THE PRESENT STATE OF THE TEACHING AND PRACTICE OF SURGERY.*

BY

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DURING the last year I had a heart-to-heart talk with a learned and thoughtful provincial surgeon. Among the things he said to me were the following: "Provincial surgeons no longer look towards the surgeons of London for new notions or leadership, and this is because there is little or no original research work being done by London men. Provincial surgeons see as much surgery, operate on as many patients, and we are technically as perfect as London men." Gentlemen, although I would not hear your enemy say so, we have all had some such thoughts about ourselves.

Research Work.

Let us begin with the first point he made—that London is losing its leadership, because so very few men are engaged in research work as well as practice. I think it must be admitted that, in these days, mere technical ability is not enough to maintain ascendancy of leadership, or to regain ascendancy if leadership be lost. I take it to be a fact all the world over that he who is only a so-called clinical surgeon and nothing more is losing, or has lost, his position as a leader in his profession. He can add very little knowledge, and except for acquiring skill in the technicality of his art he can acquire very little more of any value whatever. His thoughts can never be profound, and without research work there is very little encouragement for him to think at all; instead of his teaching being inspired by the results of his own original research, it is limited in outlook, dull and conventional in type.

It seems to me essential that every surgeon should be performing research work, however little, in a laboratory, however small, in conjunction with his practice. I know many men will say that practice excludes the possibility of such a scheme. I do not admit this. Time can always be found for things that a man wants to do. It will be said that some men are more fit for practice than investigation. I do not think that statement has been properly tested. But that is not so much my point. My point does not concern those men. They can never be leaders in their profession, however great their practice, or however high may be the social position of their patients. It is the men who aspire to leadership who should come back into the fold of original research as well as surgical practice.

That some men are fitted only for investigation is another point to consider. This statement is yet another instance of one that is made without proof. Besides, supposing that kind of man does exist, I am not talking about him. My point is that a surgeon will never "cut any ice" as a leader unless he does research work as well as being technically perfect in his art. Research work and technical perfection are not in opposition. Nearly all parts of research work are concerned with delicate manipulative processes; experiments on animals are pure clinical work, and such experiments would naturally help the worker in his operations on patients. It may also be said that doctors can be investigators by research work applied only at the bedside, and that great work in the past has been performed by this method. That, taken alone, is no longer possible. A man must have the backing of his own research laboratory work.

How research work leads from one thing to another is borne out by a conversation I had with a student the other day. When I advised him to start original investigation by cutting sections, at different ages, of skin wounds that had healed by first intention, he said, "What's the good of that? Surely everything is known about that." Well now, that student was wrong. Six months' work at that particular observation, provided he be a more enthusiastic and intelligent student than the one I have just mentioned, would make him know more about it than anybody else of his year. It would compel him to study the

healing of wounds in all the other tissues besides the skin; it would lead him into the study of controlled hyperplasia and the study of internal secretions. It would entice him into a study of uncontrolled hyperplasia and take him into the regions of tumour formation generally. Apart from that, the whole question of infection and the prevention and cure of infection would come under his research. At the end of a few years he would find himself, provided he had ordinary enthusiasm and intelligence, an authority on the subjects with which he was dealing. Supposing such a man, in the course of his study, came across a simple statement like this: "Malignant ulcers of the stomach commonly arise from simple ulcers." If he were to accept the main teaching of the present day he would say, "Simple ulcers of the stomach commonly become malignant."

