who are affected, the danger would greatly diminish. But isolation in a general way is impossible, and that because many cases of true influenza are so mild as to escape detection, and because even where the case is severe infection is often spread before diagnosis is possible. But, on the other hand, now that people have ceased to regard influenza as a trifling and unimportant malady, and have come to know that it is certainly contagious, precautions have often been taken that were scarcely dreamed of in former epidemics. Infected individuals have isolated themselves, and thereby have saved their neighbours from contamination. People suffering from heart or lung disease have been kept scrupulously away from the infected, and have thereby escaped what would have been to them a terrible danger. Schools have been closed, with the result of diminishing the severity of certain outbreaks, and I have no doubt that when the next epidemic of influenza occurs, precautions of this kind will much more generally be adopted.

But even where isolation is impossible much good may be done by destruction of the sputum and of the nasal secretion. If patients expectorate into vessels containing sufficient disinfecting fluids, or into pieces of linen which are immediately thrown into the fire, innumerable quantities of noxious germs may be destroyed in each case. So precautions as to the discharges, if once efficiently taken, would tell materially upon the epidemics. It may be asked what is the best disinfectant for destroying the bacilli. Fire and water are no doubt efficient, but considering the very sensitive nature of the bacilli, it is probable any of the antiseptics ordinarily in use will suffice.

If we can thus deal with the bacilli discharged from the body, the question next arises whether we might not deal with them within the bronchial tubes. If we could do so, we might prevent their multiplication, we might prevent the development of their toxins, we might greatly diminish the noxious power of the sputum. Inhalations of many antiseptics have been recommended for this purpose; eucalyptus and menthol have been, perhaps, among the most popular. For my own part I have decided to try, whenever I have opportunity, the injection into the trachea of such substances as have proved serviceable in other diseases of the respiratory tract. In some cases of bronchiectasis I have obtained most satisfactory results by the intratracheal injection of a 10 per cent. solution of menthol in olive oil, with or without 2 per cent. of guaiacol superadded; and I look forward with interest to trying the like method in cases of influenza.

It may be asked whether, during epidemics of influenza, such intratracheal injections might not confer a degree of immunity upon those who are exposed to the contagion; and I should certainly carry out this method of treatment among my phthisical patients if the epidemic should recur. I should incline, also, to give it a trial with others who may be necessarily exposed.

Another question which emerges is whether we could discover any means of conferring immunity by rendering individuals insusceptible to the action of the germs. Now the mere fact that one attack of the disease confers no immunity from subsequent attacks makes one less sanguine as to the probability of such a material being discovered, but I observe that Pfeiffer in his great paper remarks that it may perhaps be one day within our power to supply a preventive treatment by the use of the derivatives of the specific bacillus.

Again, it would be of great service if we could discover substances by means of which we might destroy or neutralise the poisonous products of the bacilli, and so prevent the secondary results. If we could in the case of a patient with prolonged debility of heart or with great nervous or mental depression neutralise the poison which is bringing about these results, we should rob the disease of many of its terrors. The antitoxins, which have been discovered to have the power of combating, as it is supposed by chemically destroying, the poison evolved by the "drumstick" bacillus of tetanus, afford a type of what may one day be accomplished in this way, but meanwhile no such material has been discovered. It is also conceivable that substances may be discovered which would act as physiological antagonists to the influenza toxins; but this also is in the meantime mere matter of conjecture.

The last question which I shall raise is whether we can so

act upon the system generally or upon the organs specially affected as to combat the injurious effects. There is one lesson which most people have learned from the recent epidemics, namely, that those who are taken with the disease even in a mild form ought not to struggle against it and go on with their work, but should yield to the malady for the time, in the hope of escaping or lessening its after-effects. It appears as if tissue change and bodily exertion had an extraordinary power of favouring the action of the bacillus and the development of its toxins. I have found that when the after-effects manifest themselves rest from bodily and mental effort is essential, and that careful attention to diet, to protection from cold, to the moderate and wise use of stimulants by those who are accustomed to employ them, and of such tonics as nux vomica, quinine, arsenic, and iron, with special cardiac or other tonics when they are indicated, prove eminently beneficial.

On looking back over the field which I have thus hastily traversed, one is satisfied that real progress has been made, and that the profession are already better prepared to meet the next epidemic than they were to meet the last, and that we may yet hope for the promulgation of discoveries which may prove of more signal service.

