is because you have the opportunity of seeing disease in the human subject in all its phases, of knowing the individuals before they become stricken with disease, of seeing their surroundings and their mode of life. You are consulted at the first appearance of ill-health and you see the patient through the whole course of his illness. Your experience has given you some insight so that you can appreciate ways and methods which hold out a reasonable expectation for accomplishing the object of medical research. This is a matter of very great importance because today investigators do not see the problem as you see it, and therefore, do not take the steps which will lead to a solution.[2]

In presenting the first report of the unit, Sir James summarized the needs which had led to its foundation and his hopes for the future. He stressed the inability of the general practitioner to make a precise diagnosis in up to ninety per cent of the conditions met with in the course of practice, and the need for detailed study of the earliest symptoms of disease before its advance had led to the presence of signs. The unit would study trivial illnesses as well as more serious ones, time would be spent in making more comprehensive examinations and more detailed records than had been applied to this type of illness before. Records would be cumulative, over many years, and be studied for their epidemiological as well as their clinical content. A major study would be the extent to which disease could be prevented.

It was recognized that, in the early years of the unit a period of self-training would be required both by the director and the general practitioners who joined his staff, voluntarily and willingly submitting to the clinical disciplines of one who was soon to become a hard but admired, even worshipped, taskmaster. Along with self-training in observation went study of methods of record-taking which would ensure comparability of observations by different people. These problems were tackled with a will and, in the unit's first year, studies of the nature of pain, of the occurrence of glandular enlargement, of child health, and of the epidemiology of consumption were under way.

As has been said this approach to medicine was regarded by the *élite* of the day as highly unconventional, if not eccentric, and the

venture found limited support from the profession. Money was needed to establish the unit to equip and staff it. This was forthcoming in the first instance from a five-year grant from the Carnegie Trust and from the generosity of two private donors. I quote from the last paragraph of the introductory report a fragment which carries a particular poignancy across the years:

> The scheme neither appeals to the man in the street nor the Authorities who have the disbursing of State Funds. It does not appeal to the former because we can hold out no hope of immediate results, nor to the latter who have been brought up in the belief that the field of the general practitioner offers no opportunity for progress.[3]

The unit soon got into its stride, and papers reflecting the full breadth of general practice began to appear in the leading medical journals. The standards for recording and follow-up records were worked out and carefully maintained, and by 1922 departments of bacteriology, chemistry, and radiology had been added. The child welfare centre formed for the study of child health assumed particular importance for it combined the activities of research with those of enhanced and improved child care. This received particular mention in the first volume of the Reports of the Institute published that autumn. By now the disciples were submitting papers in their own right, beside those of the master. Papers by Rowand on Child Health and by Dr Paton on the Epidemiology of Influenza are among models of their kind. In addition neurological and anatomical studies were contributed by Professors Herring and Waterston.

In the next two years the unit pursued its objectives steadfastly, making good use of the steadily increasing records to study the incubation periods of exanthemata, the significance of albumen and ketones in the urine and the relationship between pallor and anaemia. These were busy days, in which Mackenzie, already experiencing the angina pectoris, with the cause of which he was so familiar, was increasingly concerned with the future of the unit. He was concerned to secure renewal of the grant from the Medical Research Council as well as with the quest for other sources of finance. He travelled widely speaking on the work of his team, and even undertook limited consultant work so that the fees might go to the unit's support. The unit's reputation spread and it became a centre for visitors, mostly from overseas, among whom the weekly clinical meetings held a high reputation. The strain of work was bound to tell, and in 1924 Mackenzie resigned the active directorship of the unit to Dr Maitland Ramsay.

On Mackenzie's death, in London, the first act of his loyal team

was to rename the unit, which became the James Mackenzie Institute for Clinical Research. Courses of postgraduate lectures were given and the flow of contributions to the journals continued. A profitable liaison was developed with the public health department of the local authority, and in 1930 the first James Mackenzie Memorial Lecture was delivered in St Andrews by Professor John Hay of Liverpool University. The inspiration was, however, beginning to wane, and the stranglehold of financial stringency was beginning to impair the function of the unit. Expenditure had begun to exceed annual income.

By 1932 the original Medical Research Council Grant had ended. As funds from outside sources dwindled the loyalty and confidence of Mackenzie's family as well as of the people of St Andrews found its expression. Led by the Mackenzies, small donors in plenty, and some larger, named and anonymous, tried to keep the unit on its feet. Concerts were organized, collections taken up from societies, organizations, and guilds. Citizens of St Andrews served on the governing council, among them my father-in-law. Though the unit had failed to make an impression on the world of medicine its impact on the people who saw it at work was undoubted. Mackenzie's gloomy forecast was confounded by those very men in the street whom his unit was seen to serve.