But such a man as I have described would not accept what others say on important questions of this kind; and the question is important, because it is said that as simple ulcers of the stomach become malignant they ought to be excised by partial gastrectomy—a very serious operation. One of the first things he would say would be, "Let me investigate the pathological evidence on which is founded the statement that simple ulcers of the stomach commonly become malignant." He would find, on this evidence, two things: that ulcers excised as being simple were really extensive carcinomatous ones, and that ulcers which had been removed and reported on as early carcinomata are not carcinomata at all, but simple ulcers in which some epithelial cells were dislocated—a state of things with which he would be perfectly familiar in his examinations of many wounds that heal by first intention, and would regard it as a state of things that does not necessarily prove malignancy. He would also be perfectly aware that in other tissues which are healing—take, for example, the formation of bone round the healing of a simple fracture—bone tissue may appear in an abnormal situation, but it is not necessarily an osteo-sarcomatous state. I would agree with his conclusions: that there is no pathological evidence to support the notion that malignant ulcers of the stomach commonly complicate a previously benign one.

Again, I think a man with this training would not be tempted to scrape the inside out of a uterus to see if he were dealing with uterine carcinoma. He would appreciate the fact, from his studies of uncontrolled growth, that one of the surest ways of inducing the spread of carcinoma is to open fresh lymphatic spaces and thereby transplant carcinomatous cells, and that a man who does this kind of preliminary examination is spreading disease before he removes it. Again I would agree with him. I would further suggest that all the discharge from a suspicious uterus should be collected, centrifugalized, and the deposit cut in paraffin sections and stained and then examined. Dr. Ewing, of the Memorial Hospital, New York, pointed out to me the danger of this process, and the examination of the uterine discharges was also his suggestion.

The research worker, besides correcting data of this kind, perfects his own work and is also leading others to perfect theirs. During what appears to be unimportant research work, at any moment a fact may arise of epoch-making importance. Although it may be a genius who succeeds in recognizing it as being a fundamental fact, there is no harm in a man giving himself a chance of showing the world he is a genius. Original work is so interesting. It keeps the mind of the researcher alert, young, and thoughtful. His teaching is more inspired and gives to his listeners notions and facts that cannot be found in books. It is wonderful to note the immediate response of his students when they hear something of the teacher's own work and his views. It makes them think with him on matters relating thereto, and often those matters are the only ones which cause men to come after a lecture is over to ask questions.

The other day I was listening to Dr. Bagg in the Memorial Hospital of New York demonstrate some of his most recent work. Roughly speaking, it was this. He took a healthy strain of mice, mated them, and on the birth of the litters immediately separated them from the mothers so that no suckling took place. He re-mated

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these mothers at once, and the next litter was treated in the same way. Of these mothers 87 per cent. developed fulminating carcinoma of the breast. The same results occurred after he ligated the mammary ducts on one side, and allowed the litters to suckle the other side. Carcinoma developed in the ligated breasts. That is a very dramatic experiment. Miss Maud Sly puts the whole matter on one side as being a question of heredity. Bagg himself considers it is a question of stagnation of irritating contents that induces carcinoma. Dr. Gye would say that "neither Miss Maud Sly nor Bagg has taken into sufficient consideration the presence of the ultramicroscopic organisms and a specific factor." To which Bagg might reply, "Supposing I grant the presence of the ultramicroscopic organism and a specific factor in the breasts of these carcinomatous mice, it cannot be conceived that 87 per cent. of them would have suffered from this fulminating carcinoma had I not treated them in the way I did. Therefore, supposing Gye be right, I may have proved that there is another factor essential to the action of the organism and the specific factor—namely, preparation of the epithelial cells." To which Gye might again reply, "You have not shown that to be an essential addition to my theory. I expect what you have really done is to make the specific factor more active." That is the line of research I humbly suggested to Dr. Bagg.

There are no boundaries to the researcher's ambition, compared with the mere surgical technical expert. I do beg of all surgeons who aspire to leadership in teaching and practice to work hard at original research. I would refer my audience to the first paragraph of Sir William Leishman's address which he delivered to the War Section of the Royal Society of Medicine on October 12th. He said:

"At the outset it is my purpose, if I can, to remove from your minds the impression that research is of necessity an esoteric matter, confined to mysterious laboratories, and that it can be carried out only by professors and specialists who have given years of work to their subject, who are a 'peculiar folk,' and talk in a tongue 'not understood of the people.' It is true that much experimental inquiry demands expert knowledge, special equipment, and comes within the opportunity of comparatively few of us, but I prefer to give to the word 'research' a much wider significance and to take it to cover any means by which we, of set purpose and on a deliberate plan, strive to add to the existing knowledge of the case, the prevention, and the treatment of disease. I have on more than one occasion spoken on this subject and have urged in connexion with it a far closer collaboration for this purpose between clinician and specialist than exists at present."

