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President's Address

Fifty Years of Surgery

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When I recall the long line of distinguished Presidents—and particularly some of the outstanding addresses they have made at the inauguration of their office—I am dismayed at the thought of my inadequacies for the task. And this task is not made easier to-night by the fact that you are a very mixed audience. By that I mean that you are not just medical. You have come with your wives, and I dare say the women doctors among you have come with consorts. So I must try to hit a target that will be visible to both lay and medical amongst you. Whether or not I shall succeed in this, I promise I will try not to exceed the time-limit.

My working life has been spent in the practice of surgery, and it has spanned 50 years of exciting advances in knowledge and technique. I have been fortunate enough to have been in the middle of it all, and so I will spend the next half-hour or so in giving you some of my impressions of what has happened.

In the early 'thirties, one of our most distinguished surgeons was rash enough to say that surgery had reached its zenith, and that nothing remained but to brush up and improve our technique. It may be that to an observer at the relative height which had been reached in the short period of the previous 20 years the meridian must have seemed near.

Only a few months ago I had the chance of speaking to the members of the Ileostomy Association, a gathering of patients who had had advanced ulcerative colitis. All had had the whole of the colon excised, and most of them the rectum as well. And yet one could not wish to meet a more happy and contented group. But 30 years ago, when surgery was supposed to have reached perfection, few, if any, would have had any chance of survival from such an operation, and, of course, the same can be said of many cases in practically every field of surgery. These patients are among the fortunate ones who have benefited by the truly remarkable advances made in the art and craft of the surgeon.

The advances which have occurred are obviously not due solely to surgical endeavour. They are the result of the efforts of practically all who work in the broad field of medicine. Especially has the surgeon been helped by the extraordinary advances in the basic sciences of biochemistry and physiology, by striking progress in radiology, and, not least, by developments in anaesthesia, a science which has responded always to the new demands put upon it by surgery.

Fortunate Advice

When I began the study of medicine in 1913 I had already completed two and a half years of dental training. I was

advised at that time that to succeed in dentistry I needed a double qualification—a piece of advice which for me was most fortunate. My studies were interrupted in 1914 by the war, and by the end of it I had changed my direction.

In February 1918, because of the shortage of doctors, medical students were ordered home so that they might qualify. I had served in a field ambulance, and it was this experience that made me certain that I no longer wished to be a dentist, and brought out a subconscious desire to be a surgeon. I remembered later having been unusually attracted by a popular edition of a book on the human body by Arthur Keith. And during my first year at Cardiff Medical School I had, against all the rules, spent much of my spare time in the operating-theatre. I still vividly recall the first operations I saw: Sir John Lynn Thomas doing a goitre—incidentally, he was a close personal friend of the great Kocher; William Sheen operating on the gall-bladder; and Sir Ewen Maclean repairing the perineum. For me a new world was opened.

I started my clinical training at Westminster Hospital in March 1919, as there was then no clinical school in Cardiff. One of our surgeons, Walter George Spencer, still adhered to the Listerian precepts, except for the spray. He operated in a macintosh overall with short sleeves which was sterilized by being swabbed over with 1:20 carbolic. He constantly washed his gloved hands in this solution. I believe he only wore gloves to protect his hands from the carbolic, because when he wanted to feel any structure carefully he took them off. The outstanding features of his surgery were the rapidity with which he worked and the fact that the whole procedure was accomplished by sharp dissection. My other chiefs had graduated into what one might call the chemical aseptic era. They wore sterile long-sleeved linen gowns, gloves, and caps and masks, but depended not a little on the solution of mercury biniodide, which was always at hand. They did not, of course, change their clothes, and if they wore galoshes it was to keep their boots clean. One of these chiefs remembered, as a student, a surgeon who operated in a frock-coat kept especially for the occasion.