The outbreak of war saw the records being maintained though less completely than before, and work continuing in the children's and public health departments. Weekly meetings for general practitioners were still held. Part of the premises was taken over for military purposes, and the unit ran a blood transfusion centre as part of its war effort. Members of the staff of the unit were dispersed, and on a sad day in 1945 the last record was made. The task which was to continue indefinitely had ended after 26 years.

Now we can, perhaps, look at some aspects only—for time will not permit more—of the work which was done, to see what principles were involved and whether they are relevant to our present state. In much that follows Mackenzie will speak for himself in his own words or in those of his friends who worked after him.

In each of the three phases of Mackenzie's professional life he was concerned with the need to find the mechanism by which the symptoms and signs of disease were produced. In Burnley he was profoundly disturbed to find that orthodox practice which he had believed to be soundly based was in fact founded on little more than surmise, conjecture, and empiricism.

Thus it was that the St Andrews Unit was planned to study the whole range of disease, including the common disorders which had in the past received least attention. He hoped that deliberate studies of common deviations from the normal might lead to the relevation of principles or laws governing their production, knowledge of which would enable doctors to prevent or treat disease more effectively. The work of the Institute was directed towards this end.

The plan adopted was to note the symptoms of which the patient complained and to seek painstakingly for associated symptoms or signs. Particular attention was paid to the history not only by Sir James, but also by his disciples, and the records of the unit are models in this respect. Recording was one task but the analysis and interpretation of records was another. Contemporary science offered little help, and he writes in 1919:

> The need for a scientific classification of disease must be borne in upon everyone who gives the matter serious consideration. For any doctor who engaged conscientiously in general practice to look at a modern book on general medicine is for him to feel despair. The multiplication of diseases and the methods for detecting them increases at an alarming rate, so that it is hopeless for him to keep pace with them. This despair is not likely to be less when he reflects that with most of the complaints for which he is consulted only specialists are supposed to deal efficiently.[4]

He goes on to regret that the classification of disease is based on no apparent principle and to state the need for fuller knowledge and a classification of symptoms. He postulated a framework with three main groups; structural symptoms, functional symptoms, and reflex symptoms. He was aware of the dangers of confusion between symptoms, signs, and disease entities, and condemned the then current practice of basing treatment on a " symptomatic " diagnosis. The " law of associated phenomena " was the outcome of this line of thought in which he stated that a serious prognosis should never be given on the evidence of a single symptom or a single sign. This sound principle applied not only to cardiovascular disease but to disorders of other systems also.

Mackenzie's definition of a symptom was not narrow, he drew no sharp distinction between symptom and sign as for example where cough or tenderness were concerned. The descriptive terms which he used differ somewhat from those in current use, particularly where an attempt is made by the patient to describe sensations and emotions. In his search for the presenting symptom of many disease patterns he uses the word " exhaustion " and claims that different kinds of exhaustion can be separately identified. Today we would probably think of anxiety states and psychoneuroses as

fitting more closely the descriptions of exhaustion in many of the unit's case notes.

Time after time, in discussion of the proper interpretation of symptoms we find emphasis on their importance in prognosis. In conventional teaching prognosis was virtually ignored, for the teachers themselves had never had an opportunity to watch an illness throughout its course, particularly when the condition progressed slowly over many years. He himself taught that particular attention should be paid to symptoms as a guide to prognosis and that clinical evidence found at the bedside was preferable to instrumental and laboratory evidence at second hand. In relegating instruments to second place in practice he included his own brain-child the polygraph. It had taught him the significance of observations which he could now make with finger and stethoscope, so in clinical practice he came to use it less, relying on methods which were, as he put it, available to any general practitioner.

The instrument as an agent of diagnosis and as one means of estimating prognosis had come to stay, and whether he approved in his heart or not Mackenzie was largely responsible. The deference paid by the profession to the polygraph itself, and the disregard of the principles behind it disturbed him greatly.

McNair Wilson, in writing of Mackenzie afterwards, said:

> To the physicians of the Victorian period the patient was the object of study and consideration. The spontaneous experiments of disease revealed the phenomena which exercised the attention and reflection of the observer. Now, all that was changing. The artificial experiments of the laboratory were the source of information, and chemical reaction and instrumental records were being pursued as ends in themselves. Even his own polygraph he could no longer regard with affection, for instead of a physician making a polygraph, a polygraph could now make a physician.