The Unit System.

The great hope in the future that London will regain its position of leadership, and prevent its surgery from degenerating into mere practice, lies, I believe, in the encouragement given to research by the unit system of teaching. It may be said that trial has been made of this system and in many instances it has been a failure. Against that it must be admitted that there are instances of great success, and there are instances where it is promising to be successful. It must be recognized that they are part of a new scheme, and time is required for their directors to grope about and discover the best arrangements that can be made for research and for teaching. I sincerely hope that those bodies who are placing money at the disposal of these units will not be discouraged by want of immediate return in the shape of striking discoveries, and so forth. Money cannot subsidize genius, but it can, and I feel sure will, create a body of men more capable of leading in their profession than any body of men that has existed in the past, and in due course genius will come along.

What a wonderful, envious position the directors of these units occupy! Take only one example, which to me is of greater importance than is usually attached to it—namely, the skilled assistance which a director can always insist upon having in his surgical operations as well as in his research. Take a surgeon at a teaching hospital, who is not a director of a unit. His assistant is a house-surgeon who only begins to be useful as an assistant at the expiration of his office, when the poor surgeon has again to start

with raw material. The same surgeon with skilled assistance works like an angel; but in his hospital, where everything should be the best from a showman's and teacher's points of view, you will see him working like a good man struggling with adversity. This is a more important question than that of merely a showman's or teacher's. Perfect assistance halves the length of an operation and lowers mortality; and, in fact, sometimes the hospital surgeon dare not undertake an operation with the unskilled assistance he has at his disposal.

Also it seems to me that a director of a unit should be allowed private practice, which would render him a more human, tactful soul, a better teacher, a better operator, and make him the possessor of a more complete conception of a surgeon's duties to all classes of men. The permission to practise would increase the number of men from which a director could be selected. As the teaching hospitals are now opening their doors to paying patients, I can see no reason why the director of a surgical unit should not operate upon his private as well as his hospital patients in the same institution, and thus save time for his unit duties.

The directors of units are complaining that there is so much administration to be done that they have no time for original work of their own. A powerful man like the director of a unit could insist upon having someone under him who could take this part of his labours off his hands.

Specialties.

I began my address with the conversation I had with the provincial surgeon. That morning he performed the following operations. He operated upon two patients suffering from gastric ulcer, completely removed two fibroid uteri, from a fifth patient removed a kidney that was a mere sac containing calculi, and finally he plated an ununited fracture of the tibia. The histories and examinations of these patients were complete in every detail, and his assistance was perfect. He had himself cystoscopically examined his renal patient. He had observed urine coming from only one kidney, and an absence of urine from the ureter of the affected one. He was obliged to perform the cystoscopic examination for himself, for no other man in his town was capable of doing so. This fact shows that practice made him—a general surgeon—efficient in what is a urological specialty in London. In London general surgeons do not get these patients. Therefore they have no practice in efficient urological examination.

The work of my provincial surgeon proves the absurdity of the contention that only specialists can efficiently examine urological patients. This leads me on to my next point. In addition to our negligence in appreciating the importance of original research, another great cause of the atrophic state of surgery is the breaking up of its practice into various and completely unnecessary specialties. The system is wrong in principle, and is proving wrong in practice. It is wrong in principle because Nature does not specialize. She governs her dominions on large general principles, which she applies to different tissues of the body. Specialists are doing the opposite. They are studying as best they can minute portions of the human anatomy, and thereby too often lose sight of great guiding principles.