ADDRESS IN SURGERY

BY

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At the Annual Meeting of the British Medical Association held in Bristol, August, 1894.

THE ART OF THE SURGEON.

It is, I am sure, a source of pride and of pleasure to many in this room besides myself that a Bristol surgeon and the teacher of surgery in the Bristol Medical School should have been chosen to deliver the Surgical Address at our meeting here. On behalf of our city and our school in the first place, and on my own behalf in the second place, I desire to make most grateful acknowledgment of the honour.

In seeking for a subject on which to address you I have been careful to consult precedent. The surgical orator has, I find, most often and most properly assigned to himself a task akin to that of the minstrel at the feast in old times. He has been our pæan-writer; he has sung of our victories over science, and he has glorified our scientific heroes. In telling the tale of good deeds done some of our orators have been able to point the way to new conquests; a few have been critics alone; and in almost every case the speaker has dealt with the science of surgery.

I have thought that I may for once leave the science of surgery alone—it is, indeed, well able to take care of itself—and, instead of the science, I shall speak of the art; instead of the making of surgery I shall speak of the making of the surgeon. The Art of the Surgeon, and how we train men to practise it—this will be my theme. My ambition is to keep fresh in your minds the fact that not only have we knowledge to acquire but also an art to learn. The art may be of little importance as compared with the science of surgery; there can be no dispute that it is; still, as the servant, the interpreter, occasionally even the improver of the science, it has its importance, and may be worth thinking about and worth discussing.

What is a surgeon? A stranger looking at the doorplates of an English town might reasonably infer that there was no lack of material on which to base an answer. But then the stranger does not know, as we do, that the title "Surgeon" on an Englishman's doorplate usually means that the possessor thereof is prepared to practise any and every branch of the healing art save and excepting surgery. This covering of the whole field of the healing art by the titular surgeon is the more remarkable that he alone amongst craftsmen should have retained the name "handworker"—*χειρουργός*. Not less remarkable, perhaps, is the fact that the physician should

have appropriated to himself the special epithet of "learned man"—doctor. Not his healing, but his learning, is his distinction.

In each of these extensions or perversions of meaning there may, perhaps, be ground for pride. In these days of grandiloquent naming the surgeon is almost unique in following a pursuit whose name of "handwork," "chirurgery" is humbler than it need be. This is certainly to his credit; and if, from his brethren, Doctors in Divinity, in Law, in Letters, and in Science, the public insists on singling out the Doctor of Medicine as "the doctor," that can scarcely be to the physician's discredit. It is this pre-eminence in learning, probably, and not any reality in fact that makes the public think that, when they say that "Doctors differ," they are speaking of physicians. The public goes further, and insists on calling us all, surgeons and physicians alike, "doctors," learned in most things, let us hope; learned in the healing art certainly. And the public is right.

The surgeon is, first and foremost, a physician, a man trained in the laws of health and disease, in the ways of preserving health and of curing disease. In person or by proxy he must lean finally on medicine. To his medical training is superadded a special and peculiar education in the treatment of certain diseases which lend themselves to cure by the help of handicraft. The surgeon is a man who can carry the treatment of a class—a small class—of diseases further than the physician, and that is all. The physician, on his side, goes beyond the surgeon. But both meet. In old times the surgeon was practically the slave of the physician; later on he struggled up to the dignity of being his enemy; to-day he is his equal and his helper. They join hands over the same patient, each seeking from the other some special help in healing. And herein to-day is the difficulty both of the surgeon and of the physician. Each is driven to his wit's end to meet the manifold demands made on him by the other. This is their only rivalry, a goodly and a wholesome one, leading to new victories over disease.

Amongst other arts and crafts the surgical stands alone in the extraordinary breadth of its foundation on science. The painter is not expected to know the sciences of chemistry, botany, geometry, and optics, which intimately relate to his art; nor is the sculptor supposed to be familiar with geology because he works in clay and marble. Possibly both painter and sculptor would be the better for a scientific knowledge of their materials; but such knowledge is subsidiary and unessential. To the surgeon wide scientific knowledge is of prime importance; it is, indeed, essential. His range is almost coterminous with abstract science—something of all of the sciences, a good deal of a few, and everything of two or three he must know. You know the subjects only too well, I need not recapitulate them.