The equipping of the St Andrews Institute with laboratories was, however, undertaken deliberately, for Mackenzie, fully approved of their use as adjuncts to observational research, and of their value in clinical teaching. In a letter to Sir George Newman, written in 1920:

> My great desire was to make the Panel Doctor a Super-man in medicine, by giving him facilities for the investigation of disease and the examination of patients which no one possessed. This, in addition to his peculiar opportunities would achieve that object.[5]

From correspondence during the lifetime of the Institute we learn of Mackenzie's disappointment with what he regarded as the narrow view of the scope of their work held by medical officers of health. The theme of prevention of illness was never far from his mind. He

regretted that medical officers of health did not use their opportunities to study the full breadth of epidemiology, and hoped that the work of the children's department at the St. Andrews unit would be more widely developed. The future for preventive medicine lay in the hands of the " family doctor ". In due course the link between the unit and the local authority public health department was forged under Dr G. Matthew Fyfe, who, in 1933, spoke of the step as heralding a new era in public health administration. He quoted Mackenzie as saying that " preventive medicine can progress only so far and so fast as the family physician is prepared to go"[6]. Honour has been done to this philosophy by the establishment of the James Mackenzie chair in the department of public health and social medicine in St Andrews University, to the present holder of which, Professor A. Mair, I am so greatly indebted now.

To Mackenzie there were four stages of disease; the first or predisposing stage being that in which the individual was free from disease but liable to be attacked, either from some inherent weakness or from an outside source. In the second stage, the disease had entered the human system but had not produced any perceptible alteration of tissue, when the signs produced were mainly subjective. He regarded this as the curable stage. The third, the advanced stage of disease, was when change had progressed to destruction or modfication of tissue, revealing its presence by a physical sign. The fourth and final stage is when the individual has died and the tissues are subjected to a post-mortem examination. Conventional teaching and research was virtually limited to the last two stages only.

Mackenzie describes the situation clearly:

> Medicine has advanced so far, that for the study of disease after the patient has died, we find institutions magnificently equipped, presided over by men of great experience and training; for patients suffering from advanced stages of disease we have great hospitals with staff of skilled physicians, surgeons, and specialists. If we seek to find out " what are the facilities offered for the detection and cure of disease when it has not damaged the tissues " we discover that there is little consideration given to the matter. It is indeed instructive to reflect, that, while men undergo a long and special training to enable them to recognize disease after it has damaged the tissues, few or no attempts are made to train men for the detection of the disease when there is a hope of a cure.[7]

It was to remedy this situation that Mackenzie planned to start a postgraduate school in September 1920, giving primary priority to panel doctors. He would have viewed askance the present circumstances in which a young registrar may qualify as a specialist, be appointed a consultant and teach without ever having had the

opportunity to learn to be a doctor in general practice.

It was hoped, and indeed the hope was for a time fulfilled, that research and education would be so blended and fused together that neither would be considered in the absence of the other. It is tempting to speculate on the consequence if the first promise of this happy marriage had been fulfilled. Inevitably a growing unit would have come to include undergraduate teaching in its scope. Subsequent events have shown that it was his own university of Edinburgh which was to take up this aspect of his teaching, and the establishment of the James Mackenzie chair of medicine in relation to general practice will be a fitting sequel to his inspiration.

There are few matters of moment today which were not seen or forseen by the workers at the St Andrews Unit, particularly in the earlier years. Not the least topical now is the work which Mackenzie planned on the study of the therapeutic action of drugs. Naturally enough his demonstration of the effect of digitalis upon the fibrillating auricle gave him a lead, and he was at pains to demonstrate and teach that the disease for which the drug was required and prescribed might alter the response of the body to the drug in a fundamental way. He saw the need for preliminary studies of the actions of drugs of which we are now so acutely aware, and he appraised them in his usual forthright fashion. This is from a letter to the Ministry of Health in May 1920.

> I have been very seriously considering the question of the action of these drugs which are used in practice. The crying need for such an undertaking is realized when you think of the enormous sums spent yearly by panel doctors; this year 1½ millions, and it is very likely that three-quarters of the drugs are without effect, while it is not clear how the effective drugs do act. Apart from that, it is a disgrace to medical science that the present day *Pharmacopoea* is recognized by the Government. Scarce one drug has been accurately investigated to find its effect in the sick human being.[8]

He then goes on to suggest methods and principles for the conduct of therapeutic trials in practice, and forecasts the establishment of a special unit to do this work, speaking in the same letter of the possibility that he might finance it himself. This, be it noted, at a time when his private fees were finding their way into the resources of the St Andrews Unit in increasing measure.