For example, infection and all its accompanying problems—tumour formation and biochemical changes—are forces that hit all tissues, and to study their respective or united effects on only a small part of the human anatomy excludes the possibility of a comprehensive view of their actions on all the other tissues as well, unless two or three more specialists are brought into consultation. It is proving wrong in practice. The men who practise the different specialties are consciously and unconsciously recognizing the error of their limited occupations.

The specialists of the new generation are gradually including parts of the body other than those to which they were originally limited. A modern gynaecologist operates on everything connected with the female, unless it be a cerebral lesion. I cannot see anything that is excluded by the modern orthopaedic surgeon; and the modern urologist appears to be gradually claiming all the surgical diseases that affect the male in the same way as a modern gynaecologist is claiming all the diseases that affect the female. Even the modern laryngologist is beginning to include within his

ambit diseases that are extra-laryngeal—such as goitre, carcinoma of the tongue, and the glands of the neck—and thus he appears to be encroaching on the realms of the modern gynaecologists and urologists.

However amusing and interesting it may be to watch, I regard this tendency of different specialties to widen their spheres of action as being all to the good. It is destructive to a bad system. At present, if I were to advise a man what to do if he wanted to become a general surgeon, I should advise him to take up at least one of the four specialties I have mentioned, for there is nothing to stop a man from taking up a specialty and performing operations on any part of the body. I congratulate that man for the reason I have given. He will help to stop a bad system. Hence the question I would like to ask, "Why break up surgery into specialties that are becoming only names, and which have no physiological, pathological, or technical reasons for their existence?" I am glad to say that the forces that control this great society clearly see this. I would like to encourage these forces that recognize the error of our ways, by suggesting that a committee be formed to consider the whole problem and to discover means by which the separation into specialties can be stopped, and to encourage more meetings of the whole society to hear new important notions that deal with new interests, no matter who the man is who provides such material. I would let any man, however young or however old, with a new notion well worked out, utter his message before the whole society rather than before a little part of it. There are many papers read before sections that would profoundly interest the whole society, but they are now lost and hidden away from general knowledge. We should get to know each other's work better, and be able to judge with what manner of man we are dealing and the value of his message.

Decentralization of Surgery.

At the outset I particularly want it to be understood that I do not criticize any set of men, and that what I say refers only to the question of supplying the public with the best surgical treatment.

There can be no doubt there is a great, increasing, and perfectly reasonable demand on the part of the public for surgical aid that should be available near at hand. The diseases that call for urgent and immediate surgical attention compel the recognition of the fact that surgery must be as near the patient as possible.

Again, the volume of surgical patients who are not suffering from urgent and acute disease is so enormous that it cannot always be attended to from the great centres. Hence surgery is undergoing a great decentralization, which cannot and should not be stopped. In the numerous hospitals that have been established within a radius of thirty miles of London local men are operating three or four times a week. Inside and outside this radius general practitioners are forming groups that contain an operating partner, while in London itself the demand is greater than can be supplied by the hospitals attached to teaching schools. Large suburban hospitals have been built which have been staffed by surgeons of first-rate calibre; in fact, the reputations of these surgeons is so secure that these hospitals can be no longer regarded as mainly nurseries for men whose ambition is to be attached to their teaching schools. Lastly, the local infirmaries are opening their doors to surgical patients of all kinds, and often are obliged to admit patients for whom there is no room in the teaching hospitals.

Hence it is essential that the public in all areas should receive the best surgical aid, and the schools must supply it with surgeons whose knowledge, judgement, experience, and technique are second to none. It follows as a natural sequence of events that men who are operating in the hospitals of the decentralized areas must be also competing successfully in the private practices of those who taught them. Hence the economic state of the teachers becomes a momentous matter that has to be met and settled. The old system is obsolete, and the worst of it is that the old system is the present one. It must not go on indefinitely, for many unfortunate things will happen to the public if it be not supplied by the best surgical practice.