We do indeed make a brave display; is it all genuine? Our examiners surely have their suspicions, so careful are they to catch the student at the end of every year of study, being fearful, apparently, that his knowledge will soon trickle away. It looks as if the student might play with knowledge as a cat does with a mouse; he plays with it and ultimately kills it, but, like the well-fed cat of civilisation, he refuses to convert the prey into food. He may assimilate the knowledge, but the process is not one of healthy cerebral digestion. As the liver of the goose of Strassburg is to the gasty palate of the *gourmet*, so is the brain of the student of medicine to the intellectual palate of the examiner. There is artificial cramming and gorging, resulting in the formation of a temporary deposit of lowly organised material, which, in the case both of student and of goose, may soon be cast off on a return to healthy life. For us surgeons this is fortunate, for we have much real knowledge to pick up when our examinations are over; and we want to start on its acquisition with clear and unclogged brains.

In the meanwhile, those who arrange our curriculum go on adding to it; where is this importation of new subjects going to stop? We go on broadening the base, and adding to the foundation; might we not now give some thought to the raising of the building?

The rolling years add to our pile of knowledge, and the burden laid on us becomes heavier to bear. To some of us the burden is already too heavy; others carry it easily, and even voluntarily add new weight. How to deal with the pile

so that it may best minister to our good is a problem always before us seeking solution.

Some would solve it by deliberately casting off part of the burden as being cumbersome and useless. These men say of anatomy that we have too much of it. If surgeons they say they cut where they have to cut, and if they divide a vessel they tie it. The right kidney they find in the right loin, and the left kidney in the left loin, and they cut down till they come on it. If facts must be borne in mind till examination, there are mnemonic rhymes and cabalistic formulæ to save the labour of the brain. There is, they say, too much anatomy. They say of physiology that it is unstable and uncertain, that it is burdened with an affectation of science called by its young votaries "research;" and they affirm that the young physiologist when he becomes a physician administers a dose of castor oil to his patient on very much the same principles as his grandmother followed when she gave a dose of the same drug to his father. Pathology also they despise. They tell us that this is the science of the "too late;" it helps us when the power of helping the patient is past. From the disintegrated remnants of the deadhouse they tell us we can no more work back to the beginnings of disease than from the shattered fragments of a fortification the artilleryman can work back to the powder and shot and ordinance which created the havoc.

These men are not few, and they are as honest as their opponents. The views they hold have been maintained on this very rostrum. Well, to-day, from the same place I venture in all humility, but with firm belief, to proclaim the very opposite. If I am asked of surgery, "Are we to lower it, so that brains may not be strained; or are we to strain our brains that surgery be raised?" then I answer unhesitatingly, "Let surgery rise if brains fail." Let the weak, or the lazy, or the impatient fall out, but do not let us lower our standard because some men cry that it is too high. It cannot be too high; it can never be high enough. The claims of surgery, as I understand them, are such that no test of excellence can be too high for those who seek to qualify themselves for its practice.

I am not, therefore, for casting anything away; but I would select, rearrange, and raise. I would gladly see zoology and chemistry and botany turned out of the curriculum, and placed among the preliminary studies and made part of the preliminary examination. And I should like to fill their places in the curriculum with more anatomy and more physiology and more pathology. I would extend and raise our education in these branches simply and solely because I firmly believe that the fullest knowledge of them goes to provide the best practice of our art.

The world, in educating itself, sets us a bad example. The end of culture for the multitude would seem to be to nibble at science, to dabble in art, to drivel over the glorious advances of the century. This is just what the surgeon has to set his face against. Surgery tolerates no dawdling or dilettanteism; the philosophy of the make-believe has no place in the surgeon's system. His knowledge must be real, and thorough and practical, and his own, and he must carry it with him.

Knowledge of this sort is begotten only of personal labour. Distributed in cribs and mnemonics it is useless for the surgeon. He must have the real knowledge of the artist. Art distributed amongst the multitude in plaster casts and chromo-lithographs—art, that is to say, reduced in bulk and cheapened, may elevate the multitude, but it does not make the artist. Now, the surgeon is to be the artist, the craftsman; he is not the distributing middleman, nor is he the mechanical copyist. So of science; science made easy of digestion, reduced to a concentrated extract and administered in minute doses at frequent and stated intervals, may be good for tiding the student over the crisis of the examination fever, but it is not good as frame-forming food for the scientist.