I have told the story of the James Mackenzie Institute for Clinical Research inadequately but at some length for I believe that in this history with which our personal experience and recollection overlap, there are questions to which we must find an answer today. Was Sir James Mackenzie wrong in his assessment of what was needed?

Were the principles which guided him and which led him to found the unit false? Were the methods he proposed unsuitable or inappropriate? Was the stuff and substance of general practice incapable of being taught, much less of being researched into? Would it ever be possible to capture the imagination of the profession as well as the community?

We may wonder whether the unit carried within it seeds of its own fate from the beginning. Did it depend too much on the genius and personality of one man? Was the bias towards an organic solution of all problems an important factor, and was Mackenzie right to lead his team into paths parallel to general practice by the conduct of studies in anatomy and physiology? These are matters of great importance to us for we can learn much from the study of the unit in its decline; that may help us in the work that lies ahead.

I do not need to tell you of how the flame burned low, to be fanned at many points at once as the concept of our College formed and took on substance. You well know how the principles which Mackenzie drew from his working-class practice were rediscovered, almost hailed as something new, by the many on whose work the foundation of this College rests. Some of us who have watched the rebirth of the kind of observational research which Mackenzie preached have come to fuller knowledge of his work with a heartening sense of relief that our way had been trodden before us, and that we were not quite without guidance and precedent in the venture on which we had embarked.

The similarities of circumstances surrounding the foundation of the Institute in St Andrews and the College with its research and teaching commitments, in London, will not have escaped you. A neglected academic discipline, scorned by some, sought to establish itself and do what was clearly seen to be needed. In 1919, as in 1952, professional opinion was disinterested, incredulous, or perhaps even in some places hostile. The objectives were not widely accepted as being worthy of financial support by established authority. There, however, the similarities end, for while the unit at St. Andrews was the inspiration of one man, the College was the work of many.

It may be wondered whether, had Mackenzie not kept alive the flame lit by Harvey, Jenner, and Budd, the College would ever have been founded. I think that it would, but perhaps not for many years. The stimuli which impelled Mackenzie to his work in Burnley would in time have led to the response which was ultimately inevitable, and would have been acted on by someone, somewhere.

I believe, however, that Mackenzie's work in identifying principles, far ahead of his time, in developing methods of study, and in making his ideals public, led us by easier stages to the circumstances of the present. Ideas which were unacceptable in his day nonetheless permeated medical thinking, consciously or unconsciously conditioning medical thought, particularly that of the general practitioners themselves. He had prepared the ground for the College which was to come.

In accepting general-practitioner research as its responsibility the College was influenced by many of the factors which conditioned James Mackenzie. There was the need to determine the distribution of disease in the population—met by the early undertaking of the national morbidity survey. The value of records maintained over long periods was appreciated with the founding of the College records and statistical unit. This unit, with modern knowledge and equipment will, we are confident, bring to reality the dream enshrined in the records of St Andrews. The unit's studies of the communicable diseases are now taken up by the College's epidemic observation unit, though its working denominator is the virus and not the microbe. The study of the significance of symptoms receives full measure of attention from the Cancer and Respiratory Diseases Study Groups. The adaptation of laboratory techniques, as in the diagnosis of diabetes, is being undertaken along with observational research in many other fields. Studies of epilepsy, mental disorder and other conditions are in progress now, for we have come to appreciate the need for knowledge of their earliest symptoms and of the natural history of their development.

We see now that Mackenzie was the first to draw attention to the dangers inherent in the developing imbalance in medical thought and in medical research. He saw the beginning of a trend which has continued, as he feared it might, leading towards what we could now call the two worlds of medical research, the two cultures within medical practice. He saw the proliferation of specialisms—none more clearly than he who had founded one of them—and within specialism the development of the instrument or the technique instead of the man. He deplored what he regarded as the pseudo-scientific glamour accruing to the specialties, which diverted men's attention from the beginnings of disease in the places where disease begins. From first to last he insisted that the balance in research, and in the whole of medical orientation must be restored. But his was a lone voice and he was mortal.