Let me inquire what is the economic state of these teachers at the present time, say, in London. It is impossible to describe in words that meet the situation, it is so obviously unsound. They are receiving no money for their hospital and teaching services, and they are considerably out of pocket in giving them. They are teaching the very men who are successfully competing with them for the money upon which they live.

In comparatively recent times surgeons acquired kudos by being attached to teaching schools. They treated the private patients who are now being generally treated in the decentralized areas. The amount of kudos now brought to a man on a teaching staff is insignificant compared with older times. It was a system of polite blackmail at the best. The threat was: If you don't come and teach our students and treat our patients, you shall not have a private practice. Such as it was, the method of those days led to thriving private practices, and to some extent it still persists among men who have passed through those days. It is the brilliant younger teachers who are feeling the effects of this surgical decentralization, and however great a reputation they may make by original research and technical ability combined, they cannot hope to attract surgical patients from the decentralized areas.

What will be the natural consequence of all this if the old system persists? In order to live the teaching class (without private means) will be compelled to become the surgeons of the decentralized areas where private practice awaits. If the best men are thus rendered incapable of teaching, what will become of the high standard of teaching that will be necessary for the subsequent supply of absolutely efficient surgeons? There will be a disastrous shortage of efficient teachers. The demand for great teachers can be met only by giving them high salaries. The public, having once grasped this problem, must itself see how it can be solved. It can be solved only by the action of Parliament and a Ministry of Health unhampered by political fetters.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee seventy-one cases were considered and £658 was voted to fifty-four applicants. The following is a summary of some of the new cases relieved.

L.R.C.P.Ed. 1888, aged 73, met with a motor-bicycle accident while acting as assistant, and broke both legs and the right clavicle. At the suggestion of a member of the medical staff of the hospital the Fund, with a view to getting him away to a convalescent home, had made an emergency grant of £10, and a further sum of £6 was voted.

M.R.C.S.Eng., aged 80, whose investments have failed, and with his wife and youngest daughter, aged 47, now living on money received by the sale of household goods. This case has been investigated through the Guild and the report states that the old house in which they live has a mortgage on it for £730. The interest on this and rates amount to £52 a year. The eldest daughter, aged 51, is a widow and she is maintained by her son. An emergency grant of £5 was sent, and the Committee voted £40 in twelve monthly instalments.

Widow, aged 68, of M.R.C.P.I. 1880 who died in 1898. She is a trained nurse and has supported herself since her husband's death. She has just had an operation for cataract, has no means, and is not yet old enough for the old age pension. £5 was sent as an emergency grant, and a further £5 was voted.

L.S.A. 1884, aged 62, who prior to the war was a ship surgeon, served during the war and until 1923, when he was demobilized; he has since made a small income as a locumtenent. In February last was ill and unable to get further employment. In November, 1924, the Officers' Association gave £5 to enable him to take a post, and again in September, 1925, a further £5 was given to his sister for his benefit. He has recently been a patient in King's College Hospital, and the Fund was asked to help to get him to a convalescent home; £2 12s. 6d. was voted for this object.

M.D.Brux. and L.R.C.P.Ed. 1897, aged 57, unable to get locumtenencies, has applied to the Fund for assistance. During the last twelve months has received £105 from locumtenencies and has had unfortunately to apply to the guardians to live, who made an allowance for applicant and wife of 30s. a week from September 11th. The rent of one room is 12s. 6d. a week. The local secretary sends a satisfactory report. On his recommendation £5 was sent at once.

Widow, aged 85, of M.R.C.S.Eng. who died in 1894. She is permitted to live with her daughter, who is a housekeeper earning £50 a year. The applicant has the old age pension and an allowance of £6 from her eldest son. Three other married sons unable to help. The applicant pays 5s. a week towards her board. Voted £30 in twelve monthly instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. Gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.