Fundamental Principles

My chiefs at the Westminster were three remarkable men of great integrity whom I held in great regard. I was fortunate in having worked with them, and in this respect I have been fortunate throughout my whole career. My chiefs, both collec-

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tively and severally, communicated important fundamental principles: that the patient and his interests come first at all times; that one should cultivate the ability to sit in the patient's chair—in other words, to understand his hopes and fears—and that this understanding should be made plain to the patient; that while talking to the patient it is sound practice to be on eye-level with him, to sit if he sits, and stand if he stands, as that lessens the temptation to talk down to him; and that an operation is a serious undertaking which should not be urged by the surgeon unless he is certain that in similar circumstances he would choose such a course for himself. Otherwise he should merely state the facts as to the outlook for the patient with and without the operation. I learned, too, the inestimable value of previous experience and the fallacy of depending on impressions rather than recorded facts. Thus an interest in conscientious and accurate follow-up, which came later, was stimulated by the lack of it in these early years. This apprenticeship, and the fact of being under orders during such a formative period, I believe develops the self-discipline which is essential in any branch of our profession.

Undergraduate teaching was carried out in the main at the bedside, a system first introduced at the beginning of the last century in Dublin by Graves, the man who first described exophthalmic goitre, this in contraindication to the Parisian method of demonstration in a lecture theatre which up to then held universal sway. This method still fortunately is used in all schools, but there is a growing tendency to use other methods—television and other forms of visual aid—and, good as they are, I fear if we are not careful we may eventually revert to the old method of demonstration. This would be a retrograde step in that the potential doctor must be brought into direct contact with the patient at as early a stage as possible; the importance of the doctor-patient relationship cannot be too strongly stressed, especially so in this era when perforce the patient is referred to so many different departments for so many varied tests that he may feel that no single person is interested in him; there is even a threat that diagnosis will soon be possible by use of a computer, surely a grim thought.

Surgery at that time was to a large extent clinical in its narrow sense. The diagnosis, established mainly through the five senses, was based on a sound knowledge of anatomy and pathology, supplemented by a great deal of common sense. Diagnostic aids there were, but by modern standards they were primitive. Radiographs were recorded on glass plates and were really reliable only for fractures. Biochemistry, or chemical pathology as it was called, was in its infancy. Bacteriology and simple examinations of the blood were available, but pre-operative biopsy as a definitive procedure was almost never carried out.

Surgical procedures were kept within fairly well defined limits. Herniotomy and appendicectomy were the commonest operations, interspersed with an occasional gastro-enterostomy, or, more often, by excision of tuberculous glands in the neck. Kidney stones were still removed by cutting into the kidney, and the mortality from thyroidectomy for exophthalmic goitre was almost prohibitively high—in the region of 40–60%—the operation being carried out rarely, and without any pre-operative medication.

Despite the relative meagreness of surgical fare certain basic strengths and weaknesses stood out. One surgeon showed gentleness of handling but little anatomical knowledge. Another, neatness and anatomical accuracy but an extraordinary lack of gentle manipulation. A third, gentleness and anatomical knowledge but a disinclination to venture in surgery beyond the limits laid down by others. Gentle surgical handling gave infinitely better results than did scrupulous technique without it. The advantage to the young surgeon who works with a variety of people is that he can choose those technical manoeuvres which seem to him to be good and which suit his own temperament and capabilities; to these he perforce must add something of himself before the technique becomes his own.

An Impetus to Surgery

It is some comfort to reflect that good comes out of the holocaust of war. It is not that the 1914–18 war produced innovations as such, but it stimulated the rapid development of procedures already initiated which could contribute to the health of the fighting man and speed his return to the front line. That war gave great stimulus to both thoracic surgery and neurosurgery. It brought about the reasonably frequent use of blood transfusion, although the idea of blood storage (the blood bank) had to await the Spanish Civil War. The medical achievements of the 1939–45 war were dwarfed by the introduction of penicillin, from which stems the whole range of antibiotic therapy; but surgery also played a great part. Of most practical importance for the further development of surgery in the first world war was the advance of anaesthesia, and no one made a greater contribution to this than Ivan Magill, who popularized the use of endotracheal ether. He constructed during the war his own vaporization machine from such materials as an empty fruit-can, and, for the warming coil, spare pieces of piping. We were fortunate enough in 1920 to have him join the staff of the Westminster. He has, with some reason, been called the father of modern British anaesthesia.