Does the same imbalance still exist between experimental and observational research, between hospital medicine and the complex that includes both general practice and public health? Of course it does, and in even greater measure. This is as clear to the corporate College as it was to the man Mackenzie, and it is evident also that the doctrines of Mackenzie can help us to restore the balance. Organized experimental research has gained a long lead. All over the world the disciples of technology are making new contributions to our health and comfort every day. Our appreciation of their work is not one whit dimmed by our realization that each new technique, each new advance in specialism, makes the need for observational research the greater. Medical science must turn again towards the source of its problems and observational research be brought to bear on them.

The lead which experimental and laboratory science has established over observational research will not be made good in our lifetimes however strenuously we apply ourselves to the task. We must prove to the world that general practice is an academic discipline in its own right. As Mackenzie knew there is only one way to do this, namely by the doing of good research work, of unimpeachable quality, demonstrating the widespread nature of general practice and the breadth of opportunity it offers for the making of new discoveries.

Development of research in science tends to follow a pattern. New ground is broken by a singlehanded worker whose observations are noted by others who seek to confirm or refute them. The search for material to enable the question to be answered quickly soon leads to the establishment of research units in which observations are made by teams. This pattern may be observed in general practice today, and it need not surprise us that the College is setting up its own units to study the diseases common among the people. Mackenzie would have approved wholeheartedly of this, and of the foundation of units by other bodies also. He would particularly welcome the Epidemiological Research Unit established in Cirencester by the Public Health Laboratory Service. He would rejoice, too, that the College has brought to light the work of many other general practitioners in this country and overseas, around whom new research units could with advantage be built.

The ideas of the profession as to the site, structure, and function of research units must broaden. There is room for experiment in the design of units which may or may not be in relation to a

hospital or public health laboratory service group laboratory, or some other postgraduate medical institution. University departments of general practice in teaching hospitals, built on foundations laid by Edinburgh, Manchester, and Charing Cross will certainly come and in such departments research and teaching will go hand in hand. The present expansion of the academic world, with new universities in being and new medical schools in mind offers us new opportunities, and from general practice may well come the teachers which new units will require. As we plan new departments and institutes—some at universities which may not have undergraduate medical schools—let us remember the weekly case-conferences at the Institute at St Andrews. New techniques of research in general practice can be devised, and once devised must be taught to others. The conduct of research is an academic discipline and an acceptable form of postgraduate medical education.

We remember that not all the faculties of the College are in this country. Members of the college research register are at work in New Zealand and in Africa, while our daughter college in Australia shares in great measure the principles by which we work. If we can remain aware of the growing points of observational research throughout the commonwealth we can surely help by promoting new contacts and disseminating new knowledge without delay. The College's function must be to stimulate research and teaching and to co-ordinate, without controlling them in any way, the work of individuals, singly or with others in research units wherever these may be set up. If liaison and the exchange of ideas rather than control or supervision are our guiding lights research in general practice will remain fresh and alive.

The climate of professional thought in which observational research can develop as a counterpoise to experimental research will not come of itself; it must be created. It can only be created by human effort, by the effort of general practitioners who show by doing it the value and validity of properly conducted research. In a proper climate of medical opinion money must be forthcoming to supplement that which the general practitioners have themselves set aside in the College's Research Foundation. Opportunities must be created for hospital and laboratory workers to leave their walls and learn by working with their colleagues in general practice, returning perhaps with a new focus of interest or a new angle on an old pattern which may have far-reaching results.

The way will not be easy. We will be tempted to do work outside

our proper sphere, and must often ask ourselves whether this study or that could not be done better by others, using hospital or laboratory methods. Though hospital techniques may be adapted for use in practice these are not necessarily appropriate to our work. There is little room for experimental methods in the observational research field of general practice. We must preserve independence of mind and confidence in ourselves.

We must, above all, remain general practitioners with the conviction that research into the problems we meet is as much a part of our daily responsibility as is treatment of the sick. We are the only observers who can watch and record in the consulting room and at the bedside, and here observational research is our birthright. We must not forsake it.

The James Mackenzie Institute for Clinical Research now lies sleeping, perhaps to be awakened again to continue the work of its founder. Meanwhile the Founder's mantle has been taken up and will be worn with pride by general practitioners of today, and of tomorrow, who in the work of their College will vindicate the principles for which Sir James Mackenzie lived. They know, as he knew well, that the general practitioner alone can restore the balance of medicine for in his hands lies the key to the diseases common among the people.

We, who have had the good fortune to see the birth of the College must keep before us the words of another great leader in the way to new discovery, Sir Francis Drake. Lying off Cape St. Vincent, a month after the raid on Cadiz Bay, Drake wrote to Walsingham, " There must be a beginning of any good matter, but the continuing to the end, until it be thoroughly finished yields the true glory."

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