The foundation of our art is knowledge of the material to be worked upon, the human body. Anatomy to its uttermost details; anatomy, naked eye and minute, normal and abnormal, healthy and diseased, is the foundation of all good surgery. There is no getting over this fact. The good surgeon must be armed at all points; his armour is weakest at the most vulnerable points who is not protected by a complete panoply of anatomical knowledge.

If I am asked when the surgical student is to cease learning anatomy, I think I should answer: Not during his lifetime. Again and again must he betake himself to the endless human body; and this not only to keep his own knowledge fresh, but because advancing surgery demands a more perfect anatomy. This anatomy the surgeon has to work out for himself. Every region and every organ of the body is indebted to the anatomical studies of the operating surgeon. Only the other day surgeons saw their way to correct the misdemeanours of that dangerous little organ, the appendix vermiformis. Once again they had to sit down and render our knowledge of its anatomy more perfect. It would seem as if centuries of observation by the scientific morphologist could not equal, for our purposes, a few months' work directed by the keen eye of the practical surgeon. The surgeon must indeed go on dissecting all his life long.

In physiology and pathology, again, what honest surgeon dare let himself remain ignorant of any new truth that may bear on his art? And what about bacteriology? Is it not full time that a course of this supremely important subject, as important to the physician as to the surgeon, be introduced into our curriculum? And where are we to stop? We must not stop while knowledge advances; we dare not stop anywhere. There is no hope in surgery for an easier life to its votaries; there is, on the other hand, a certainty of a harder one.

Now, in the persistent and overwhelming claims of its science, there is real danger that surgery may lose something of its art. It is an old story that a reformation in knowledge has meant ruin to art. Possibly the loss of the finest products of ancient art and literature has been more than compensated by the moral and intellectual improvements which accompanied them or caused them. This may be so; still it seems a pity that science should so often kill art. The process goes on to-day, and we help it. For example, the beautiful arts of the line engraver and of the etcher, of which some of the most exquisite specimens ever produced are to be found in old works of surgery, are being cruelly handled by the artistically crude, but scientifically interesting and exceedingly cheap, productions of the process block, which now artistically blot the pages of our books and magazines, but greatly add to their value. There is no reason in this; science and art can well flourish together, and even help each other. Certainly it is so in surgery.

Much, very much, most indeed of surgery is science, but there is art in surgery as well, and the art is worth keeping alive, it is worth advancing. I trust I have not been unmindful of the claims of scientific foundation of the surgeon's training, and if I urge the claims of the art more strongly, it is because I am afraid of their being neglected.

The art of the surgeon may, for purposes of comparison, be viewed from two aspects. One is allied to the art of workers in wood and iron, and may be called mechanical. The other aspect has little of the mechanical about it, and is closely allied to a fine art. The mechanical side, the art of the application of tools, is an important but comparatively simple one, and need not detain us. Easily learnt as it is, it is still worthy of being taught. It is not, perhaps, a good thing that a surgeon should for the first time handle a saw or chisel, or a drill, or a trephine on a living human bone; and it would be well if we, who have much to do with apparatus, knew the qualities of the metals and other materials we employ, and the ways of jointing, and welding, and moulding them to meet the ends we desire. It would, in fact, be good for most surgeons to spend a month or two in a mechanic's shop under the severe discipline of a skilled British workman. With most of us it would certainly not be labour wasted. But I would not make tuition in the joiner's art compulsory because we use joiner's tools. In respect of technical skill in their handling, I would place the surgeon's tools on the level of the sculptor's spatula or chisel, or only a little higher. The chisel of the sculptor and the knife of surgeon are mere incidents or accessories in the work to be compassed by the brain-compelled hands. Still, as accessories they have their importance; we ought to be familiar with our tools. But the surgeon, I repeat, is more than a mechanic; he has work to do which brings him to the level of the true artist.