The year 1920 also saw the advent at the Westminster of two men who were in different ways to contribute greatly to its life. These two were Tudor Edwards and G. T. Mullally. With their arrival there came a feeling of expectancy and urgency. I do not think this feeling resulted merely from a student's natural excitement at facing new experiences. The eagerness was caught from these young surgeons, who had lately been engaged in a type of surgery which was essentially urgent. They had now returned to civil practice with high hopes and fresh ideas. Mullally was a great teacher and a first-class surgeon. Many of his colleagues turned to him for surgical help. He was also a person to whom we all could take our troubles. Tudor Edwards was a man of vision, destined to play a major part not only in my own life but also in the surgical affairs of the hospital and of the country. He taught mainly by example, and he had the great faculty of attracting young men to him.

With the advent of these two, followed about four years later by that of Stanford Cade, we received the impetus which was surgically to revivify the whole hospital.

An Autobiographical Note

It was at this time, and principally through the influence of Tudor Edwards, that I became conscious of specialization within surgery. In view of his subsequent history it is interesting to recall that the majority of patients admitted by him had urological complaints. This was Tudor Edwards's first specialty. By this time retrograde pyelography was in use, and it was evident that here was a branch of medicine in which investigations were sufficiently well established to enable a definitive diagnosis to be made pre-operatively in a reasonable percentage of cases. I was so strongly drawn to this field that I purchased a cystoscope with money I could ill afford. I was following in Tudor Edwards's footsteps. In 1926 he was elected to the staff of the Brompton Hospital. At this time I was a registrar, the only one, serving all the surgeons on the staff of the Westminster. It was a busy life, but for me invaluable for gaining experience. During the five years which had elapsed since qualification I had seen changes which were almost revolutionary. Blood transfusion with citrated blood had become fairly standard practice. Often a donor was bled in hospital and the blood then taken 20 miles or more into the country to transfuse the patient. Pre-operative preparation of thyrotoxic patients had reduced mortality from the operation from about 40% to about 6%. Prostatectomy, which had had a high mortality rate—40%—came to be practised almost routinely as a

two-stage procedure with a quarter of the former death rate. Radium therapy was introduced to the hospital in 1926 by Stanford Cade and gastric and bowel resection were becoming more frequent. This, then, was the atmosphere of innovation in which we lived nearly 40 years ago. It is not surprising that the imagination of the younger men was fired by it.

The whole of this period was an apprenticeship in surgery. There were many things one deliberately set out to acquire, including a knowledge of the other branches of medicine on which a sound surgical experience must rest. Many other things, however, were learnt insensibly from one's seniors, and they can be appreciated only in retrospect. First, there is one's responsibility and often one's debt to one's patients. We act as though all the gratitude is due from them to us. Yet it is to them that we owe a great deal of our subsequent competence, for without them where would our art be? We forget that as much courage, if not more, is needed by the patient as by the surgeon when they are both facing a new procedure. Also, the patient himself, by his own observations, not infrequently supplies the flash of inspiration which illuminates a difficult problem. Secondly, one gradually learns the correct relationship which should exist between colleagues in the same profession.

