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From the Oration delivered to the Harveian Society, June, 1961.

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HARVEY THROUGH THE MINDS OF OUR GENERATION

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including comments on present-day medical education

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These words were spoken in this place thirty-five years ago by one of our most distinguished and worldly-wise physicians. As a neophyte in that year, 1926, I listened enthralled as the learned oration flowed in the resonant tones of the great Sir Robert Philip, and in fact, the vague name of that mediaeval character, William Harvey, became real and fascinating to at least one of the new boys that evening. Sir Robert was my first orator and now, when inexplicably I find myself at the same lectern, there is perhaps a natural tendency to look back and attempt a brief and partial review of all the discourses that have been given during my membership of the Society.

Never can so much have been written by so many about one man, but such is the variety of human approach or, (as they would say in Yorkshire, there are "nowt so queer as folk") that even a close scrutiny of the material available fails to discover the slightest suspicion of plagiarism—a tribute perhaps to the English language which provides so many ways of saying the same thing. All are agreed about the time and place of his birth, the manner of his demise in his brother's house and his burial in Hempsted, Essex, and indeed about much that happened in between these events,—the influence of Padua or the inspiring Fabricius whose work on the venous valves probably gave Harvey his needed clue,—the love of his London College and Bart's Hospital, his romantic association with two monarchs, his frequent travels at home and abroad, often in distinguished company. All these matters are authentic and well annotated. All of our orators have accepted these basic facts with uniformity, the intriguing part of the individual approach comes when speculation is allowed full rein.

Sir Robert Philip in his most masterly oration deduced that Harvey's association with James I and later Charles I brought him repeatedly to Edinburgh

and thus into contact with the leading educational circles in which the former monarch had long been much interested. In these visits Harvey had great influence in many spheres, or, as the couplet put it —

" He dwelt among men : Physician and Sage
He served them, loving them, healing them."

And so, says Philip, this influence must have had bearings on the history of Edinburgh and particularly of the Edinburgh Medical School. It should be remembered that at this time he had, as a leading member of the Faculty and of the University Court, taken part that very year in the bicentenary celebrations. Moreover, he was President-elect of the B.M.A. It is therefore safe to assume that his alert mind had harnessed all the slants pointing in the way he surmised. " It is therefore of my great interest to recall that the first move towards the foundation of the Royal College of Physicians of Edinburgh was made in 1617 on the occasion of the King's visit to Holyrood. If nothing immediate came of it, it seems hardly conceivable that the endeavour failed from lack of interest of the King." At least it initiated much coming and going, at first of Harvey and the King, and later Scarborough, his successor as Chief Physician, until all the various forces and counter forces were ironed out and the difficulties removed with the granting of the Royal Charter in 1681, that is 24 years after Harvey's death.

Great orations must inspire thought and research in others who follow, and not surprisingly we find a year or two later Dr. Robert Thin—another President of this College—giving an account of Archibald Pitcairne whom he describes as " physician, philosopher, poet and wit, with his virtues and his failings, the latter not a few." His name ought to be held in reverence by all Scottish Harveians, as he was their first kinsman to grasp the full meaning of Harvey's great discovery, the first to defend his claim to that work, and, following in his master's footsteps to blaze the trail of scientific inquiry through uncharted Continents, and thus add to the sum of human knowledge and by his practice based on that knowledge, to diminish the sum of human misery.

Harveians turned out in large numbers for the Festival in 1930. George Lovell Gulland's title—" The Circulating Fluid ", seemed to promise something pithy to those who knew him well, " Uncle George ", as he was affectionately known to thousands of students before and long after the First World War.