The other side of our craft I would venture to compare with

that which produces what are known as works of art; and this side is by far the more important. Here the work of the fingers is of small moment as compared with the work of the brain. The brain is supreme, and yet in delicacy, deftness, and general preciseness of obedience to the brain's behests, the fingers and hands have great calls made on them. In painting, sculpture, or music, mere manual dexterity rarely is deficient to him who has the artistic soul; or, if there is deficiency, practice and education will do much to remove it. So in surgery the hands rarely fail to rise to the demand the brain makes upon them if they are trained. Let us look a little more closely into the surgical fine art, for it is nothing less than a fine art.

The highest part of the surgical art is more than handicraft; it is braincraft uttered through the fingers. It is not mere manual dexterity or cunning. In fact, mere manual cunning, being a result of routine practice which begets reflex movements, is detrimental to surgical art, which demands the widest possible scope and variety of action. I should not quote the marvellous manual dexterity of the button-maker as the highest education of the hand, any more than I should quote the clever work of the oak-grainer as the highest art in painting. The surgeon's art demands breadth and variety in manual training; the hands must have all-round capacity. The finger surgeon begins at the wrong end; he ought to have been a button-maker. No training, however, comes amiss to the surgeon's fingers. By many devices and practisings he may and ought to improve their capacity; but their final and most perfect training is in the actual work.

The skill of the hand depends greatly on the sense of touch and on what has been called the muscular sense. We are endowed with a sense of touch more delicate, perhaps, than is found in any other animal—the only sense in which we excel. The highest cultivation of the sense is essential to the surgeon.

Now the sense of touch is trained through the intellect as much as through the fingers; it is helped by comparative appeals to the other senses, and especially to sight. The blind have been found to have no special excellence in actual sense of touch; they excel in the intellectual interpretation of the sense impressions. We who can bring the sense of sight to help out the impressions of touch ought to surpass the blind in tactile power. Put it in this way. A blind man could scarcely map out in his trousers pocket the figure of Britannia on the back of a penny. But, after seeing the figure, the possessor of a trained finger will recognise by touch many of the details such as the shield and the trident and the limbs; and so he will identify the whole picture. The blind man cannot correct and verify his groping sense of touch by sight; the seeing man can. So I say that a man who can see might, if he were determined, and were loyal to the sense he seeks to train, cultivate his sense of touch to a higher pitch of delicacy than the blind man.

Now there are no limits to the demands made on the surgeon's tactile powers. Touch is to the surgeon what hearing is to the physician in diagnosis, and more in treatment. The exquisite delicacy of differentiation possessed by the ear of the physician we desire to have for the finger pulps of the surgeon. In diagnosis touch tells us what sight cannot; in operating in the dark depths of the body it goes where sight cannot, and sometimes it guides more truly than sight could. But always it is the intellect that interprets. It is as true to-day as it was twenty centuries ago that "*Νοῦς ὁρᾷ καὶ νοῦς ἀκούει ἑτέλλα κωφὰ καὶ τυφλὰ.*" "Tis mind that sees and mind that hears; all other things are deaf and blind."

Amongst the plastic arts sculpture perhaps gives us most points for comparison with the surgical. Each deals with the human body. The sculptor has to know the body externally in architecture, in bulk, and in outline; the surgeon has to know it in the same ways, internally as well as externally, and in sections vertical, transverse, and oblique as well. Each art demands from its votaries absolute fidelity to form; the ignorance that misplaces a tendon in a statue will lead to grief on an artery in an operation. There are similarities in their ways of working, too. The inferior sculptor, by adding here and subtracting there, by measuring and squeezing and scraping, may, after long working, make a tolerable likeness, but never a work of the

highest art. The true artist goes straight to the stopping point and then stops. What this stopping point shall be we cannot define, but it gives us that sense of true balance between detail and mass which signifies artistic proportion. So in surgery; the surgeon-artist forms a clear conception of the work he has to do and makes straight for the ending of it. Between detail and bulk he determinedly keeps a true artistic proportion. His time is limited, and into this time he must put his best work. He wastes no time over trifles; he is very deliberate over difficulties. The most elaborate finish in both arts is visible where the technical difficulties are greatest. The clean straight strokes of a true artist are visible equally in the work of the surgeon and the sculptor.