A Widening Field

The year 1927 was the time of my appointment to the staff, and for the next 16 years at Westminster I practised general surgery in its widest sense. The advances, even in this relatively short period, were quite remarkable, especially in the field of pre-operative investigation. Radiology had gone on apace. Contrast media had been introduced into every hollow viscus except the heart. Although barium meals had been in use for some time to outline the alimentary tract, it was undoubtedly the introduction in the 'twenties of a solution of sodium iodide for retrograde pyelography which accelerated this advance; the discovery of Lipiodol, and later the introduction of substances into the blood-stream which were then excreted by either the kidneys or the liver, made possible the outlining of those cavities which had hitherto been inaccessible. One could now visualize the renal pelvis, the gall-bladder, the bronchial tree, the spinal theca, and, by use of air, the cerebral ventricles. Lastly, the vascular system of the brain was outlined by a technique first practised by the Portuguese neurosurgeon Moniz, which later was applied to the whole cardiovascular system.

Biochemistry by this time had hived off from the main body of pathology, as haematology also was soon destined to do. At the beginning of this period estimation of the blood urea and of the blood sugar were the only tests one would dare ask for. At the end the scope of biochemistry had enlarged greatly, promising to become, as it has done, one of the most important methods of investigation at our command. Haematology had not, up to the end of this time, made very great strides. Perhaps the only notable one was a better understanding of blood-grouping. This was most important, for by this time blood banks were the order of the day, and few really major operations were undertaken without there being some blood available. Since then haematology has become a specialty in itself. Chemotherapy, which emerged with the introduction of the sulphonamides after the discovery of prontosil by the Germans, achieved later a yet more prominent role when penicillin came into use followed by the appearance of newer antibiotics. Before this there had been sporadic attempts at chemotherapy, but perhaps the only compound which had any kind of success was mercurochrome, introduced by Young, of Baltimore. Mercurochrome certainly controlled post-prostatectomy infections, for which it was devised, and certainly it was useful also in staphylococcal septicaemia, which was particularly lethal before the advent of penicillin.

Progress in Anaesthesia and Surgical Technique

Anaesthesia progressed at the same time. Perhaps the watershed between the old and the new occurred with the introduction of cyclopropane, which allowed the use of up to 80% of oxygen and so permitted a lengthening of operating time without endangering the patient, and by inducing apnoea also allowed the use of assisted respiration. With the advent of curare, and later of other ganglion-blocking agents, the anaesthetist could take complete control of the patient's respiratory function, and, with the advantage of blood transfusion during the operation, make it possible for the patient's condition to be relatively little changed even at the end of an operation lasting many hours; this in contrast with the period when speed of operating was of paramount importance—time now was of little consideration. These improvements allowed time for more delicate surgical techniques, with, as a result, less trauma to the tissues. In many instances more complicated procedures became possible, which, although permitting more extensive interventions, often led to a greater conservation of normal tissue.

Surgical technique advanced considerably. In the surgery of the gastro-intestinal tract, for example, resection was now commonplace, with a minimal mortality and satisfying results; and even the oesophagus, the last part of the tract to be resected, became amenable to surgery, with a not unreasonable expectation of a good result.

Surgery of the urinary tract was already of a high order. In the main the approach to the enlarged prostate was through the bladder, although resection through the urethra was gaining in popularity, and in the near future extravesical resection by the retropubic route was to be devised. Similarly, segmental resection of the kidney for tuberculosis and conservative operations for hydronephrosis were soon to put in their appearance.

I have said enough to show that the advances of this period were considerable. They laid the solid foundations for the even more spectacular advances which were to come.

A Significant Time

The year 1930 was specially significant for me. At the invitation of Tudor Edwards I went to Brompton Hospital as a clinical assistant. From then on my main interest was to be thoracic surgery. I had no doubt in 1928–9 that my future lay in urology, but this invitation changed my mind.

Without question all young people should try to plan their lives, but it soon becomes evident that such planning can only be in a general direction; the specific trends of life depend on the opportunities which present themselves and the ability to grasp them when they arise, and the latter depends on the zeal with which the individual has prepared himself and, needless to say, the good fortune of being in the right place at the right time.