Unexpectedly to many, his talk was confined to the blood and in his most serious vein. He discussed the earlier views on the nature of the blood, and the development of our modern notions, then speculating on the possibilities, ridiculing Galen and the Roman empire as the main reason for little research, then the deadening hand of the Church as the unchallenged successor to Hippocrates and Galen's accepted doctrine which was that of the three spirits, the natural, vital, and animal which had held the stage and convinced the uncritical for much too long. Apparently, as few will remember, the origin of the vital spirit was the heart and of the animal, the brain. Harvey gave the death blow to all this and, as stated by Gulland, a wave of scientific interest passed over Europe from the middle of the 17th century. He puts it thus : " Harvey foreran it and his vivifying genius had much to do with its start. It coincided with the Puritan revolution which was in its essence a re-examination of authority much the same in kind as the scientific revolution, and it culminated in England in the formation of the Royal Society." His summary and conclusion is extremely interesting : " All the vast mass of knowledge which we call Haematology we owe to Harvey, not because he foresaw it, that he could not do, but because he opened the door to it. He was the first to cast off

authority to experiment for himself and he had the vision to see, the brain to understand what he saw, and the courage to stand by his beliefs."

Let me now draw your attention to a charming piece of partisan reporting. In 1934 Edwin Bramwell discussed "Sir Charles Bell. His Life and Work." True to form as a founder member of the mutual admiration club, otherwise known as the Association of British Neurologists, started in the previous year, he reasoned, argued and finally claimed for Bell as high a pedestal in neurology as Harvey holds in cardiology. The precedent for this kind of approach came from no less an authority than our founder, Andrew Duncan, who gave several orations in the commencing years, all of which, except the first, were devoted to biographical sketches of eminent men. There seems little doubt that Bell, two centuries later, did for the nervous system what Harvey had done for the circulation—he opened up a new vista for his successors. (For the unenlightened it should be said that Bell gave his name to the palsy, the long nerve and many other things besides). Furthermore, as a claimant to immortality he had the supreme advantage of being an Edinburgh graduate.

Before me stands out a truly authentic document by a master of the History of Medicine packed with facts obtained not by reading or hearsay alone, but first-hand on-the-spot information fully corroborated and annotated by one skilled in the art. During his year in this office, Dr. Douglas Guthrie spent a great deal of time in fruitful travel: to Folkestone, to Canterbury, to Cambridge, to Padua, to Barts' and the London College of Physicians as well as to many other places at home and abroad, linked to the life and career of William Harvey, culminating in a unique oration which was a joy to listen to and much appreciated by a large gathering. No wonder, with a year so packed with interest and travel and activity, that he warned me some time ago that June always came round much too quickly! This oration, conveniently available in the B.M.J. (March, 1957), should be made compulsory reading for all neophytes, and thus kindle an understanding spirit in our members at the outset, incidentally avoiding such a gaff as one horror made to me some time ago when he remarked *sotto voce*, "Who was this *John Harvey* anyway?" An outcome of Guthrie's approach was his bringing to light of new facts and putting them into line with the rest. He tells us that Harvey's masterpiece, "The Anatomical Disquisition of the Motion of the Heart and Blood in Animals", often called for short, "De Motu Cordis" was published at Frankfurt in 1628, and "was printed on poor paper and was full of printer's errors. As an example of book production it ranks very low, but as a clear, brief and logical account of the author's researches it is beyond praise." Why was it not immediately accepted? Guthrie discussed this perplexing problem, that Harvey did not rush into print. In his, Harvey's, own words: "I teach anatomy not from books but from dissection". In truth the real significance was probably not apparent for nearly two centuries. There is much to learn and appreciate from this reticence of many great men to publish; for example, Darwin waited 20 years, Jenner 18, and Lister 8, and even then their work was not appreciated for a considerable time. As Guthrie reminds us; "the discovery of a principle is always more important that the discovery of a fact, as it leads to further advances." What better example of this type of evolution than Erhlich's chemotherapy and Lister's antiseptic method.

In his conclusion Guthrie expresses himself thus: "The experimental method of investigation, a **novel** to Harvey's critics is now familiar to the most junior medical student. It has long since ceased to be a matter of argument. Moreover, increased facilities of transport and communication have made it possible for a new discovery to be known throughout the world in a matter of hours; within a few weeks, or months at most, each addition to the

existing knowledge is examined and assessed at its true value. Indeed, the speed of integration of new discoveries and new ideas has become almost terrifying."