The surgeon who is not an artist is devoid of a sense of true proportion. Where one bold cut is wanted, he will make a dainty nibbling dissection. He verifies his anatomy on the way to his work by the help of the director. He goes a little in this direction and retraces his steps; then a little in that direction and returns. He has hobbies, and he rides one or two well. One man turns the peritoneum in, the other turns it out, a third is careful to ignore it. Perhaps he gives one suture to peritoneum, one to muscle, one to fascia, and one to skin, and each suture is perhaps of a different colour or a different material, so that Nature may have no chance of making a mistake. His work is not towards one finished work of art, but to the making of half a dozen clever separate studies. Like the sculptor who is good at hair, and works out every one, or the painter who is good at eyes and puts in the dots in the iris, each sacrificing the whole to the part, our inartistic surgeon lingers over his fancies, and so fails to produce finished and harmonious work. His details are not all equally balanced; some are exquisite, some are mediocre, others are bad. The whole work, the whole operation, will not be the best possible for the saving of life; it is not all round a finished work of art. Therefore it is to be condemned.

The surgeon's art has in it not only the elements of boldness, honesty, and simplicity pertaining to the sculptor's art; it leads him in some of its departments into methods of working which may fairly compare with the most delicate amongst artistic pursuits. The finest work of the surgeon makes demands on the delicacy of the fingers little, if anything, less exacting than the demands made on the fingers of the etcher or the line engraver. The surgeon, as a painter, has to make pictures not only in life size, but in miniature; as a sculptor he has to do not only the full figure and the medallion; his work may also be compared to that of the graver of gems.

The operative art of surgery is truly a high art; the demands it makes on the hand, the eye, and the brain of the artist are the same for surgery and the fine arts. Surgery and fine art may indeed well be practised by the same man. We see it in our own time. The art in etching of Sir Seymour Haden, and the art in surgery of Sir Henry Thompson, each supreme in its way, have two sides only on the surface; they are identical at bottom. And we have seen this in past times, sometimes to the loss of surgery, sometimes to its gain. The world lost a great surgeon in Leonardo Da Vinci and gained a great painter; it lost a great artist in Sir Charles Bell and gained a great surgeon.

Now of this art of surgery, where and what is the teaching? Where and who are the masters who guide and correct the young artists in their work? It may be said at once, of masters there are plenty, but they do not teach. There is no real teaching of the art of surgery in our country. Here and there a favoured few, house-surgeons and assistants, are permitted to pick up what knowledge they can by looking on and by helping; but of personal guidance in the actual work on the living subject analogous to the guidance given in other arts, we in ours know nothing. We have to teach ourselves by experience alone. Think what this would mean in art training. It would mean that to paint a thousand portraits is the only way to become a first-rate portrait painter; to model a thousand figures is to become a perfect sculptor. It means in medicine that the midwife of 5,000 experiences is more to be trusted than the obstetric gold medallist of London University, who can boast of only 50. And note this further. The young sculptor may with impunity make and break figures to his heart's content; the young surgeon, in

learning his art, is not supposed to damage or destroy human beings.

Artists, mechanics, craftsmen of all sorts learn their work in the workshops or studios with a master to correct their faults and guide their efforts. Surgeons alone have, unassisted, to grope their way to excellence in their art. In his science the student has guidance enough in all conscience, and in his notetaking and his dressing he is sharply looked after. But he is severely left to his own devices to pick up the technics of his craft.

Is this right? That the art of surgery is teachable there can be no dispute, that it is worth teaching is still less disputable. Why, then, is it not taught?

The art can be taught in only one way, the way of teaching all the plastic arts. The young artist must, while beginning the practice of his art have a master at his elbow, a master who will criticise his methods and correct them, who will guide him in the use of his hand, his eye, and his instruments; who will in the fullest sense make him his pupil and personally lead him on, step by step, towards such excellence in the art as he himself has acquired.

In no way do I seek to detract from the value of such knowledge as is got in the class of operative surgery, so called, or on the benches of the operating theatre. As a step between anatomy and surgery, the performance of operations on the dead body is of supreme value; it is indeed indispensable. It is the first step towards operative surgery, but it is not operating. For instruction in the living art of surgery, attendance in the operating theatre is of little value. The student sees little, and that little with uninstructed eyes. The student of surgery is just as likely to learn his art simply by attendance in the operating theatre as is the student of the violin to become a true artist simply by going to concerts. In both cases to learn the art the student must work at it; to attain to the highest degree of excellence he must work under a master.