Thoracic surgery was then in its infancy, although Morriston Davies, with whom I was fortunate enough to be associated for two and a half years in the early 'thirties, had pioneered it as long ago as 1912. In that year he performed the first thoracoplasty in Britain, and the first lobectomy for carcinoma of the lung ever to be done. His surgical career was tragically interrupted in 1917, when he developed septicaemia from an infected right hand. Fortunately he survived, but with a sadly crippled hand. The way he overcame this handicap and returned to active surgical practice is one of the most courageous stories in the history of British surgery.

Tudor Edwards, who incidentally was born in Swansea, did an enormous amount for thoracic surgery in this country. He made the profession aware of its potentialities through his publications, by lecturing, and by his example during his operating sessions, which later were visited by surgeons from all over the world. In 1927 he performed his first successful lobectomy

for bronchiectasis. Both his operation and that of Morrison Davies were done by dissection of the individual hilar structures, yet in the 'thirties there came a retrograde step—the use of a tourniquet. The tourniquet was placed temporarily around the hilum of the lobe which was to be amputated, and after the amputation the stump was controlled by mattress sutures. This technique resulted from a paper by Lilienthal, in America, in which he reported a 66% mortality in a series of lobectomies done by individual dissection. This high mortality he attributed as being mainly due to mediastinitis. It was to combat this hazard that Shenstone, of Toronto, devised his tourniquet. In retrospect, this step was perhaps not quite so bad as at first appears. Anaesthesia was induced with nitrous oxide and oxygen, which put a premium on speed. In fact, if the operation could not be completed in about one and quarter hours the patient was exposed to a greatly increased risk. Later, spinal anaesthesia was used. This increased the time a little, but even then elderly patients could not be operated upon. Yet despite these limitations, or perhaps because of them, in 1935 Tudor Edwards, using a tourniquet, was able to report a reduction of the mortality of lobectomy from 66% to 15% in a series of his own cases.

In those early years 60 to 80% of thoracic surgery was done for pulmonary tuberculosis, the major procedure being an operation to collapse the diseased lung by resecting the overlying ribs, although there was a gradual increase in the interventions for infective conditions of the lung and pleura, and this continued with gathering momentum until the outbreak of war.

Emergency Medical Service

The organization of the Emergency Medical Service at the outbreak of the war did a great deal to increase the scope of thoracic surgery, and indeed other branches of surgery too. Specialist centres were set up, usually outside the main conurbations, all over the country for thoracic surgery, neurosurgery, orthopaedics, etc., in order to deal with casualties. In view of the fact that air-raids did not occur in the first year, civilian cases with diseases suitable for such units were admitted, on two grounds: that these people needed treatment; and, secondly, to keep trained units occupied. The result was that areas which heretofore had only very limited, if any, such facilities at their disposal now had access to them, and, as would be expected, once the facilities were available, prompt use was made of them, to the benefit of all concerned. These developments in the E.M.S., especially after the release of penicillin, with better facilities for providing blood, and improved anaesthesia, did as much for thoracic as for general surgery. Lung resections were now carried out only by dissection. The age limit for such procedures was increased, and so was their extent, especially so in cases of carcinoma. These extensions were accompanied by a fall in the hospital mortality rate. It fell from above 15% to just over 1% for lobectomy for bronchiectasis, and this later was further reduced. Not only the operative mortality but also the morbidity was reduced. The average length of stay in hospital for such patients fell from three and a half months to three weeks.

Fresh Achievements in Chest Surgery

It often happens that what looks like the end of the road turns out to be just a bend in it. We came to one such bend in 1948. Up to that time the collapse procedures used in pulmonary tuberculosis had seemed the most that surgery could offer for that disease. Although resection had been practised from time to time, the mortality and complication rates associated with it were such as to preclude its general acceptance. The discovery of streptomycin and the other antituberculous drugs changed all that. The treatment of pulmonary tuberculosis again became primarily and essentially medical. If surgery was

needed, then resection was the order of the day. Before streptomycin one hoped that an obscure case would not turn out to be tuberculous, but now such a diagnosis is a most welcome one.