Last year Ian Hill deplored the tendency for the phrase "doing research" to carry overtones of implied superiority to those who simply treat the sick—as though the very word "Research" carried a talisman of virtue. Truly original minds with an aptitude for research and with ideas are rare indeed and these should seldom require Hill's new unit of currency—the mega-buck. He likened Harvey to a part-time consultant—a postulation that obviously pleased and flattered many of his audience, but would probably have deeply wounded the great man himself. Returning to experimentation he debated very skilfully and with learned opinions the reaction if it were thought that experiments on man were planned or carried out. So much happens even in a brief twelve months that we now know the answer at least in part. In theory man can refuse, and perhaps it matters less if that man is a Russian or even an American! Hill left us pondering deeply, with the well known couplet of an Edinburgh Academical—"To travel hopefully is a better thing than to arrive, and the true success is to labour".

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SOME COMMENTS ON MEDICAL EDUCATION TO-DAY

As a clinical teacher of some little experience I have long felt that the training offered to the medical student was too haphazard and ill-balanced, frequently resulting, after six years, in jaded young men and women not knowing where to turn. In Edinburgh we have always despised cramming and drawn a sharp distinction between its objects and that of genuine teaching. Yet now the Universities thrust back at the schools the onus of creating a youth with a one track mind instead of the broad English culture obtained by our fathers. Too often these young people carry into their University the distorted idea that they have no time for anything but techniques and technology. They have a vast vista of instruments and electricity interspersed with more than a little biochemistry. Furthermore, they may well lack the shrewd and balanced mentality to sort it out. Solutions, of course, are easy to suggest, but difficult to provide, and always controversial in a generation when planning itself has become a career. Big planners succeed where little planners fail. It is much easier to plan a University or a Cathedral or even a hospital than say, an egg-cup or a wine glass. Few are prepared to dispute with the genius, whereas every housewife knows a better egg-cup. Probably it is something of this that has allowed the medical course to become top-heavy with science in the early formative years. In my view the first four years training should be basic in the proper sense of the word, that is to say pruned of anything that in the slightest degree could be called specialist—great care being taken to see that everything has a practical application and a 'patient' flavour as distinct from that of the laboratory. At the end of this period the future doctor would be assessed and asked to declare his preference for a career. He might be granted a preliminary qualification—an M.B. or call it what you will, he would then proceed in his chosen branch, rather in the manner of apprenticeship at present adopted by the B.Sc. candidate in physiology or pathology. Residencies would be available in all specialities for varying duration according to the subject and the need of the individual. This 'second period' would preferably have an indeterminate length, but at the end a stiff assessment called for with the object of granting a doctorate in medicine.

That, broadly speaking, would be my plan, unembellished and without

detail, reviving as is seen, the senior qualification of the university in medicine which has been so widely neglected in recent years, at least in this school; a development which must be contrary to the prestige and best interest of the University. Some may suspect that all this would interfere with the present status of the diplomas granted by our Royal College. I do not think so. On the contrary, provided the selection of intakes is in experienced and competent hands, those with special aptitude and skill would soon be recognised. For these, in their particular grooves, a Fellowship would be, as now, a *sine qua non*; and the College of General Practitioners, always gaining in prestige and power, may be depended upon to protect and enhance the interest of those who have decided upon the most exacting of all branches—that of family practice:— "To cure sometimes, to relieve often and to comfort always." It will come to be recognised that talent is just as essential for the practicing physician as for the research fellow; the question resolves, as in the nursery and at school, of spotting and providing scope for the advancement of the individual gift. The reputation of the Edinburgh School was built up to a large extent on the quality of its teaching and the type of doctor that was exported throughout the Kingdom and the erstwhile Empire. With modification to suit the changing needs this must continue. The flourishing postgraduate school will inevitably grow and perhaps the undergraduate one will diminish. Time alone can show, but clearly, since the war the clinical staff have carried a much too heavy burden which can be relieved only by a proper infusion of fresh teachers and to gear this to future requirement will necessitate most careful thought by those responsible. My plea is to emphasise that a really good teacher is always interested in advancing knowledge, but too often the dedicated research worker regards his teaching commitment as irksome—an attitude that is quickly detected by his discerning students—with unfortunate reactions.