If then the art of surgery is to be perfectly taught, it must be taught to the young surgeon actually operating. And here is our first difficulty. We cannot teach the art to unqualified men; students are not permitted to operate. We must begin our teaching after the student is qualified. As things are at present this is not easy. Our pupil of yesterday is our colleague of to-day; when qualified he is supposed to be our equal and therefore above our criticism. It is difficult to imagine a skilled senior in the operating theatre calling attention to the faulty methods of his young colleague; it is impossible to conceive him pushing him aside and showing him how to do it. And yet, if the living art is to be taught at all, this personal way is the only way. Why should the young surgeon more than any other young artist fear tuition in the operating theatre? Possibly the presence of young students, of whom he is probably a teacher, would be a chief objection. Then, if the humility of him who truly seeks after knowledge is not forthcoming, must the young students be excluded from operations at which open instruction is given to young surgeons. And it resolves itself into this, that the master has a few qualified pupils, and is present at the operations of these few. He guides them in their work; he points out faulty methods; he advises and, perhaps, assists; and this he does in the presence of all his pupils.

As a matter of fact I doubt if the young surgeon would fear tuition in public, if such tuition were given honestly and courteously by a man whom he could look up to as a master. There is no method of education in handiwork that can surpass fair criticism of the work before compeers. The mere pointing out of faults calls attention to details which the average onlooker would fail to see. But criticism is not all fault-finding; it calls attention to excellences as well as defects. The pointing out and correcting of faults, and the praising and holding up for imitation of any special excellence in operating might well, to the advantage of all and the discomfort of a very few, form part of the routine education of the hospital operating theatre.

What would you or I or any surgeon amongst us not give to have a Liston or a Syme at our elbows to teach us? Who that really has his soul in his art could fail to welcome an opportunity for such tuition? And why should we not have it? There is no lack of capable teachers, and surely they could easily be induced to teach. I can conceive no finer

ending to a great surgeon's career than to devote it to the education in his art of the men who are to succeed him. He has handed over his legacy of science to all mankind; he has laid aside his own knife, but his art will survive him, for, in the band of pupils whom he has trained in their work, his legacy of art will be as enduring as his legacy of science.

Am I suggesting a return to something like the old apprenticeship? Well, what then? The art of surgery is no new thing. Probably as an art, pure and simple, it was more perfect in the apprenticeship days of fifty years ago than it is to-day. For then, before the days of anaesthesia, the highest art was not only a saving of life but a merciful saving of suffering. If we have lost this stimulus to perfecting ourselves in the art that pain to the patient gives, we have still the saving of life to urge us on, and that is an even greater stimulus. How a surgical artist like Robert Liston, the greatest probably the world has ever seen, trained as he was in the cruel and exacting school of pre-anaesthetic days, would have revelled in all our "otomies," "ectomies," and "ostomies" of to-day! To imagine Liston, trained in practice as he was, living amongst us now, and having before him the science we possess, is to realise my ideal of the surgeon-artist.

If we did have the old apprenticeship back amongst us it would be for surgery a something. It would be at least better than the nothing we have now. But I am not asking for the old apprenticeship; I am pleading for something higher. We speak of apprenticeship rather as to a trade; I am pleading for pupilage as if to a fine art. I am simply asking for the surgical high art what is freely and abundantly given to all other parts; personal teaching in actual work by competent masters.

I make no complaints, and I offer no accusations. British surgery needs no apology. I simply seek to give it one more push upwards. We have reached a high degree of excellence, but we may reach a higher, and one way to this is through personal tuition in the art. We start as physicians; we are educated in the technical arts of the physician at the bedside and under masters. We are likewise obstetricians; here, also, we have personal instruction in the actual doing of our work. But in surgery, nowadays, and in operative surgery alone amongst all arts and crafts, we have no genuine personal instruction. If, on this foundation, British surgery has reached the height it has, to what eminence might it not rise if we were careful that every young surgeon were trained in the highly technical and highly important practical art of operative surgery?