So far as pulmonary surgery was concerned it seemed at this juncture that there was not a great deal more that could be achieved. The signposts were well and truly planted, and practically all the operative procedures could be undertaken with relative safety; age *per se* was no longer a barrier to operation; conservative procedures such as segmental resection and local resection of the bronchial tree were well established, and so were the more radical operations indicated in malignant disease. This satisfactory position had been attained as a result of good anaesthesia, blood transfusion, chemotherapy, careful pre-operative and post-operative care, and good teamwork.

The next advances in chest surgery stem from the operation for patent ductus arteriosus first performed by Gross in 1939. This was followed by the first resection for coarctation of the aorta by Crafoord in 1944; and then, in 1945, Blalock attacked the congenital anomaly of the tetralogy of Fallot (the blue baby). These achievements opened the way to the surgery of the heart and great vessels. At first surgeons concentrated mainly on the great vessels. In Blalock's operation for the tetralogy of Fallot the attack was indirect, as he carried out an anastomosis between the systemic and pulmonary circulations. It is to the credit of Brock that he advocated, and himself initiated, the direct attack on the stenotic area. His stand gave added impetus to direct intervention into the cardiac chambers.

At the time of these advances angiography and the technique of radiography, both rapid-exposure and cineradiography, were making great strides. And within the last decade the evidence provided by cardiac catheterization—pressure readings and blood-gas analysis at various levels—together with clinical examination and the radiological information from angiocardiograms, have made it possible in most cases to arrive at a correct pre-operative anatomical and functional diagnosis.

Post-operatively one other factor has enhanced the safety of the patient—that is, the establishing of post-operative recovery wards. These wards are staffed by a nursing staff especially trained in this particular field, well acquainted with the instrumentarium in use, electrocardiography monitors, suction pumps, respiratory pumps, etc., and there is always a medical man on immediate call. This not only takes the burden off the wards, which, alas, are often understaffed, but it does ensure that the maximum number of patients receive the expert attention which is available. Certainly in this type of surgery such a service is a vital necessity.

Open operations on the heart are performed for the correction of congenital anomalies, such as septal defects, stenosis of the outflow tracts, and certain vascular anomalies. But nowadays acquired valvular disease of the heart is an even more pressing indication for surgery than the congenital lesions. Latterly the surgical relief of the embarrassed coronary circulation has also received considerable attention.

To make these operations possible it is necessary for the heart to be excluded from the general circulation. This is done either by using an extracorporeal circulation which by-passes the heart, or, alternatively, by reducing the metabolic needs of the body by lowering the body temperature to the region of 12° C., at which level the heart stops and the whole circulation is arrested.

Had one been able 50 years ago to look forward to this point in time one would have distrusted the evidence of one's own eyes. Without question one's credulity would have been strained had one been able to watch the heart slow down under the influence of profound hypothermia until it eventually stops, becoming quite flaccid, and for it to remain like that for an hour or so during the open operation, with, at the same time, no sign of respiratory or cerebral activity. Then during the

rewarming process to see the heart begin to contract and continue the circulation, the patient returning to normal within a matter of minutes following the operation, a patient who, judged by our old standards, had apparently been dead for up to one hour. Yet this is exactly what happens, and many chronic invalids owe to these procedures not only restoration to almost normality but also prolongation of life.

The Future

So much for past history. What of the future? Only a bold man would try to forecast the shape of things to come. It would be foolish to suggest that surgery has now reached its

zenith. Already certain lines of advance are evident. Grafting of tissues and organs has been performed. Corneal grafting is an outstanding example, and one of the past presidents of this Association, Tudor Thomas, made no small contribution to its success. There have been satisfactory organ grafts, especially in identical twins, and once the immune response to the grafted organ is overcome who can forecast the operation's future? There are bound to be problems, and not only immunological and bacteriological ones. Moral and ethical questions inevitably follow in the train of such operations.

But one thing can be safely predicted: the coming 50 years will be as exciting and rewarding for those engaged in surgery as has been the last half-century.