In his Harveian oration to his London College in 1956, entitled "Practice, Teaching and Research", Crighton Bramwell reviews very ably the interrelationship between these as he has witnessed it and indeed played a part in its development since the end of the first world war. "The hospital ward is the laboratory of clinical medicine," and he goes on to observe "that deductions drawn from careful and accurate observation at the bedside are no less scientific than those based on work with a microscope or a test tube in the laboratory." Then this contrast—"The pure clinical scientist is interested chiefly in the disease—the clinician in the patient. In two patients suffering from the same disease the clinical scientist studies the features they have in common, but the clinician is no less concerned with the way they differ in their reaction to the disease. For him the soil is as important as the seed." What exactly was achieved, when, after the last war throughout the country all the part-time Professors in Medicine, Surgery and other clinical subjects ceased to be and were replaced by full-time Chairs? There can be no doubt that it did help to integrate the clinical and pre-clinical sciences and provide a career for people with certain types of ability who hitherto would have been called physiologists. Thus it is a matter of opinion whether the east or west side of Middle Meadow Walk is to play the predominant part and enjoy the favours. What of course, leaves no room for doubt at all is the vast amount of time devoted to administration by highly trained and well paid people with little aptitude in this direction, but who too often grow quickly to enjoy it for what can only be its power and escape qualities. Who should be our administrators? If there are an insufficient number of our experienced senior colleagues in retirement then we must cultivate an increased bond of understanding with the bureaucrats who are now fully trained and much more

co-operative than in our first tentative contacts over twelve years ago. Certainly the present system is intolerable and must cease. It is too wasteful of a limited number of people whose whole interest should be focussed on a quite different ambition.

My time has almost evaporated but I should like briefly to reconcile what may seem to have been a biased exposition of one aspect in the present scene in our profession. Recently, Francis Fraser pled for a much greater degree of co-operation among the different branches within the profession—by which he means hospital, general practice, and public health—and suggests a greater collaboration with the clergy. He stresses the problem of discovering and training future research workers, apparently scarcer than one might suppose, cutting our coat according to the cloth. William Harvey's great achievement has been a challenge that has too often been made an excuse for a one-sided approach according to the current fashion, whereas a reorientation of our problems is required at frequent intervals; lest, as at present, there is a tendency to self-deception and complacency—resulting in a misuse of our man power. There is abundant opportunity within our profession for every type of mind, but the legislators in their preoccupation with one aspect are too apt in their ignorance of others to adopt an attitude of denigration. And—old hat, but true—" the onlooker sees most of the game." It is a research world in medicine, and it always has been, especially since Harvey's stimulating impetus. But now, in medicine, we tend to make a fetish of research as though it were something quite novel—not very flattering to the ghosts of Harvey and other illustrious scientists of the past. Furthermore, it has often been shown that the over-organised people can be outstripped by the amateur who has the native wit and training to understand the meaning of his observation. In a talk of this length it is only possible to scratch the surface of a deep and fascinating subject, but my contention is that if we in Edinburgh can remain true to our inheritance and great tradition we will continue to discover and develop the many and diverse flares lying latent in our pupils, thus allowing our contribution to advance on a broad front. The alternative is the danger that scientists will cease to be human. With the widespread modern tendency to worship them as demi-gods, some at least are bound to succumb to the temptation to accept this blind worship, and to think of themselves as being on a moral and intellectual plane perceptibly higher than that occupied by those who are not initiated in their mysteries. As medical science progresses, so inevitably the specialist finds his field becoming narrower. He is no longer a Harvey with all the circulation lying open before him; he is concerned perhaps with one single detail of one single auricle. This kind of thing is bound to narrow the mind; therefore if the future management of our affairs is not to be entirely unbalanced, we must ensure that from the earliest years and throughout the scientific discipline is properly garnished with education in others of culture and the arts.

Last year Ian Hill left us with Stevenson's famous dictum. Tonight I am going to fall back on the advice of a much older thinker, confident, at least, that no-one can disagree with St. Paul.

> Whatsoever things are true,
> Whatsoever things are honest,
> Whatsoever things are of good report.
> If there be any virtue, and if there be any praise, think on these things.