Detailed suggestions as to how this training might be carried out would be out of place on an occasion such as the present. This matters little; for, if you think as I do, the result will surely follow. But we must fight for our own right hands. We must expect no help from the State. The State, like Providence, helps those that help themselves. When we have shown that we need practical teaching in our art; when we have proved that we can provide it; when in fulfilment of those powers with which we have been legally endowed we have created in our teaching centres some working process of practical instruction, then we might ask for more. We might ask to be put on the level of the fine arts, and seek for a Royal Academy of Surgery, as we have royal academies of painting, sculpture, and music. To such an academy a school with teachers would be attached. The school would be a surgical hospital endowed with every known excellence of hygiene and nursing and appliances; the teachers would be those who are supreme in our art; the pupils men already qualified who seek for practice in the higher walks of surgery. Do you believe me that this would be good for surgery? Then let us work for it.

And now I have finished. I have spoken of our art solely from the practical point of view, as to how it may be improved in *technique*; that is, as to how it may confer most benefits on others. I have not referred to any ennobling of ourselves. Indeed, I have little belief in it. All arts tend to elevate; this, the ultimate criterion of true art everywhere, has no more truth for the surgical than of the painter's or any other art. In the highest flights of the imaginative faculties, the faculties that make poets, and inventors, and musicians, we do not stand very high. Yet a previous generation can point to a surgeon who practically founded a new

science; this generation can point to a surgeon whose purely surgical discoveries have created new laws for the preservation of health and the cure of disease. These are high aims, but they are not the highest. Our dealing is with the body; the painter, the poet, and the sculptor deal with the soul; their goal is higher than ours.

Art thrives on appreciation. There is no academy to bestow gold medals on the surgical artist, no crowds gather round to admire his finished work. In the finest and purest sense the surgeon's is an art of the home, almost of the fire-side; it does not appeal to the populace. The surgeon's highest reward is the moistened eye and tremulous grip of the hand which bespeak thankfulness for the breadwinner restored to the home, the mother to the children, the child to the parents. His science may be trumpeted far and wide; his art is known to his own small circle; it has little recognition beyond, and we let it die with him. The art of the surgeon has its best reward in blessings not in fame.

It has its punishments, too, for surgery is a terrible task-master. The punishment is not a mere heart-burning over the rejection of a picture by an academy; it is a heart-breaking over the losing of a life by our own work. Our worst punishments are self-inflicted; for every failure, even if incurred in the leading of a forlorn hope, means a personal criticism of a cruelty and thoroughness which no outer criticism can match; a criticism that condemns without chance of condonement, for our own conscience is judge. These things I hint at, but do not dwell upon. They are there, however, and their presence makes us better surgeons, and I trust better men.

More than 500 years ago Guy de Chauliac, the greatest of the surgeons of the Arabic period, wrote these words: "Knowledge is created by additions; the same man cannot lay the foundation and perfect the superstructure. We are as children carried on the neck of a giant; aided by the labours of our predecessors we see all that they have seen and something beyond." These words might have been my text. The burden of my theme has been to hold fast and care well for the old truths: in our love for the new science not to forget the old art. For in autumn the leaves fade and fall first from the youngest branches; they linger longest green on the old wood. Let us graft our new truths on the old stock; so will they live longest and flourish most.

INTRODUCTORY REMARKS

DELIVERED AT THE OPENING OF

THE SECTION OF MEDICINE.

At the Annual Meeting of the British Medical Association, held in Bristol, August, 1894.

By FREDERICK T. ROBERTS, M.D., F.R.C.P.,

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ON BREADTH OF VIEW IN MEDICINE.

THE distinction of being invited to fill the office of President of the Section of Medicine at this meeting of the British Medical Association is one for which I can truly say I was utterly unprepared, and which I humbly acknowledge is entirely undeserved, so far as regards any services rendered by me to the Association. I can only express my deep sense of the honour thus conferred upon me; my sincere gratitude for the friendly feelings which I know full well prompted the selection; and my earnest desire to prove myself worthy of the responsible position in which I have been placed. On the present occasion, I cannot avoid recalling a fact which probably will be of interest to all here, namely, that when I acted as Secretary to this Section at Manchester in 1877, the President was Sir William Jenner, whose great name still sheds lustre upon our profession; and among those who took an active part in the proceedings were Dr. Russell Reynolds, now the distinguished President of the Royal College of Physicians of London, as well as Sir (then Dr.) Andrew Clark, Dr. Wilson Fox, and Dr. Charcot, whose untimely death in the full possession of their remarkable powers we have to deplore, but whose names will ever stand out prominently among those of their contemporaries.