Incidence of Suicidal Attempts in an Urban Community

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The incidence of suicidal attempts is difficult to establish. Attempted suicide is not a diagnosis and therefore does not appear in the diagnostic index of hospital records. Usually the type of intoxication or the physical or mental condition which led to the suicidal attempt is entered, without reference to the latter. It is true that the *International Classification of Diseases, Injuries and Causes of Death* has a category of suicidal poisoning and injuries, but, in this country at least, it is hardly ever used. Therefore no reliable statistical data concerning the incidence of suicidal attempts are available, even among hospital admissions. When attempted suicide was still an indictable offence in this country, the number of cases known to the police did not usually exceed those of suicides. They were obviously only a fraction of the attempts committed. Their real incidence is of considerable interest for the clinician and the epidemiologist. People who have attempted suicide are more likely to kill themselves later on than people who have no such history (Stengel and Cook, 1958). They form a highly vulnerable part of the population. Also, suicidal attempts present medical and psychiatric emergencies, and it would be important to know what claims they can be expected to make on the hospital services. Finally, their incidence and its fluctuations in a population may be indicators of mental or social disorders which may not necessarily be identical with those resulting in suicide.

The purpose of this study was to establish the incidence of suicidal attempts—that is, of non-fatal suicidal acts—in the City of Sheffield, which has a population of slightly under half a million, for the years 1960 and 1961. The following definition of a suicidal attempt was adopted. "A suicidal attempt is any act of self-damage undertaken with the apparent intention of self-destruction, however half-hearted and ineffective. The patient may have been only vaguely aware of his intention, which sometimes has to be inferred from his behaviour" (Stengel, 1963). This definition is in practice identical with the operational definition adopted by Kessel and Lee (1962), who included all cases of self-inflicted overdose, gassing, or injury admitted to the observation ward where they carried out their study.

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Methods of Inquiry

The total number of suicidal attempts can be divided into four groups of persons: (1) those seen in the casualty departments, out-patient clinics, and wards of general hospitals; (2) those admitted to a mental hospital; (3) those seen by doctors in their surgeries or at home; and (4) people who made a suicidal attempt without a doctor being called in. The size of group 4 is not ascertainable. However, its existence can be inferred from occasional reports of such attempts given by patients and sometimes confirmed by witnesses months or years after the event. The number of such attempts is probably small but not negligible.

The possibility of those attempting suicide being admitted to private nursing-homes, which were not included in this survey, was considered. From inquiries among doctors in Sheffield it appeared most unlikely that such cases were admitted to those homes, most of which were not equipped for emergencies.

The size of the third group—that is, of those seen by general practitioners first—can be established only by a special survey. The first two groups—that is, the hospital admissions, are not easy to ascertain either, for reasons mentioned above.

One and the same suicidal attempt is apt to be included in more than one group, with consequent double or treble entry. To avoid such cases being counted more than once, a register was drawn up, and for every case traced the following particulars were recorded wherever possible: name, address, date of attempt, sex, age, marital status, source of information, mode of attempt, length of stay in hospital and subsequent disposal, and name of patient's regular doctor.

1. Suicidal Attempts Seen in General Hospitals

A total of over 160,000 casualty entries in the three general hospitals serving the city were checked through by one of us (D.P.), the cards of the attempts being sorted out. This survey was preceded by a scrutiny of a sample month in the casualty department of each of the three hospitals. As a rule it was easy to pick out suicidal attempts from the records. Most suicidal overdoses and gassings were apparent as such. Almost all cases of cut throat were suicidal, while many cut wrists were clearly accidental. It was found that the following types of entry in the casualty card served as indications for closer study of the casualty to which it referred: (a) no diagnosis, (b) collapse, (c) coma, (d) head injury, (e) laceration of throat and wrist, (f) stab wound, (g) poisonings of all kinds. Suicidal attempts were almost invariably recognized as such by the casualty officers.